A

APPENDIX A

Public Participation Materials

Shishebogama & Gunlock Lakes Association

Management Planning Update Project
Planning Meeting
September 11, 2020

Brenton Butterfield
Onterra LLC
Lake Management Planning

Planning Meeting Agenda

- Lake Management Planning Update Project Overview
- Study Results
  - Water Quality
  - Watershed
  - Shoreland Condition
  - Aquatic Plants
- "Big Picture" Conclusions
- Review Original Management Goals & Update as Necessary

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Management Planning Update Project Overview

- 2012 Management Plan
- Current project designed to reassess lakes in 2019 & compare to 2009
- Collect & analyze data – completed
  - Technical & sociological
- Update & Construct long-term & useable plan

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Summary of Project Results

Water Quality
- Parameters measured in 2019 fell within *good* to *excellent* categories for both Wisconsin and LDF water quality standards
- Recent water clarity decline observed in Shishebogama Lake – likely due to increases in *dissolved organic matter*
- Phosphorus concentrations higher than predicted in Gunlock Lake (slightly higher than predicted in Shishebogama)
  - Evidence suggests *Internal Nutrient Loading* is the cause
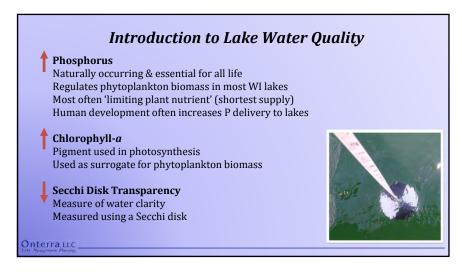
Watershed & Immediate Shoreline
- Watersheds are in overall good condition – primarily comprised of forests & wetlands
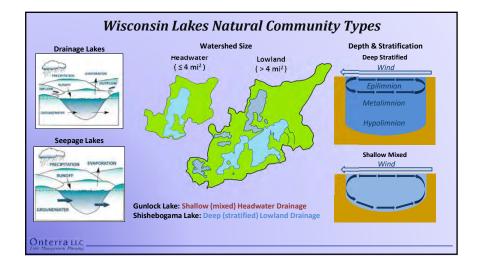- Majority of shoreland zone contains little to no development; but, there are areas for improvement
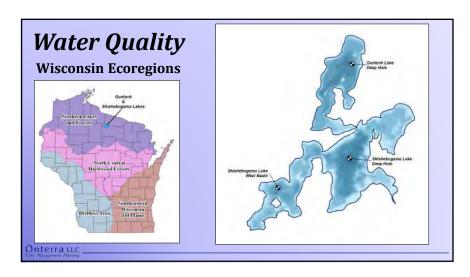
Aquatic Plant Communities
- Reduction in overall occurrence of aquatic plants when compared to 2009; likely due to combination of higher water levels & lower water clarity
- Native plant community still of exceptional quality
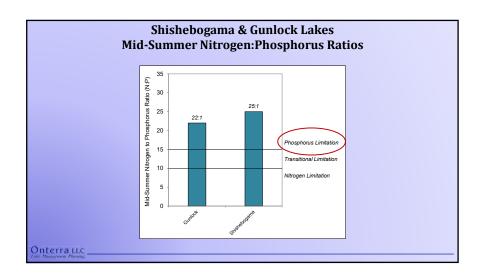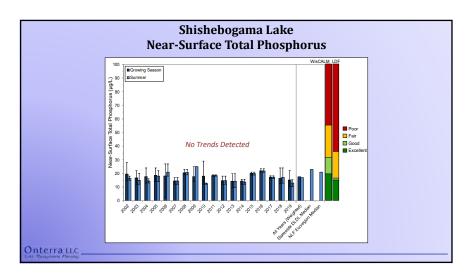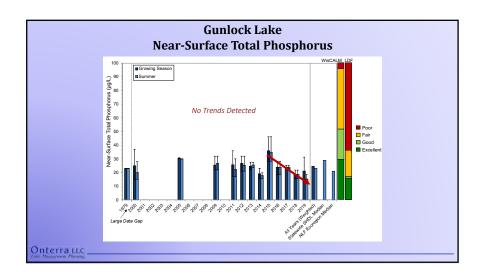- Non-native species located: pale-yellow iris, purple loosestrife, & narrow-leaved cattail

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Water Quality

Introduction to Lake Water Quality

Phosphorus
Naturally occurring & essential for all life
Regulates phytoplankton biomass in most WI lakes
Most often 'limiting plant nutrient' (shortest supply)
Human development often increases P delivery to lakes

Chlorophyll-*a*
Pigment used in photosynthesis
Used as surrogate for phytoplankton biomass

Secchi Disk Transparency
Measure of water clarity
Measured using a Secchi disk

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Wisconsin Lakes Natural Community Types

Drainage Lakes

Watershed Size
Headwater (≤ 4 mi²)
Lowland (> 4 mi²)

Depth & Stratification
Deep Stratified
Wind
Epilimnion
Metalimnion
Hypolimnion

Seepage Lakes

Shallow Mixed
Wind

Gunlock Lake: Shallow (mixed) Headwater Drainage
Shishebogama Lake: Deep (stratified) Lowland Drainage

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Water Quality

Wisconsin Ecoregions

Gunlock & Shishebogama Lakes

Northern Lakes and Forests

North Central Hardwood Forests

Southeastern Wisconsin Till Plains

Driftless Area

Gunlock Lake Deep Hole

Shishebogama Lake Deep Hole

Shishebogama Lake West Basin

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Shishebogama & Gunlock Lakes
Mid-Summer Nitrogen:Phosphorus Ratios

Shishebogama Lake
Near-Surface Total Phosphorus

Gunlock Lake
Near-Surface Total Phosphorus
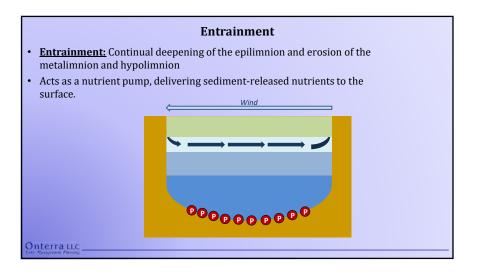

Phosphorus Modeling

- Measured phosphorus concentrations higher than model predictions
  - ~50% higher in Gunlock Lake
  - ~9% higher in Shishebogama
- Evidence suggest *internal phosphorus loading* is the cause
- Varies from year to year, but can elevate phosphorus concentrations markedly in Gunlock Lake
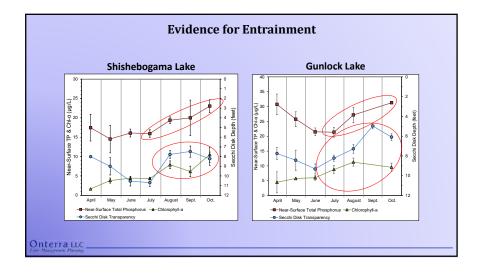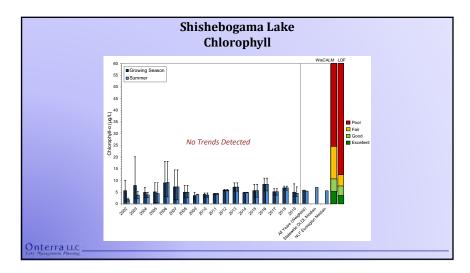
What is Internal Phosphorus Loading?
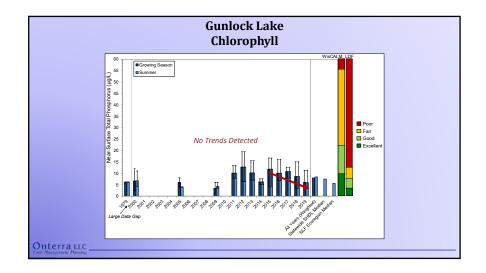
- In general, net movement of phosphorus to the sediment in lakes
- Under certain conditions, phosphorus (and other nutrients) get released from bottom sediments into the overlying water
- Anoxic (devoid of oxygen) conditions cause phosphorus release
- Becomes problematic if phosphorus is mobilized to surface in summer

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Entrainment

- **Entrainment:** Continual deepening of the epilimnion and erosion of the metalimnion and hypolimnion
- Acts as a nutrient pump, delivering sediment-released nutrients to the surface.

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Evidence for Entrainment

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Shishebogama Lake Chlorophyll

No Trends Detected

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Gunlock Lake
Chlorophyll

Shishebogama Lake: Deep Hole
Secchi Disk Depth

Shishebogama Lake: West Basin
Secchi Disk Depth

Gunlock Lake
Secchi Disk Depth

Shishebogama Lake
Water Quality Trends
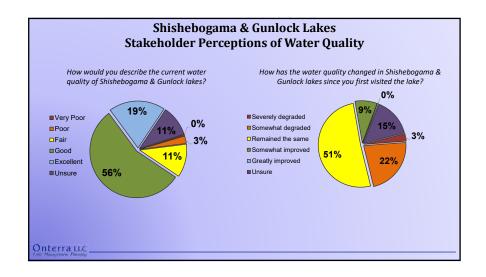
- Decreasing trend in water clarity since 2012
  - Occurring despite no measured increase in algae
  - Believed to be due to increase in Dissolved Organic Matter (DOM)
  - Higher precipitation causing increased DOM or 'lake browning' across North America

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Shishebogama & Gunlock Lakes
True Color Values

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Shishebogama Water Clarity vs Precipitation

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Shishebogama & Gunlock Lakes
Trophic State Index

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Shishebogama & Gunlock Lakes
Stakeholder Perceptions of Water Quality

How would you describe the current water quality of Shishebogama & Gunlock lakes?

- Very Poor
- Poor
- Fair
- Good
- Excellent
- Unsure

19%

0%

11%

3%

11%

56%

How has the water quality changed in Shishebogama & Gunlock lakes since you first visited the lake?

- Severely degraded
- Somewhat degraded
- Remained the same
- Somewhat improved
- Greatly improved
- Unsure

0%

9%

15%

3%

51%

22%

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Paleoecology

- Fossilized diatoms in sediment core used to determine if and how water quality has changed over ~150 years
- Diatom communities have changed since European settlement; Shishebogama Lake to a larger extent
- Likely due to increase in alkalinity as result of home/road construction and attempts at agriculture

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1937 Aerial Photo

Agricultural Fields

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Paleoecology

- Fossilized diatoms in sediment core used to determine if and how water quality has changed over ~150 years
- Diatom communities have changed since European settlement; Shishebogama Lake to a larger extent
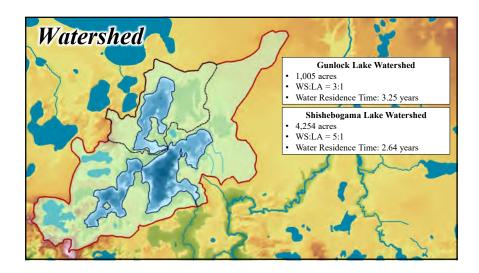- Likely due to increase in alkalinity as result of home/road construction and attempts at agriculture
- Nutrients in both lakes are relatively similar, but likely more aquatic plants at present

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Gunlock Watershed Phosphorus Loading

Annual Potential Phosphorus Load from Watershed: **123 pounds**

Predicted In-Lake Growing Season TP Concentration: **16.6 µg/L**

Measured In-Lake Growing Season TP Concentration: **24.7 µg/L**

Discrepancy indicates source of P not accounted for in the model

Additional ~100 pounds of P required to achieve measured concentration

Estimated total annual loading: **218 pounds/year**

Rural Residential 2 lbs 1%
Septic Systems 4 lbs 2%
Rural Open Space/Pasture/Grass 22 lbs 10%
Upland Forests 26 lbs 12%
Wetlands 26 lbs 12%
Gunlock Lake Surface 42 lbs 19%
Internal Load Estimate 95 lbs 44%

Shishebogama Watershed Phosphorus Loading

Annual Potential Phosphorus Load from Watershed: **466 pounds**

Predicted In-Lake Growing Season TP Concentration: **16.1 µg/L**

Measured In-Lake Growing Season TP Concentration: **17.6 µg/L**

Discrepancy indicates small source of P not accounted for in the model

Additional ~60 pounds of P required to achieve measured concentration

Estimated total annual loading: **526 pounds/year**

Internal Load Estimate 60 lbs 11%
Rural Residential 9 lbs 2%
Septic Systems 29 lbs 6%
Gunlock Lake Subwatershed 64 lbs 12%
Rural Open Space/Pasture/Grass 68 lbs 13%
Upland Forests 75 lbs 14%
Shishebogama Lake Surface 109 lbs 21%
Wetlands 112 lbs 21%

Shoreland Condition

Shoreline Assessment Category Descriptions

More Natural Habitat

Urbanized Developed-Unnatural Developed-Semi-Natural Developed-Natural Natural/Undeveloped

Greater Need for Restoration

Shoreland Condition

Coarse Woody Habitat

Shishebogama & Gunlock Lakes
Coarse Woody Habitat

Aquatic Plants

Aquatic Plant Surveys

- Assess both non-native & native species
- Three surveys completed in 2019
  - Early-Season AIS Survey
  - Whole-lake Point-Intercept Survey (Gunlock completed by LDF)
  - Emergent/Floating-leaf Community Mapping Survey
- Reduction in aquatic plant occurrence compared to 2009
- Likely due to higher water and reduced clarity in more recent years

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Plant Data Overview

- 63 native plant species recorded in Shishebogama
- 43 native plant species recorded in Gunlock
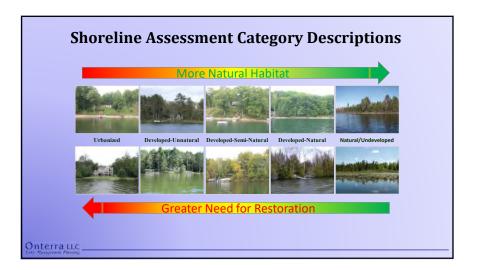- 3 non-native plant species recorded:
  - Pale-yellow iris
  - Purple loosestrife
  - Narrow-leaved cattail

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Whole-Lake Point-Intercept Surveys

Gunlock Lake
47-meter resolution
481 total points

Shishebogama Lake
54-meter resolution
967 total points

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Aquatic Plant Distribution 2019

Aquatic Plant Distribution 2019

Small Pondweed (*Potamogeton pusillus*)

Littoral Frequency of Occurrence: Shishebogama Lake

Littoral Frequency of Occurrence: Gunlock Lake

Floristic Quality Analysis: Shishebogama Lake

Floristic Quality Analysis: Gunlock Lake

Emergent & Floating-leaf Aquatic Plants

Emergent & Floating-leaf Aquatic Plants

Non-Native Plants

Purple Loosestrife

Narrow-leaved Cattail

Pale-yellow Iris

Stakeholder Survey Results

- 1,892 surveys distributed
- 272 returned (14% response rate)
- 19% indicated membership of LDF; 81% not affiliated

On which lake is your property located?

62% — Shishebogama Lake
20% — Gunlock Lake
18% — Off the lakes

Stakeholder Survey Results

Rank up to three activities on or near Shishebogama & Gunlock lakes that are important to you.

Please rank your top three concerns regarding Shishebogama & Gunlock lakes.

Stakeholder Survey Results

Which of these subjects would you like to learn more about?

Percentage of Respondents

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

- How changing water levels impact Shishebogama & Gunlock Lakes
- Aquatic invasive species impacts, means of transport, identification, control options, etc.
- How to be a good lake steward
- Enhancing in-lake habitat (not shoreland or adjacent wetlands) for aquatic species
- Social events occurring around Shishebogama & Gunlock Lakes
- Ecological benefits of shoreland restoration and preservation
- Watercraft operation regulations – lake specific, local and statewide
- Volunteer lake monitoring opportunities (Clean Boats Clean Waters, Citizens Lake Monitoring Network, etc.)
- Not interested in learning more on any of these subjects
- Other

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The Big Picture

Conclusions

- Overall, both lakes are very healthy with good to excellent water quality and high-quality native plant communities
- Internal phosphorus loading can cause elevated phosphorus & algae concentrations in late summer, particularly on Gunlock Lake
  - This does not occur every year (i.e., 2019)
- Reduction in aquatic plant abundance likely due to combination of higher water & lower water clarity (dissolved organic matter)
- No EWM or CLP located; credit to AIS prevention efforts
- Populations of wetland invasives small & manageable

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Thank You

Shishebogama & Gunlock Lakes, Oneida & Vilas Counties
Project Update
October 2019
Submitted by: Brenton Butterfield, Lake Ecologist, Onterra, LLC

With the help of a Lake Management Planning Grant totaling over $32,000 through the Wisconsin Department of Natural Resources, a project is underway to create an updated lake management plan for Shishebogama and Gunlock lakes. The lake management plan will contain historical and current data from the lake as well as provide guidance for its management by integrating stakeholder perceptions and goals with what is ecologically beneficial for the lakes. Onterra, LLC, a lake management planning firm out of De Pere and Madison, assisted the Shishebogama and Gunlock Lake Association, Inc. (SGLA) in applying for the grant and will guide them through the planning process.

Baseline studies were conducted in 2019 aimed at reassessing the health of these lakes. These baseline studies were aimed at evaluating the aquatic plant communities, water quality, watersheds, and the immediate shoreland zones of these lakes. In addition, perceptions of lake users will also be gathered through the distribution of a stakeholder survey. While all of the study results cannot be presented here, some of the highlights are discussed. As described further below, numerous field studies were carried out on Shishebogama and Gunlock lakes in 2019. A wealth of data were collected over the past 10 months, and analyses of these data are currently underway. This update intends to bring the SGLA up-to-speed on the scientific studies that have occurred, provide some initial observations on the ecology of these lakes, and provide a rough timeline for the remaining actions that will be taken as a part of this planning project.

Staff from Onterra and volunteers from the SGLA sampled water quality on each Shishebogama and Gunlock lakes a combination of five times from May through October 2019. Figure 1 displays summer 2019 (June-August) average values for Secchi disk depth (a measure of water clarity), total phosphorus (primary nutrient controlling algal growth), and chlorophyll-*a* (a measure of free-floating algal abundance). Also displayed are the long-term averages calculated using all available historical data going back to 1990, primarily collected by SGLA volunteers.
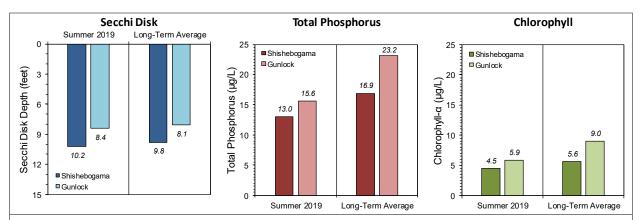
Figure 1. Average summer 2019 (June-August) and long-term summer average values for Secchi disk depth, total phosphorus, and chlorophyll-α in Shishebogama and Gunlock lakes. Data collected by both SGLA volunteers and Onterra ecologists.

Summer 2019 water clarity was above average in both lakes, with mean Secchi disk depths of 10.2 feet in Shishebogama Lake and 8.4 feet in Gunlock Lake. Summer near-surface total phosphorus and chlorophyll-*a* concentrations were below average in both lakes. Average 2019 values for all three of these water quality parameters are considered *excellent* for their respective lake type (Shishebogama – deep lowland drainage lake; Gunlock – deep headwater drainage lake). Onterra ecologists will continue to analyze water quality data from these lakes to look for potential anomalies and/or trends over time, as well as additional water quality parameters collected as part of this project. Preliminary examination of present water quality data indicates both lakes support exceptional water quality.

All aquatic plant surveys were conducted as scheduled in 2019. In July, Onterra ecologists completed the whole-lake point-intercept survey on Shishebogama Lake while staff from the Lac du Flambeau Band of Lake Superior Indians Natural Resources Department (LDF) completed the point-intercept survey on Gunlock Lake. The point-intercept survey is a grid-based survey designed to assess the aquatic plant communities of the lakes at a lake-wide level, and allows for comparisons to other lakes and within the same lake over time. The emergent and floating-leaf community mapping surveys were completed on both lakes by Onterra in August. The purpose of the aquatic plant community mapping survey is to map the floating-leaf (e.g., water lilies) and emergent species (e.g., cattails and bulrushes) that grow within the lake and are typically under-represented in the point-intercept survey.

The data collected in 2019 will allow lake managers to see if the abundance and/or distribution of plant species changed significantly over this 10-year period. The data from Shishebogama Lake are still undergoing analysis, and the LDF will provide the data from Gunlock Lake to Onterra for analysis in December. However, preliminary results from Shishebogama Lake indicate the lake still supports a diverse, high-quality native plant community with a number of relatively rare, sensitive species (Figure 2).
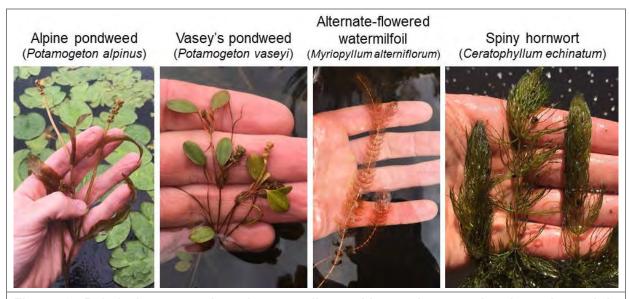
Figure 2. Relatively rare and environmentally-sensitive native aquatic plants located in Shishebogama Lake in 2019. Their presence indicates high-quality environmental conditions. Photo credit Onterra.

The non-native, invasive aquatic plants of Eurasian watermilfoil (*Myriophyllum spicatum*) and curly-leaf pondweed (*Potamogeton crispus*) **were not** located in Shishebogama or Gunlock lakes during the 2019 surveys, indicating the ongoing efforts being undertaken by the SGLA to prevent these and other invasive species from entering these lakes have been effective. However, Onterra ecologists did locate three non-native, invasive wetland plant species growing in isolated locations in shoreland areas during the 2019 surveys. These include narrow-leaf cattail (*Typha angustifolia;* Figure 3), pale-yellow iris (*Iris pseudacorus*), and purple loosestrife (*Lythrum salicaria*). A management strategy for these invasive wetland plants will be developed during next year's planning meeting.

In addition to the previously discussed water quality and aquatic plant community, Onterra ecologists are continuing to analyze data from Shishebogama and Gunlock lakes' watersheds, immediate shoreland zones, and sediment cores collected in 2019 to determine if and how water quality has changed in these lakes over the past 150 years. The final product

Figure 3. Onterra ecologist Brenton Butterfield standing among a colony of the invasive narrow-leaf cattail on the shores of Shishebogama Lake. Photo credit Onterra.

for this project will be an updated comprehensive management plan for Shishebogama and Gunlock lakes. That document will have two primary sections: 1) the results, discussion, and conclusions regarding the studies completed on these lakes along with the historical information that has been compiled, and 2) an implementation plan.

The implementation plan will not be a list of recommendations created by Onterra for the association, but it will be a plan based upon management goals with specific actions aimed at meeting those goals. Onterra's role is to facilitate the development of a realistic plan with the association. Onterra staff will be working with the SGLA Planning Committee to develop the draft management plan. A critical set of information for the development of the plan by the committee will be the results of the stakeholder survey. The survey is currently under development and should be distributed to lake property owners relatively soon. The survey results will be used during the planning process by the SGLA Planning Committee to assist in creating the lake management plan.

The SGLA Planning Committee will meet with Onterra staff, likely next spring or early summer, to learn about the lake and assemble a management plan aimed at protecting this important resource. It is important to remember that the resulting plan will be the SGLA's plan for managing Shishebogama and Gunlock lakes. The plan will include management goals and actions, not only for the lake, but likely also for the association with the intent of building the association's capacity to manage and protect the lake as needed. A full draft of the management plan will be ready for review by the Planning Committee ahead of next year's meeting.

B

APPENDIX B

Stakeholder Survey Response Charts and Comments
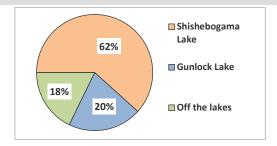
Shishebogama & Gunlock Lakes - Anonymous Stakeholder Survey

Surveys Distributed: 1892
Surveys Returned: 272
Response Rate: 14%

Shishebogama & Gunlock Lakes Property

1. On which lake is your property located?

Answer Options	Response Percent	Response Count
Shishebogama Lake	61.7%	156
Gunlock Lake	20.6%	52
Off the lakes	17.8%	45
answered question		253
skipped question		19

2. Do you own or lease your property?

Answer Options	Response Percent	Response Count
Lease	7.9%	19
Own	92.2%	223
answered question		242
skipped question		30

3. What is your affiliation with the Lac du Flambeau Indian Tribe?

Answer Options	Response Percent	Response Count
I am a member of the tribe	18.8%	47
I am not a member of the tribe	81.2%	203
answered question		250
skipped question		22

4. How is your property utilized?

Answer Options	Response Percent	Response Count
A year round residence	25.0%	62
Summer only residence (June - August)	2.4%	6
Seasonal residence (Longer than summer)	21.4%	53
Seasonal vacation home	34.7%	86
Resort property	0.8%	2
Rental property	0.8%	2
Undeveloped	3.6%	9
Tribal Treaty use	2.0%	5
Other	9.3%	23
answered question		248
skipped question		24
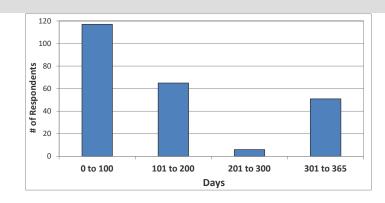
Number	"Other" responses
1	I don't live on the reservation.
2	I live out of state.
3	I live in Youngtown, AZ
4	Do not live there
5	do not live there
6	Year round vacation home
7	Our property is out of state year round
8	Year round weekend/vacation home
9	And also used by our family
10	Not sure
11	We use it all year long as our second home
12	2nd Home all year round
13	No long hold any land
14	A year round vacation home
15	NA
16	Live part time
17	Year Round vacation Home
18	Year round weekend and vacation home
19	Seasonal residence Mid May through September
20	currently year round, built for vacation home
21	Seasonal residence used by various family members - year around
22	Vacation home throughout the year (winter as well)
23	Any chance we get, more than 50%

5. How many days each year is your property used by you or others?

	Response Count
answered question	239
skipped question	33
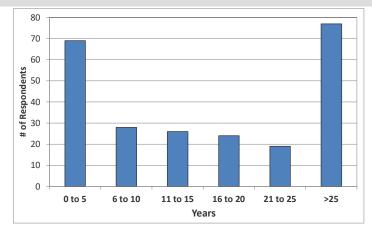
Category (# of days)	Responses	% Response
0 to 100	117	49%
101 to 200	65	27%
201 to 300	6	3%
301 to 365	51	21%

6. How long have you owned or leased your property on or near Shishebogama and Gunlock Lakes?
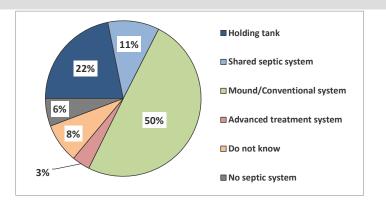
Answer Options	Response Count
	243
answered question	243
skipped question	29

Category (# of years)	Responses	% Response
0 to 5	69	28%
6 to 10	28	12%
11 to 15	26	11%
16 to 20	24	10%
21 to 25	19	8%
>25	77	32%
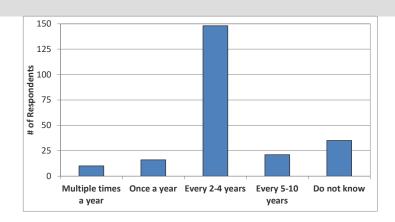
7. What type of septic system does your property utilize?

Answer Options	Response Percent	Response Count
Holding tank	21.8%	53
Shared septic system	10.7%	26
Mound/Conventional system	49.8%	121
Advanced treatment system	3.7%	9
Do not know	8.2%	20
No septic system	5.8%	14
answered question		243
skipped question		29
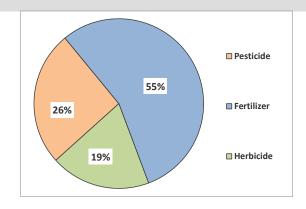
8. How often is the septic system on your property pumped?

Answer Options	Response Percent	Response Count
Multiple times a year	4.4%	10
Once a year	7.0%	16
Every 2-4 years	64.4%	148
Every 5-10 years	9.1%	21
Do not know	15.2%	35
answered question		230
skipped question		42
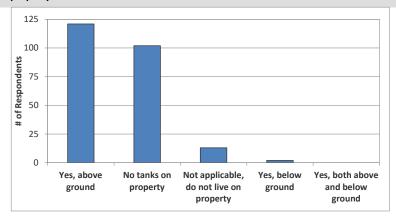
9. Have you used pesticide, fertilizer and/or herbicides on your property?

Answer Options	Response Percent	Response Count
Pesticide	25.7%	27
Fertilizer	55.2%	58
Herbicide	19.0%	20
answered question		85
skipped question		187
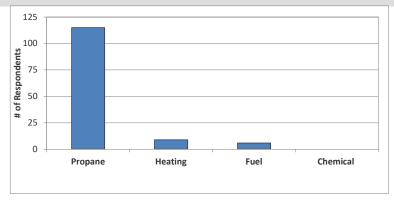
10. Is there a tank(s) containing heating oil, propane, fuel, or chemicals on your property?

Answer Options	Response Percent	Response Count
Yes, above ground	50.8%	121
No tanks on property	42.9%	102
Not applicable, do not live on property	5.5%	13
Yes, below ground	0.8%	2
Yes, both above and below ground	0.0%	0
answered question		238
skipped question		34

11. If there are tank(s) (heating oil, propane, fuel, chemical) on your property, what are the content(s)?

Answer Options	Response Percent	Response Count
Propane	94.3%	115
Heating	7.4%	9
Fuel	4.9%	6
Chemical	0.0%	0
answered question		122
skipped question		150
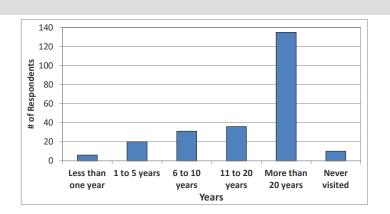
Recreational Activity on Shishebogama and Gunlock Lakes

12. How many years ago did you first visit Shishebogama and Gunlock Lakes?

Answer Options	Response Count
answered question	238
skipped question	34

Category (# of days)	Responses	% Response
Less than one year	6	3%
1 to 5 years	20	8%
6 to 10 years	31	13%
11 to 20 years	36	15%
More than 20 years	135	57%
Never visited	10	4%
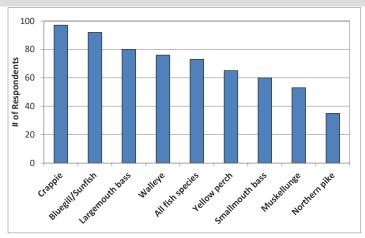
13. Have you personally fished on Shishebogama and/or Gunlock Lakes in the past 3 years?

Answer Options	Response Percent	Response Count
Shishebogama	14.4%	34
Gunlock	4.7%	11
Both lakes	60.6%	143
Neither lake	20.3%	48
answered question		236
skipped question		36
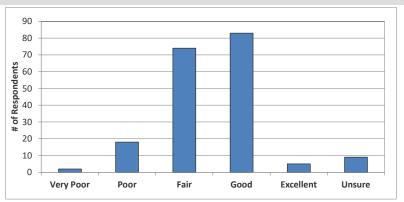
14. What species of fish do you like to catch on Shishebogama and Gunlock Lakes?

Answer Options	Response Percent	Response Count
Crappie	50.5%	97
Bluegill/Sunfish	47.9%	92
Largemouth bass	41.7%	80
Walleye	39.6%	76
All fish species	38.0%	73
Yellow perch	33.9%	65
Smallmouth bass	31.3%	60
Muskellunge	27.6%	53
Northern pike	18.2%	35
Other	0.0%	0
	answered question	192
	skipped question	80
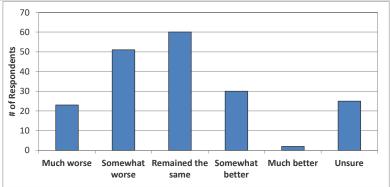
15. How would you describe the current quality of fishing on Shishebogama and Gunlock Lakes?

Answer Options	Very Poor	Poor	Fair	Good	Excellent	Unsure	Response Count
	2	18	74	83	5	9	191
						answered question	191
						skipped question	81
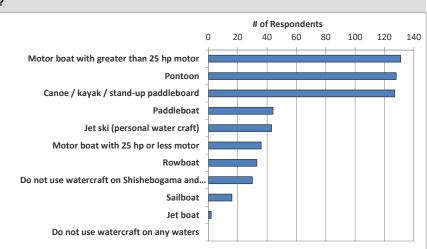
16. How has the quality of fishing changed on Shishebogama and Gunlock Lakes since you have started fishing the lake?

Answer Options	Much worse	Somewhat worse	Remained the same	Somewhat better	Much better	Unsure	Response Count
	23	51	60	30	2	25	91
						answered question	**91**
						skipped question	**81**

17. What types of watercraft do you currently use on Shishebogama and Gunlock Lakes?

Answer Options	Response Percent	Response Count
Motor boat with greater than 25 hp motor	55.0%	131
Pontoon	53.8%	128
Canoe / kayak / stand-up paddleboard	53.4%	127
Paddleboat	18.5%	44
Jet ski (personal water craft)	18.1%	43
Motor boat with 25 hp or less motor	15.1%	36
Rowboat	13.9%	33
Do not use watercraft on Shishebogama and Gunlock Lakes	12.6%	30
Sailboat	6.7%	16
Jet boat	0.8%	2
Do not use watercraft on any waters	0.0%	0
answered question		**238**
skipped question		**34**
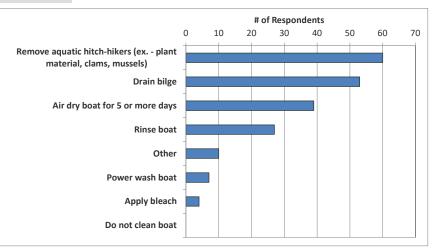
18. Do you use your watercraft on waters other than Shishebogama and Gunlock Lakes?

Answer Options	Response Percent	Response Count
Yes	31.2%	72
No	68.8%	159
	answered question	231
	skipped question	41

19. What is your typical cleaning routine after using your watercraft on waters other than Shishebogama and Gunlock Lakes?

Answer Options	Response Percent	Response Count
Remove aquatic hitch-hikers (ex. - plant material, clams, mussels)	80.0%	60
Drain bilge	70.7%	53
Air dry boat for 5 or more days	52.0%	39
Rinse boat	36.0%	27
Other		10
Power wash boat	9.3%	7
Apply bleach	5.3%	4
Do not clean boat	0.0%	0
	answered question	75
	skipped question	197

Number	"Other" responses
1	Boat is stored above h2o on a Shorestation bunk
2	don't use watercraft on other lakes
3	DO NOT TAKE BOATS TO ANY OTHER LAKES
4	I only kayak on other waters.
5	drain water from prop area
6	only used on lake shish
7	Boat is used solely on another lake
8	Very Careful between lake to lake process!
9	use special cleaners for boat
10	Dry off with towels immediately after removal at boat landing
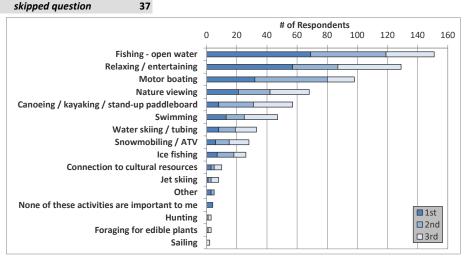
20. Please rank up to three activities on or near Shishebogama and Gunlock Lakes that are important to you.

Answer Options	1st	2nd	3rd	Rating Average	Response Count
Fishing - open water	69	50	32	1.75	151
Relaxing / entertaining	57	30	42	1.88	129
Motor boating	32	48	18	1.86	98
Nature viewing	21	21	26	2.07	68
Canoeing / kayaking / stand-up paddleboard	8	23	26	2.32	57
Swimming	13	12	22	2.19	47
Water skiing / tubing	8	11	14	2.18	33
Snowmobiling / ATV	6	9	13	2.25	28
Ice fishing	7	11	8	2.04	26
Connection to cultural resources	3	2	5	2.2	10
Jet skiing	1	2	5	2.5	8
Other	3	2	0	1.4	5
None of these activities are important to me	4	0	0	1	4
Hunting	0	1	2	2.67	3
Foraging for edible plants	0	1	2	2.67	3
Sailing	0	0	2	3	2
				answered question	235
				skipped question	37

Number	"Other" responses
1	I live in Youngtown, AZ
2	do not live in area
3	A,B,C,D,E,F,G,H,I,L,M,N
4	canoing
5	Mountain Biking
6	Dont live in area
7	Snowmobiling would be 4th
8	Canoeing
9	Cabin repair
10	is "pontooning" considered "motorboating"?
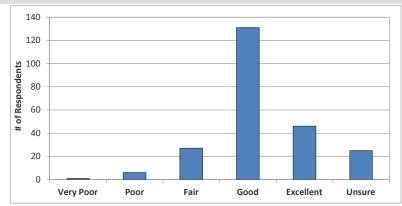
Shishebogama and Gunlock Lakes Current and Historic Condition, Health and Management

21. How would you describe the current water quality of Shishebogama and Gunlock Lakes?
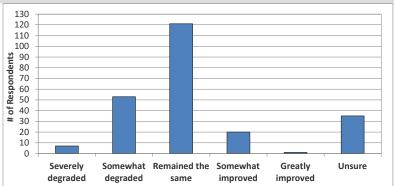
Answer Options	Very Poor	Poor	Fair	Good	Excellent	Unsure	Response Count
	1	6	27	131	46	25	236
					answered question		236
					skipped question		36

22. How has the water quality changed in Shishebogama and Gunlock Lakes since you first visited the lake?

Answer Options	Severely degraded	Somewhat degraded	Remained the same	Somewhat improved	Greatly improved	Unsure	Response Count
	7	53	121	20	1	35	237
					answered question		237
					skipped question		35

23. Considering how you answered the questions above, what do you think of when describing water quality?

Answer Options	Response Percent	Response Count
Water clarity (clearness of water)	89.3%	208
Aquatic plant growth (not including algae blooms)	62.7%	146
Water color	44.6%	104
Algae blooms	36.9%	86
Smell	24.9%	58
Water level	30.9%	72
Fish health	44.6%	104
Watershed health	20.2%	47
Other	3.9%	9
	answered question	**233**
	skipped question	**39**

Number	"Other" responses
1	do not live in area
2	Not too weedy
3	The absence of blooms and smell
4	Invasive snails, other potential invertebrates, aquatic plants
5	Water quality is related to water health, includes clarity PH etc.; correct plants, healthy fish.
6	Leeches
7	Animal life health: Loon, frog, turtle, eagle, fish
8	All of the above
9	when water is high tannons are present, Gunlock is a lake i would not live on with the algea bloom since we have been on shish- over 25 years

24. Based on your answer above, which of the following would you say is the single most important aspect when considering water quality?

Answer Options	Response Percent	Response Count
Water clarity (clearness of water)	50.2%	118
Aquatic plant growth (not including algae blooms)	20.9%	49
Water color	0.9%	2
Algae blooms	3.4%	8
Smell	0.4%	1
Water level	3.0%	7
Fish health	12.8%	30
Watershed health	6.8%	16
Other	1.7%	4
answered question		235
skipped question		37

Number	"Other" responses
1	do not live in area
2	Clarity-Smell and Health fish are the best determining factors
3	All of the above
4	High water

25. Before reading the statement above, had you ever heard of aquatic invasive species?
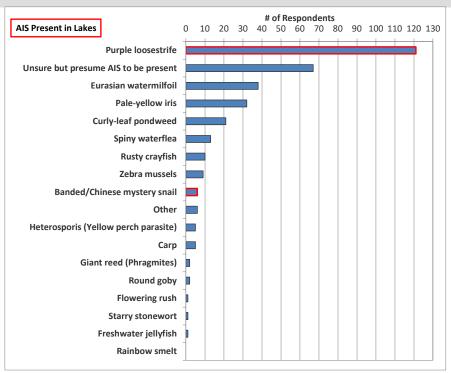
Answer Options	Response Percent	Response Count
Yes	95.8%	227
No	4.2%	10
answered question		237
skipped question		35

26. Do you believe aquatic invasive species are present within Shishebogama and Gunlock Lakes?

Answer Options	Response Percent	Response Count
Yes	51.8%	116
I think so but am not certain	38.0%	85
No	10.3%	23
answered question		224
skipped question		48

27. Which aquatic invasive species do you believe are in Shishebogama and Gunlock Lakes?
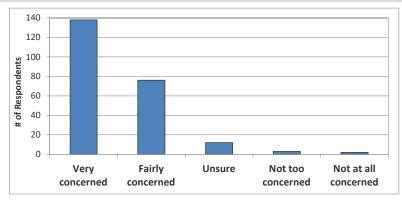
Answer Options	Response Percent	Response Count
Purple loosestrife	61.4%	121
Unsure but presume AIS to be present	34.0%	67
Eurasian watermilfoil	19.3%	38
Pale-yellow iris	16.2%	32
Curly-leaf pondweed	10.7%	21
Spiny waterflea	6.6%	13
Rusty crayfish	5.1%	10
Zebra mussels	4.6%	9
Banded/Chinese mystery snail	3.1%	6
Other	3.1%	6
Heterosporis (Yellow perch parasite)	2.5%	5
Carp	2.5%	5
Giant reed (Phragmites)	1.0%	2
Round goby	1.0%	2
Flowering rush	0.5%	1
Starry stonewort	0.5%	1
Freshwater jellyfish	0.5%	1
Rainbow smelt	0.0%	0
answered question		197
skipped question		75

Number	"Other" responses
1	not sure
2	There may be more, I am not up on all the species.
3	YELLOW IRIS
4	can't recall but saw news letter regarding
5	Purple loosestrife and likely others
6	Narrow leaf Cattail

28. How concerned, if at all, are you about aquatic invasive plants becoming established within Shishebogama and Gunlock Lakes?
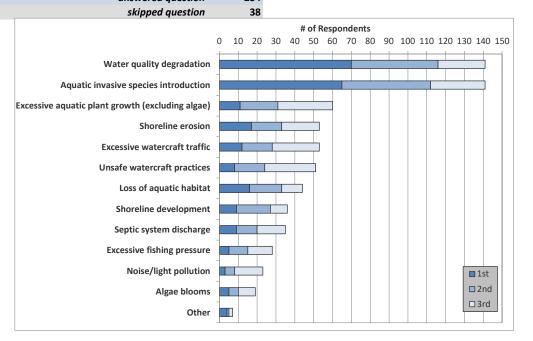
Answer Options	Very concerned	Fairly concerned	Unsure	Not too concerned	Not at all concerned	Response Count
	138	76	12	3	2	231
					answered question	**231**
					skipped question	**41**

29. From the list below, please rank your top three concerns regarding Shishebogama and Gunlock Lakes, with the 1st being your greatest concern.

Answer Options	1st	2nd	3rd	Response Count
Water quality degradation	70	46	25	141
Aquatic invasive species introduction	65	47	29	141
Excessive aquatic plant growth (excluding algae)	11	20	29	60
Shoreline erosion	17	16	20	53
Excessive watercraft traffic	12	16	25	53
Unsafe watercraft practices	8	16	27	51
Loss of aquatic habitat	16	17	11	44
Shoreline development	9	18	9	36
Septic system discharge	9	11	15	35
Excessive fishing pressure	5	10	13	28
Noise/light pollution	3	5	15	23
Algae blooms	5	5	9	19
Other	4	1	2	7
		answered question		**234**
		skipped question		**38**

Number	"Other" responses
1	pollution
2	do not use lakes
3	1ST
4	Fertilized lawns with no buffer zone
5	Too many jet skis going too fast at all times
6	Too many WAVE boats-shoreline erosion!
7	Since Jet skis arrived, along with the numerous high powered boat movers, the shoreline has degraded, it is no longer sloped but a steep drop due to the erosion of the sanding constant slapping of waves on what used to be the beach.
8	Excessive boat traffic eroding our shoreline
9	Also concerned about watercraft coming to close to docks
10	Water level
11	LACK OF BUFFER ZONE AT LAKESHORE
12	too many assocation rules #1, over fishing #2
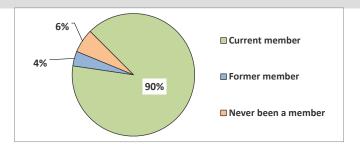
Shishebogama and Gunlock Lake Association

30. Before receiving this mailing, had you ever heard of the SGLA?

Answer Options	Response Percent	Response Count
Yes	88.9%	209
No	11.1%	26
answered question		**235**
skipped question		**37**

31. What is your membership status with the SGLA?
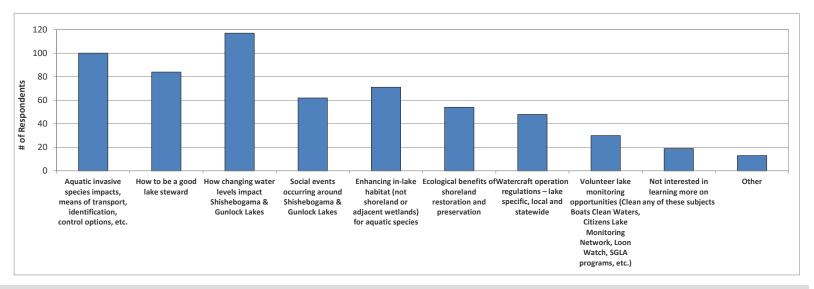
Answer Options	Response Percent	Response Count
Current member	89.9%	186
Former member	3.9%	8
Never been a member	6.3%	13
answered question		**207**
skipped question		**65**

32. Stakeholder education is an important component of every lake management planning effort. Which of these subjects would you like to learn more about?
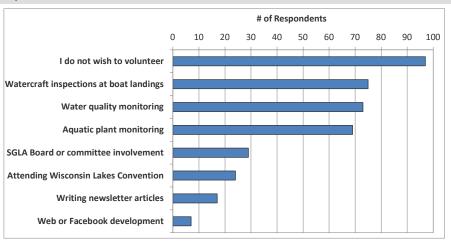
Answer Options	Response Percent	Response Count
Aquatic invasive species impacts, means of transport, identification, control options, etc.	49.8%	100
How to be a good lake steward	41.8%	84
How changing water levels impact Shishebogama & Gunlock Lakes	58.2%	117
Social events occurring around Shishebogama & Gunlock Lakes	30.9%	62
Enhancing in-lake habitat (not shoreland or adjacent wetlands) for aquatic species	35.3%	71
Ecological benefits of shoreland restoration and preservation	26.9%	54
Watercraft operation regulations – lake specific, local and statewide	23.9%	48
Volunteer lake monitoring opportunities (Clean Boats Clean Waters, Citizens Lake Monitoring Network, Loon Watch, SGLA programs, etc.)	14.9%	30
Not interested in learning more on any of these subjects	9.5%	19
Other	6.5%	13
answered question		**201**
skipped question		**71**

Number	"Other" responses
1	Very old septic systems and drywell
2	Monitoring septic systems, we know that many have never been cleaned. Weeds
3	How to CHANGE the current watercraft operation regs
4	Understanding tribal principles.
5	I have all the materials regarding clean lakes
6	Shoreline construction and maintenance allowances
7	As a member, feel well informed.
8	Placement of Fish beds!
9	preventing shoreline alteration; e.g. boathouse construction
10	Unsure
11	How to reduce weed and algae growth & what is acceptable levels for a healthy lake specific to my area on South Bay
12	My son, Adam, is a recent college grad who majored in environmental Biology and is currently a trained micro-biologist who comes to our place frequently. He is the kind o
13	Options for dredging the channel

33. Please note that because this survey is anonymous, your answer to this question will not be regarded as a commitment to participate, but instead will be used to gauge potential participation of stakeholders in the SGLA.The effective management of Shishebogama and Gunlock Lakes will require the cooperative efforts of numerous volunteers. Please circle the activities you would be willing to participate in if the SGLA requires additional assistance.

Answer Options	Response Percent	Response Count
I do not wish to volunteer	43.1%	97
Watercraft inspections at boat landings	33.3%	75
Water quality monitoring	32.4%	73
Aquatic plant monitoring	30.7%	69
SGLA Board or committee involvement	12.9%	29
Attending Wisconsin Lakes Convention	10.7%	24
Writing newsletter articles	7.6%	17
Web or Facebook development	3.1%	7
answered question		225
skipped question		47

34. Would you like to learn more about the Lac du Flambeau Tribe culture and its cultural use of area natural resources?

Answer Options	Response Percent	Response Count
Yes	62.1%	141
No	37.9%	86
answered question		227
skipped question		45

35. Please feel free to provide written comments concerning Shishebogama and Gunlock Lakes, its current and/or historic condition and its management.

Answer Options	Response Count
	96
answered question	96
skipped question	176

Number	Response Text
1	No more development
2	The concern that i have would be continued shoreline development and habitat lost associated with it. I would like to see the once wild rice bed on these lakes, even though they weren't substantial rice beds, they are important to the over all quality of the ecosystem and water quality.
3	No comment.
4	I trust that the powers that be (including God) will do whats best for these lakes.
5	none at this time
6	Every individual has a different opinion of what makes a great lake. Some of us want calm & relaxing, quiet fishing, calm for pontooning, space to water ski or less boat traffic so one can swim. In fact many of us want all of those things, but at different times depending whether we have more family up for the week or what is going on at the time.
7	SGLA is a great organization. They are top notch in lake management. I've loved the area my whole life and moved here to be closer. I care very strongly about any endeavor that involves lake activities.
8	7. New conventional septic 29. 1st- K 2nd - K 3rd- K I have two major concerns. Homes built in the 1950's or 1960's with no set back from the lake and low lying what type of septic system do they have? Are they possibly introducing sewage into our lake. I have been on both lakes since 1984 and there have always been reeds but these past two years we are losing our reeds. I hope you can answer my questions, I would appreciate an answer. Thank you
9	I was very educated by your resource letter.
10	7. Septic SystemThanks for taking the time to prepare this survey. It's appreciated.
11	7. Single Family Septic System Our family purchased the property in 1943 & we bought it from them in 1978. We have seen much development in that time.

12	I am concerned about the weeds. Every day I can pick up weeds that have been cut from boats, jet ski, and skiers. We need to get them cut shorter or something so they are not on shore everyday.
13	We came to own and love 8840 Hartman Rd in 1940. We still hope to spend 3 months there this year. Thanks to you SCLA for your untiring work for the good of our lakes.
14	The lake end of the boat landing needs much work, its been that way for years.
15	Please continue to do the best science-based management with concern for the health of the watershed as a whole your main priority as it does not stop at the shore. Thank you for focusing on making these lakes a wonderful place to be!
16	As a bass fisherman, I am concerned with the increasing musky population on our lakes and the decreasing bass population. I used to catch a bass approximately 1 out of every 25 or so casts, now it's more like 1 out of 100 or worse. I would like to see the bass population increase!
17	Thank you for the time, efforts, care and concern extended to the betterment of our lakes!
18	Very much appreciate the work of the SGLA board and committees. Also appreciate our relationship with the tribe. It warms my heart to see the two groups working together to preserve and enhance our lakes.
19	would like to see more walleye in the lakes
20	Pleased with SGLA activities/participation, want to see them continue
21	We feel the use of bigger and more power boats are contributing to shoreline erosion, especially with the high water levels. Examples are the wake and surf boats generating large wake.
22	Kudos to all the people who make SGLA successful.
23	Why, especially with the current high water levels, are there no restrictions on wake? And, why aren't there more reasonable hours for fishing without other watercraft disruption?
24	We very much appreciate the ongoing efforts to effectively manage and improve the quality of the lakes and the surrounding areas.
25	We feel the lake association has and continues to do an excellent service for the two lakes and the property owners on the lake. Very much appreciate the individuals who volunteer there time and effort for the SGLA
26	We appreciate all the efforts of the board that has created a very strong Lake Association. Ours is the envy to many other lake associations.
27	Is there a fish biologist in the group? why do the fish grow so slow? is the fish population balanced? why is lake so cloudy? what is meant by prestine lake? Are amphibians counted? does dnr patrol? what about shoreline cleanups? Is this needed. biological measuring of water quality.....polluted with micro organisms. Enough.
28	Maintenance and fertilization of a lawn without a buffer zone is the proven, number one way to destroy water quality. Proven by the decline of southern WI lakes. Yet our association does not address the issue. Weed growth on the north end of Gunlock, compared to 30 years ago, is worse by a factor of 10. Many properties there have manicured grass lawns right down to the water's edge, fertilized and watered. Our association and the tribe need to address this issue.
29	The proliferation of overpowered pleasure boats utilizing the lakes, along with the historically high water levels, has made it extremely difficult to prevent shoreline erosion.
30	We need more stocking of musky and better management of the panfish
31	We greatly appreciate the Lake Association leadership and all that they do. Very organized with what's best for the lakes as their priority.
32	limit times boats and all watercraft can enter the lakes so there is always a volunteer to moniter there watercraft
33	We are very grateful to Pat Hayes and the board for their dedication to maintaining and improving our lake experience.
34	limiting boat HP for all lakes on the reservation
35	I am in favor of what the Lake Association is doing. I am a lake monitor on another lake and I am a tribal member. I am concerned about all our waterways. Miigwech.
36	Have not been on the lake long enough.
37	I am new to the this lake, so I don't have a lot of insight yet. Previous owner was very much an advocate of the SGLA. I hope to be a positive influence on the lake quality.
38	We would like to learn more about what natural plants and grasses that are helpful to plant on shoreline.

39	Wish we were there (hopefully will be when it's safe to travel again). They are a precious treasure and we want to do all we can to protect them.
40	Many thanks to those who are involved with the SGLA! Your dedication to our area's precious resources is appreciated.
41	Thanks for all you do!
42	Thank you for all of your hard work to take care of a resource many of us love and enjoy!
43	Limit size of boats on lake. No large speed boats Pontoons Row boats only
44	I commend the efforts of the Tribe and SGLA to work together on behalf of our reservations lakes.
45	Thanks to the association for doing a great job!
46	Fishing is not as good as years past in the lakes - I am familiar with fishing back in the 1970's. Lake traffic is becoming burdensome - especially large ski boats and wave runners. People also blare loud music. I feel the times that people are allowed to be on the lake in large boats and jet skis needs to be adhered to more - people do not pay attention to those rules and/or maybe those rules need to be stricter. Thanks.
47	Please continue to monitor the bust landings for invasive species on boats and continue your lake sweeps to check for invasive species as well. Thanks!
48	As shoreline development continues, there is less habitat for native waterfowl, more Canada Geese, less Blue Heron, less Common Mergansers. More Purple Loosestrife. More, larger, louder and faster watercraft of all types. Two, three or more boat lifts on each property. More shoreline parties on Tribal properties as people try to find their space. Less solitude and peacefulness. More lawns going to the shore without buffers, increasing nutrients for aquatic plants. More garbage floating up onto shorelines. The continuous sounds of human activity--leaf blowers, lawn mowers, construction equipment , loudspeakers. Unfortunately the lakes have become human playgrounds; I fear there is little in our power to escape the inexorable property development, and increase of human activity. It would be nice if the DNR could mandate and enforce more stringent shoreline development regulation. It is so sad to see native trees and flora removed for new homes or to create a "better view." The ridiculous construction of huge storage sheds speaks to the number of "toys" people feel the need to have for their pleasure. The native species have less habitat all the time, and will be driven to lower numbers, being replaced by more tolerant species such as Canada Geese. Overall, there is an unstoppable trend of human infringement on the natural environment, both locally and globally, and we are all, in our desire to enjoy nature, changing it forever. None of us, regardless of age, is able to look back 20 years, and say we are better off now as a result of our "loving the lakes". We commend the efforts of the Lake Association. The Association is an essential organization to lead this effort. This survey is essential for you to identify and prioritize these threatening trends. Hopefully in collaboration with Tribal agencies and the DNR, strategies may arise which adopt regulation and enforcement, continued educational activities, and policy to promote cooperation among our neighbors, which may together slow the adverse effects of human activity to preserve our natural environment for the enjoyment of all.
49	Shish was a very good, balanced fishery for SM bass, in particular, musky and perch/walley until the DNR STUPIDLY stocked largemouth bass. They're OUT of control. Don't know if there's anything to be done, but it was THE dumbest thing EVER done by anyone in the 40 years we've been on Shish. Don't know what can be done now, but we wonder if it's contributed negatively to other aspects of the lake. Thank you for doing this survey! :-)
50	We have owned a vacation home on Gunlock lake for 9 years and believe the association is doing a fantastic job. Keep up the great work and thanks for everything you do!
51	Concerned about growing numbers of musky and reduced numbers of pan fish. This also brings greater number of guides and other fishermen putting more pressure on lakes.
52	Would like more stable water levels. Outlet blockages removed downstream if they exist. Would like more effective enforcement of power boat/water skiing hours. Many people violating at night skiing at sunset
53	I believe the association and it's leaders do a fabulous job. Keep up the good work!
54	I am very impressed with the Lake Assn! They are on top of everything and keep the residents well informed. They give me a good sense that they are truly good stewards of the lake
55	Would love to go back as if I actually live on the reservation.
56	Thank you to everyone who is/has volunteered to keep our lakes a wonderful place, a harbor for wildlife & birds and trying to keep things as natural as possible!
57	I want to be clear that I value tribal culture and it's heritage in the area. I'm just not ready for opportunities to learn more about it at this time. Also, volunteering with the lake association is something I have in mind for that time when I'm retired and able to enjoy our place there more often and for longer periods of time. We greatly appreciate the efforts of those who are currently volunteering with the lake association. Thank you.

58	Would like lake monitored more by the DNR because of unsafe boating practices such as coming to close to piers & other boats. Times should be set for water skiing to allow equal time for fishermen.
59	The environment is changing and it is very important for technology to be up to date with preserving LDF's resources which means stop cutting down the trees also.
60	Govern the over abundance of WAVE boats. We are very pleased with the active participation of the SGLA.
61	The lake vehicles should be restricted to low velocity motors to help preserve the beaches.
62	The SGLA board and is doing excellent job of managing the lakes. Proud to be a part of your lake association.
63	Board and committee chairs do an excellent job and have made a significant positive impact on our lakes
64	The lake association is doing a terrific job and our lake experience has been improved because of it. Please keep up the great work. Thanks for all your hard work and stewardship of the lakes.
65	Thank you to the SGLA and your volunteer hours!!
66	My family has been on Shishebogama since 1957, and I have seen it become overgrown with aquatic plants to the point my outboard motor has stalled out, and the fishery go from pike/musky/perch to stunted bass and sunfish. It has also become overrun by careless jet ski owners who have little regard for their sales or the safety of boaters/swimmers. I specifically exclude water skiers from this group as they routinely follow good practice. I fear the shoreline being overdeveloped to the point that it looks like a suburban pond.
67	We have a very committed & informative SGLA board. We enjoy the communication of the newsletter 7 Bob's continued emails to us on anything that is for sale, inquiries on items for sale, or any urgent matter that needs to get communicated to us members. Keep up the great work!!
68	I believe our association officers and board have done an outstanding job over the years. I'm very appreciative of their time and effort.
69	Water levels remain high out streams could be more useful
70	We find it difficult to catch fish. We know they are there but can you provide any tips/suggestions on how to improve catching them. Location, depth, time of day, bait, etc. Or anything else that would make that activity more successful. Thanks...
71	How to reduce the spreading weed and algae growth & what is acceptable levels for a healthy lake specific to my area on South Bay.
72	We're new to the lake and have heard alot of good things about its' quality
73	Is there is possibility of "no wake" on the lake when water levels get too high?
74	Kepp up with the great work.
75	The lake level has been extremely high for the past 3 years. The level needs to be lowered.
76	Continue the good work!
77	Weekend pontoon parking with participants pulling out aquatic plants on the shore to establish beaches, holding continuous parties from AM until after dark,with loud, progressively inebriated and or inconsiderate crowds have dramatically changed Shish during the summer months. This and the intense weekend motor traffic have altered the character of the lake from a natural resource to that of an urban water park for most of the summer.
78	The SGLA does a very good job in managing the lake quality, fish condition and invasive species. We would like the SGLA to assess the impact of the increased number of jet skis, speed boats on the lake and its impact on shoreline erosion. We would also like the SGLA to assess the impact of excessive firework use on the wildlife habitat and water quality as some are used during the winter and then the debris left on the ice and the impact of these fireworks on water fowl including nesting loons
79	would like to see less bright shoreline lights at nite and mercury vapor lights or downward shielding of them,make poontooners aware that it is illegal to drive with docking lights on,they are blinding to boaters and there green and red running lights are not visible
80	THE LAKES ASSOCIATION DOES A GOOD JOB OF KEEPING US INFORMED.
81	Great lake association...glad it is in place and doing what it has been doing
82	Hats off to the SGLA board.
83	Love the SGLA. A good number of people do many wonderful things.

84 Not being a consistent resident, volunteering would be difficult. Possibly in the future.

85 any factual history of the lakes would be of great value.

86 Question regulating wake boats.How has 5 pan fish...gills..over 7" been doing to change size?

87 all zoning management is to be done by the county or LDF zoning depts.- the SGLA should not be involved, I am harassed and threatened when using the boat landing " that I could be given a ticket if we don't comply with weed removal(which we do at home so not to block the busy gunlock landing, I do not appreciate the "volunteers" and their attitudes- specifically the nasty women. I will not break rules, but do not need an association to govern an ungovernable waterway. I do think a courtesy notice should be sent to all property owners of the "rules" of the lake, boating hours, etc, but we do not all agree on the rules- or many do not abide by them. the association cannot enforce the "rules" as they are not a governing body.

88 When we first moved in (2011) bluegill fishing was much better and the fish were larger. More recently, bluegill size has been limited but crappie fishing has improved.

89 Keep up the good work!!

90 We remain impressed with the SGLA organization's sophistication and level of commitment to our lakes system. Keep up the great work!

91 Thank you to the SGLA and the LDF Tribal Council for your efforts to protect both Shish & Gunlock lakes. It is much appreciated!

92 I'm new to the lake and hope to learn more as we spend more time in the area.

93 Regarding question # 16; the Musky fishing has definitely improved, panfishing is very good, not so much for walleye fishing (even with the increased stocking).

94 Though we don't know everything you do, we are very happy with the work that SGLA does. From monitoring the health of our lakes, working to protect them from invasive species and improving fishing. Fun social activities have helped us get to know our lake neighbors. Thank you for all you do.

95 SGLA association has done a great job

96 Both the Association, Tribal Water Resources and Fisheries are doing an outstanding job in support of our lakes.

2020 SGLA Stakeholder Survey Responses

Shishebogama and Gunlock Lakes - Anonymous Stakeholder Survey

Surveys Distributed: 359
Surveys Returned: 209
Response Rate: 58.2%

Shishebogama and Gunlock Lakes Property

1. On which lake is your property located?

Answer Options	Response Percent	Response Count
Shishebogama Lake	74.6%	153
Gunlock Lake	23.4%	48
Off the lakes	2.0%	4
answered question		205
skipped question		4

2. Do you own or lease your property?

Answer Options	Response Percent	Response Count
Lease	4.4%	9
Own	95.6%	194
answered question		203
skipped question		6

3. What is your affiliation with the Lac du Flambeau Indian Tribe?

Answer Options	Response Percent	Response Count
I am a member of the tribe	0.0%	0
I am not a member of the tribe	100.0%	203
answered question		203
skipped question		6

4. How is your property utilized?
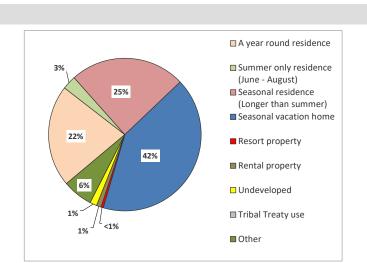
Answer Options	Response Percent	Response Count
A year round residence	21.6%	44
Summer only residence (June - August)	2.9%	6
Seasonal residence (Longer than summer)	24.5%	50
Seasonal vacation home	41.7%	85
Resort property	0.5%	1
Rental property	1.0%	2
Undeveloped	1.5%	3
Tribal Treaty use	0.0%	0
Other	6.4%	13
answered question		204
skipped question		5

Number	Other (please specify)
1	Year round vacation home
2	Year round weekend/vacation home
3	And also used by our family
4	We use it all year long as our second home
5	2nd Home all year round
6	A year round vacation home
7	Year Round vacation Home
8	Year round weekend and vacation home
9	Seasonal residence Mid May through September
10	currently year round, built for vacation home
11	Seasonal residence used by various family members - year around
12	Vacation home throughout the year (winter as well)
13	Any chance we get, more than 50%
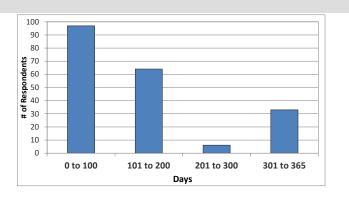
5. How many days each year is your property used by you or others?
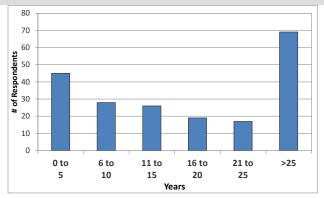
Answer Options	Response Count
	200
answered question	200
skipped question	9

Category (# of days)	Responses	
0 to 100	97	49%
101 to 200	64	32%
201 to 300	6	3%
301 to 365	33	17%

6. How long have you owned or leased your property on or near Shishebogama and Gunlock Lakes?
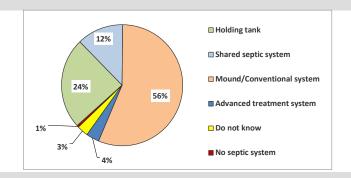
Answer Options	Response Count
	204
answered question	204
skipped question	5

Category (# of years)	Responses	% Response
0 to 5	45	22%
6 to 10	28	14%
11 to 15	26	13%
16 to 20	19	9%
21 to 25	17	8%
>25	69	34%
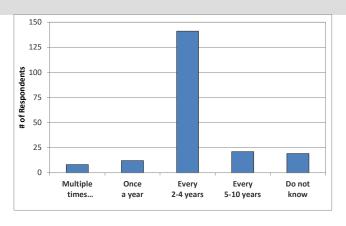
7. What type of septic system does your property utilize?

Answer Options	Response Percent	Response Count
Holding tank	24.4%	49
Shared septic system	12.4%	25
Mound/Conventional system	56.2%	113
Advanced treatment system	3.5%	7
Do not know	3.0%	6
No septic system	0.5%	1
answered question		201
skipped question		8
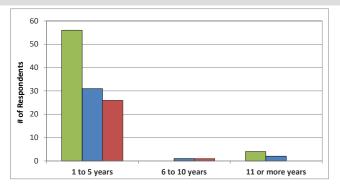
8. How often is the septic system on your property pumped?

Answer Options	Response Percent	Response Count
Multiple times a year	4.0%	8
Once a year	6.0%	12
Every 2-4 years	70.2%	141
Every 5-10 years	10.5%	21
Do not know	9.5%	19
answered question		201
skipped question		8
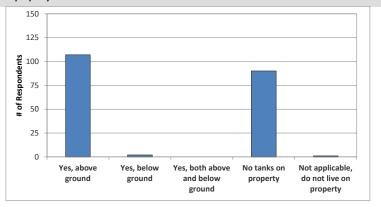
9. Have you used pesticide, fertilizer and/or herbicides on your property? If so, please enter the number of years ago you used each.

Answer Options	Response Count Pesticide	Response Count Fertilizer	Response Count Herbicide
1 to 5 years	31	56	26
6 to 10 years	1	0	1
11 or more years	2	4	0
answered question			201
skipped question			8
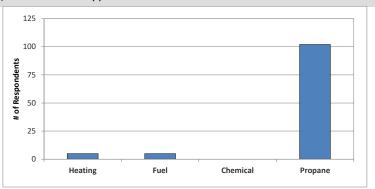
10. Is there a tank(s) containing heating oil, propane, fuel, or chemicals on your property?

Answer Options	Response Percent	Response Count
Yes, above ground	53.5%	107
Yes, below ground	1.0%	2
Yes, both above and below ground	0.0%	0
No tanks on property	45.0%	90
Not applicable, do not live on property	0.5%	1
answered question		200
skipped question		9

11. If there are tank(s) (heating oil, propane, fuel, chemical) on your property, what are the content(s)?
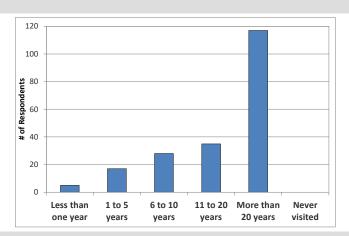
Answer Options	Response Percent	Response Count
Heating	4.6%	5
Fuel	4.6%	5
Chemical	0.0%	0
Propane	94.4%	102
answered question		108
skipped question		101

Recreational Activity on Shishebogama and Gunlock Lakes

12. How many years ago did you first visit Shishebogama and Gunlock Lakes?

Answer Options	Response Percent	Response Count
Less than one year	2.5%	5
1 to 5 years	8.4%	17
6 to 10 years	13.9%	28
11 to 20 years	17.3%	35
More than 20 years	57.9%	117
Never visited	0.0%	0
answered question		202
skipped question		7
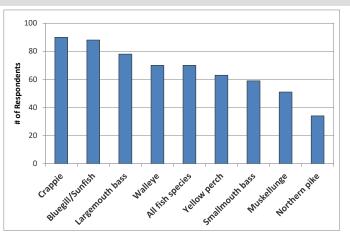
13. Have you personally fished on Shishebogama and/or Gunlock Lakes in the past 3 years?

Answer Options	Response Percent	Response Count
Shishebogama	17.0%	34
Gunlock	5.0%	10
Both lakes	67.5%	135
Neither lake	10.5%	21
answered question		200
skipped question		9
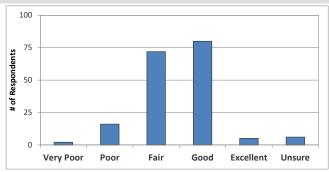
14. What species of fish do you like to catch on Shishebogama and Gunlock Lakes?

Answer Options	Response Percent	Response Count
Crappie	49.2%	90
Bluegill/Sunfish	48.1%	88
Largemouth bass	42.6%	78
Walleye	38.3%	70
All fish species	38.3%	70
Yellow perch	34.4%	63
Smallmouth bass	32.2%	59
Muskellunge	27.9%	51
Northern pike	18.6%	34
Other	0.0%	0
	answered question	183
	skipped question	26
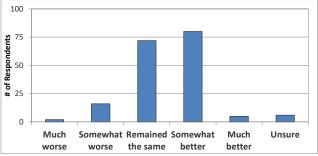
15. How would you describe the current quality of fishing on Shishebogama and Gunlock Lakes?

Answer Options	Very Poor	Poor	Fair	Good	Excellent	Unsure	Response Count
	2	16	72	80	5	6	181
					answered question		181
					skipped question		28

16. How has the quality of fishing changed on Shishebogama and Gunlock Lakes since you have started fishing the lake?
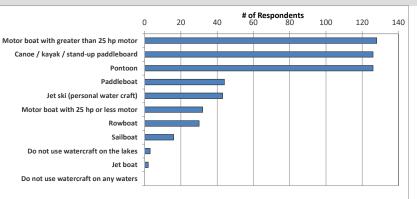
Answer Options	Much worse	Somewhat worse	Remained the same	Somewhat better	Much better	Unsure	Response Count
	2	16	72	80	5	6	181
					answered question		181
					skipped question		28

17. What types of watercraft do you currently use on Shishebogama and Gunlock Lakes?

Answer Options	Response Percent	Response Count
Motor boat with greater than 25 hp motor	63.4%	128
Canoe / kayak / stand-up paddleboard	62.4%	126
Pontoon	62.4%	126
Paddleboat	21.8%	44
Jet ski (personal water craft)	21.3%	43
Motor boat with 25 hp or less motor	15.8%	32
Rowboat	14.9%	30
Sailboat	7.9%	16
Do not use watercraft on the lakes	1.5%	3
Jet boat	1.0%	2
Do not use watercraft on any waters	0.0%	0
answered question		202
skipped question		7

18. Do you use your watercraft on waters other than Shishebogama and Gunlock Lakes?

Answer Options	Response Percent	Response Count
Yes	28.6%	57
No	71.4%	142
Other	0.0%	0
answered question		199
skipped question		10

19. What is your typical cleaning routine after using your watercraft on waters other than Shishebogama and Gunlock Lakes?
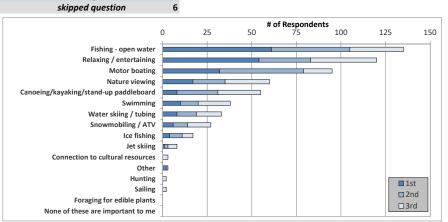
Answer Options	Response Percent	Response Count
Remove aquatic hitch-hikers (ex. - plant material, clams, mussels)	87.7%	50
Drain bilge	80.7%	46
Rinse boat	42.1%	24
Power wash boat	12.3%	7
Apply bleach	5.3%	3
Air dry boat for 5 or more days	56.1%	32
Do not clean boat	0.0%	0
Other		9
answered question		57
skipped question		152

Number	Other (please specify)
1	Boat is stored above h2o on a Shorestation bunk
2	don't use watercraft on other lakes
3	DO NOT TAKE BOATS TO ANY OTHER LAKES
4	I only kayak on other waters.
5	drain water from prop area
6	only used on lake shish
7	Very Careful between lake to lake process!
8	use special cleaners for boat
9	Dry off with towels immediately after removal at boat landing

20. Please rank up to three activities on or near Shishebogama and Gunlock Lakes that are important to you.

Answer Options	1st	2nd	3rd	Rating Average	Response Count
Fishing - open water	61	44	30	1.77	135
Relaxing / entertaining	54	29	37	1.86	120
Motor boating	32	47	16	1.83	95
Nature viewing	17	18	25	2.13	60
Canoeing/kayaking/stand-up paddleboard	8	23	24	2.29	55
Swimming	10	10	18	2.21	38
Water skiing / tubing	8	11	14	2.18	33
Snowmobiling / ATV	6	8	13	2.26	27
Ice fishing	4	7	6	2.12	17
Jet skiing	1	2	5	2.5	8
Connection to cultural resources	0	0	3	3	3
Other	2	1	0	1.33	3
Hunting	0	0	2	3	2
Sailing	0	0	2	3	2
Foraging for edible plants	0	0	0	0	0
None of these are important to me	0	0	0	0	0
				answered question	**203**
				skipped question	**6**
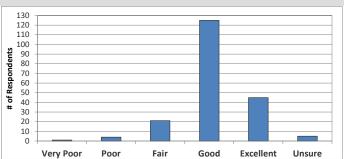
Number	"Other" responses
1	canoing
2	Mountain Biking
3	Snowmobiling would be 4th
4	Canoeing
5	Cabin repair
6	is "pontooning" considered "motorboating"?

Shishebogama and Gunlock Lakes Current and Historic Condition, Health and Management

21. How would you describe the current water quality of Shishebogama and Gunlock Lakes?
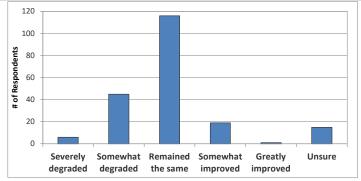
Answer Options	Very Poor	Poor	Fair	Good	Excellent	Unsure	Response Count
	1	4	21	125	45	5	201
					answered question		**201**
					skipped question		**8**

22. How has the water quality changed in Shishebogama and Gunlock Lakes since you first visited the lake?

Answer Options	Severely degraded	Somewhat degraded	Remained the same	Somewhat improved	Greatly improved	Unsure	Response Count
	6	45	116	19	1	15	202
					answered question		202
					skipped question		7

23. Considering how you answered the questions above, what do you think of when describing water quality?

Answer Options	Response Percent	Response Count
Water clarity (clearness of water)	91.1%	184
Aquatic plant growth (not including algae blooms)	63.4%	128
Water color	45.1%	91
Algae blooms	37.1%	75
Smell	23.3%	47
Water level	31.2%	63
Fish health	43.1%	87
Watershed health	17.3%	35
Other	3.0%	6
	answered question	202
	skipped question	7

Number	"Other" responses
1	Not too weedy
2	The absence of blooms and smell
3	Invasive snails, other potential invertebrates, aquatic plants
4	Water quality is related to water health, includes clarity PH etc.; correct plants, healthy fish.
5	Animal life health: Loon, frog, turtle, eagle, fish
6	when water is high tannons are present, Gunlock is a lake i would not live on with the algea bloom since we have been on shish- over 25 years

24. Based on your answer above, which of the following would you say is the single most important aspect when considering water quality?

Answer Options	Response Percent	Response Count
Water clarity (clearness of water)	54.2%	110
Aquatic plant growth (not including algae blooms)	22.2%	45
Water color	0.5%	1
Algae blooms	3.9%	8
Smell	0.5%	1
Water level	3.0%	6
Fish health	9.9%	20
Watershed health	4.9%	10
Other	1.0%	2
	answered question	203
	skipped question	6
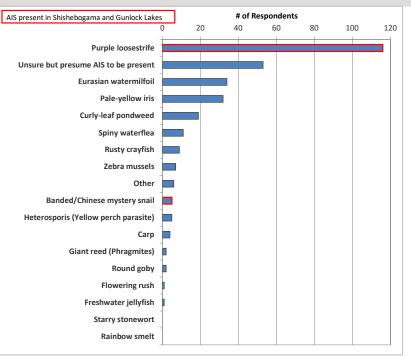
Number	"Other" responses
1	Clarity-Smell and Health fish are the best determining factors
2	High water

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

Answer Options	Response Percent	Response Count
Yes	99.0%	201
No	1.0%	2
answered question		203
skipped question		6

26. Do you believe aquatic invasive species are present within Shishebogama and Gunlock Lakes?

Answer Options	Response Percent	Response Count
Yes	54.8%	109
I think so but am not certain	34.2%	68
No	11.1%	22
answered question		199
skipped question		10

27. Which aquatic invasive species do you believe are in Shishebogama and Gunlock Lakes?

Answer Options	Response Percent	Response Count
Purple loosestrife	65.9%	116
Unsure but presume AIS to be present	30.1%	53
Eurasian watermilfoil	19.3%	34
Pale-yellow iris	18.2%	32
Curly-leaf pondweed	10.8%	19
Spiny waterflea	6.3%	11
Rusty crayfish	5.1%	9
Zebra mussels	4.0%	7
Other	3.4%	6
Banded/Chinese mystery snail	2.8%	5
Heterosporis (Yellow perch parasite)	2.8%	5
Carp	2.3%	4
Giant reed (Phragmites)	1.1%	2
Round goby	1.1%	2
Flowering rush	0.6%	1
Freshwater jellyfish	0.6%	1
Starry stonewort	0.0%	0
Rainbow smelt	0.0%	0
answered question		**176**
skipped question		**33**
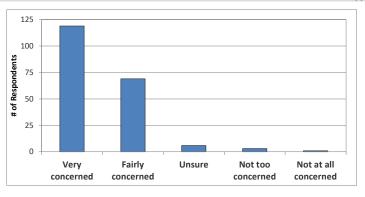
Number	"Other" responses
1	not sure
2	There may be more, I am not up on all the species.
3	YELLOW IRIS
4	can't recall but saw news letter regarding
5	Purple loosestrife and likely others
6	Narrow leaf Cattail

28. How concerned, if at all, are you about aquatic invasive plants becoming established within Shishebogama and Gunlock Lakes?
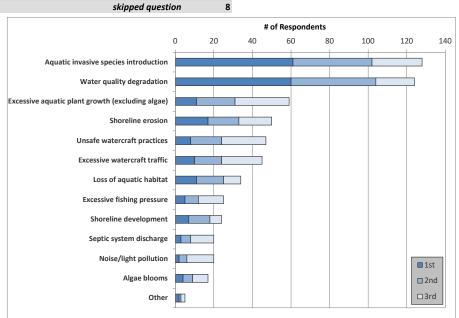
Answer Options	Very concerned	Fairly concerned	Unsure	Not too concerned	Not at all concerned	Response Count
	119	69	6	3	1	198
answered question						**198**
skipped question						**11**

29. From the list below, please rank your top three concerns regarding Shishebogama and Gunlock Lakes, with the 1st being your greatest concern.

Answer Options	1st	2nd	3rd	Response Count
Aquatic invasive species introduction	61	41	26	128
Water quality degradation	60	44	20	124
Excessive aquatic plant growth (excluding algae)	11	20	28	59
Shoreline erosion	17	16	17	50
Unsafe watercraft practices	8	16	23	47
Excessive watercraft traffic	10	14	21	45
Loss of aquatic habitat	11	14	9	34
Excessive fishing pressure	5	7	13	25
Shoreline development	7	11	6	24
Septic system discharge	3	5	12	20
Noise/light pollution	2	4	14	20
Algae blooms	4	5	8	17
Other	2	1	2	5
		answered question		201
		skipped question		8

Number	"Other" responses
1	Fertilized lawns with no buffer zone
2	Too many jet skis going too fast at all times
3	Too many WAVE boats-shoreline erosion!
4	Since Jet skis arrived, along with the numerous high powered boat movers, the shoreline has degraded, it is no longer sloped but a steep drop due to the erosion of the sanding constant slapping of waves on what used to be
5	Excessive boat traffic eroding our shoreline
6	Also concerned about watercraft coming to close to docks
7	Water level
8	LACK OF BUFFER ZONE AT LAKESHORE
9	too many assocation rules #1, over fishing #2

# of Respondents

Shishebogama and Gunlock Lakes Association (SGLA)
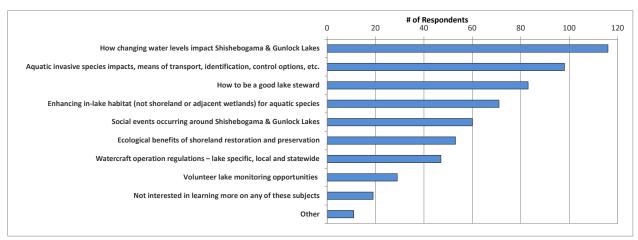
30. Before receiving this mailing, had you ever heard of the SGLA?

Answer Options	Response Percent	Response Count
Yes	99.0%	199
No	1.0%	2
answered question		199
skipped question		2

31. What is your membership status with the SGLA?

Answer Options	Response Percent	Response Count
Current member	93.4%	185
Former member	3.5%	7
Never been a member	3.0%	6
answered question		198
skipped question		11

32. Stakeholder education is an important component of every lake management planning effort. Which of these subjects would you like to learn more about?

Answer Options	Response Percent	Response Count
How changing water levels impact Shishebogama & Gunlock Lakes	60.1%	116
Aquatic invasive species impacts, means of transport, identification, control options, etc.	50.8%	98
How to be a good lake steward	43.0%	83
Enhancing in-lake habitat (not shoreland or adjacent wetlands) for aquatic species	36.8%	71
Social events occurring around Shishebogama & Gunlock Lakes	31.1%	60
Ecological benefits of shoreland restoration and preservation	27.5%	53
Watercraft operation regulations – lake specific, local and statewide	24.4%	47
Volunteer lake monitoring opportunities (Clean Boats Clean Waters, Citizens Lake Monitoring Network, Loon Watch, SGLA programs, etc.)	15.0%	29
Not interested in learning more on any of these subjects	9.8%	19
Other	5.7%	11
	answered question	**193**
	skipped question	**16**
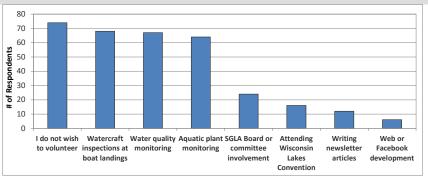
Number	Other (please specify)
1	Very old septic systems and drywell
2	Monitoring septic systems, we know that many have never been cleaned. Weeds
3	How to CHANGE the current watercraft operation regs
4	Understanding tribal principles.
5	Shoreline construction and maintenance allowances
6	As a member, feel well informed.
7	Placement of Fish beds!
8	preventing shoreline alteration; e.g. boathouse construction
9	How to reduce weed and algae growth & what is acceptable levels for a healthy lake specific to my area on South Bay
10	My son, Adam, is a recent college grad who majored in environmental Biology and is currently a trained micro-biologist who comes to our place frequently. He is the kind of person you need to help with projects for one: he is young and energenic and is always telling me things about the lake that I have absolutely no knowledge of with the types of problems you mentioned above, and 2, new young people with ideas to compliment the older people on the committee
11	Options for dredging the channel

33. The effective management of Shishebogama and Gunlock Lakes will require the cooperative efforts of numerous volunteers. Please select the activities you would be willing to participate in if the SGLA requires additional assistance.

Answer Options	Response Percent	Response Count
I do not wish to volunteer	38.5%	74
Watercraft inspections at boat landings	35.4%	68
Water quality monitoring	34.9%	67
Aquatic plant monitoring	33.3%	64
SGLA Board or committee involvement	12.5%	24
Attending Wisconsin Lakes Convention	8.3%	16
Writing newsletter articles	6.3%	12
Web or Facebook development	3.1%	6
answered question		192
skipped question		17

34. Would you like to learn more about the Lac du Flambeau Tribe culture and its cultural use of area natural resources?

Answer Options	Response Percent	Response Count
Yes	60.0%	117
No	40.0%	78
answered question		195
skipped question		14

35. Please feel free to provide written comments concerning Shishebogama and Gunlock Lakes, its current and/or historic condition and its management.

Answer Options	Response Count
	83
answered question	83
skipped question	126

Number	Response Text
1	Every individual has a different opinion of what makes a great lake. Some of us want calm & relaxing, quiet fishing, calm for pontooning, space to water ski or less boat traffic so one can swim. In fact many of us want all of those things, but at different times depending whether we have more family up for the week or what is going on at the time. More than anything I would like to see a little more respect and/or empathy for the other guy. It would be nice for people to realize or at least have an awareness that there are other people who have different interests than they have at any given time on the lake. With this awareness one can still enjoy their individual activity and yet respect that if they are waterskiing or pontooning perhaps they would be more careful around the guy in the rowboat who is fishing. It's very much a common sense thing that seems to be lacking these days. There are some basic guidelines for hours of waterskiing, also guidelines (in fact I thought there were actually some laws) for how far to swim away from the dock or another boat you should be whether you're on skis or driving a speed boat ect. but too few think or even care about those guidelines. Respect or thoughtfulness is apparently outdated. Perhaps some discussion or reminders about the rules of the water way would be helpful. It's common sense that a speed boat should yield to a pontoon or a kayak. But not everyone knows these basic rules or cares to follow them. At least I choose to believe there is a lack of understanding rather than just a lack of concern for anyone but myself. Is there anything we can do to make that better? Any information that could be distributed even though I realize that individuals still have to read the information. Some of these issues were not so obvious 25-30 years ago. But as our lake properties have developed and the size of the boats and motors has increased as well as the number of toys we all have available we seem to have lost interest in the "other" guy. I am fully aware that this is a time bomb ticking an issue that is easier to ignore rather than address, but I wish we could see a little more consideration for each other. You asked for my thoughts and as frivolous as these concerns may be - these are my thoughts.
2	SGLA is a great organization. They are top notch in lake management. I've loved the area my whole life and moved here to be closer. I care very strongly about any endeavor that involves lake activities. What percentage of SGLA members is in relationship to the total # of lake property owners. Those who are not members benefit from those who are.
3	7. New conventional septic 29. 1st- K 2nd - K 3rd- K I have two major concerns. Homes built in the 1950's or 1960's with no set back from the lake and low lying what type of septic system do they have? Are they possibly introducing sewage into our lake. I have been on both lakes since 1984 and there have always been reeds but these past two years we are losing our reeds. I hope you can answer my questions, I would appreciate an answer. Thank you
4	7. Septic SystemThanks for taking the time to prepare this survey. It's appreciated.
5	7. Single Family Septic System Our family purchased the property in 1943 & we bought it from them in 1978. We have seen much development in that time. Our trust in SGLA to protect all of our interests.
6	I am concerned about the weeds. Every day I can pick up weeds that have been cut from boats, jet ski, and skiers. We need to get them cut shorter or something so they are not on shore everyday.
7	We came to own and love #### Hartman Rd in 1940. We still hope to spend 3 months there this year. Thanks to you SCLA for your untiring work for the good of our lakes.
8	The lake end of the boat landing needs much work, its been that way for years.
9	As a bass fisherman, I am concerned with the increasing musky population on our lakes and the decreasing bass population. I used to catch a bass approximately 1 out of every 25 or so casts, now it's more like 1 out of 100 or worse. I would like to see the bass population increase!
10	Thank you for the time, efforts, care and concern extended to the betterment of our lakes!
11	Very much appreciate the work of the SGLA board and committees. Also appreciate our relationship with the tribe. It warms my heart to see the two groups working together to preserve and enhance our lakes.
12	would like to see more walleye in the lakes
13	Pleased with SGLA activities/participation, want to see them continue

14	We feel the use of bigger and more power boats are contributing to shoreline erosion, especially with the high water levels. Examples are the wake and surf boats generating large wake.
15	Kudos to all the people who make SGLA successful.
16	Why, especially with the current high water levels, are there no restrictions on wake? And, why aren't there more reasonable hours for fishing without other watercraft disruption?
17	We very much appreciate the ongoing efforts to effectively manage and improve the quality of the lakes and the surrounding areas.
18	We feel the lake association has and continues to do an excellent service for the two lakes and the property owners on the lake. Very much appreciate the individuals who volunteer there time and effort for the SGLA
19	We appreciate all the efforts of the board that has created a very strong Lake Association. Ours is the envy to many other lake associations.
20	Is there a fish biologist in the group? why do the fish grow so slow? is the fish population balanced? why is lake so cloudy? what is meant by prestine lake? Are amphibians counted? does dnr patrol? what about shoreline cleanups? Is this needed biological measuring of water quality.....polluted with micro organisms.Enough.
21	Maintenance and fertilization of a lawn without a buffer zone is the proven, number one way to destroy water quality. Proven by the decline of southern WI lakes. Yet our association does not address the issue. Weed growth on the north end of Gunlock, compared to 30 years ago, is worse by a factor of 10. Many properties there have manicured grass lawns right down to the water's edge, fertilized and watered. Our association and the tribe need to address this issue.
22	The proliferation of overpowered pleasure boats utilizing the lakes, along with the historically high water levels, has made it extremely difficult to prevent shoreline erosion.
23	We need more stocking of musky and better management of the panfish
24	We greatly appreciate the Lake Association leadership and all that they do. Very organized with what's best for the lakes as their priority.
25	limit times boats and all watercraft can enter the lakes so there is always a volunteer to moniter there watercraft
26	We are very grateful to Pat Hayes and the board for their dedication to maintaining and improving our lake experience.
27	Have not been on the lake long enough.
28	I am new to the this lake, so I don't have a lot of insight yet. Previous owner was very much an advocate of the SGLA. I hope to be a positive influence on the lake quality.
29	We would like to learn more about what natural plants and grasses that are helpful to plant on shoreline.
30	Wish we were there (hopefully will be when it's safe to travel again). They are a precious treasure and we want to do all we can to protect them.
31	Many thanks to those who are involved with the SGLA! Your dedication to our area's precious resources is appreciated.
32	Thanks for all you do!
33	Thank you for all of your hard work to take care of a resource many of us love and enjoy!
34	Thanks to the association for doing a great job!
35	Fishing is not as good as years past in the lakes - I am familiar with fishing back in the 1970's. Lake traffic is becoming burdensome - especially large ski boats and wave runners. People also blare loud music. I feel the times that people are allowed to be on the lake in large boats and jet skis needs to be adhered to more - people do not pay attention to those rules and/or maybe those rules need to be stricter. Thanks.
36	Please continue to monitor the bust landings for invasive species on boats and continue your lake sweeps to check for invasive species as well. Thanks!
37	As shoreline development continues, there is less habitat for native waterfowl, more Canada Geese, less Blue Heron, less Common Mergansers. More Purple Loosestrife. More, larger, louder and faster watercraft of all types. Two, three or more boat lifts on each property. More shoreline parties on Tribal properties as people try to find their space. Less solitude and peacefulness. More lawns going to the shore without buffers, increasing nutrients for aquatic plants. More garbage floating up onto shorelines. The continuous sounds of human activity--leaf blowers, lawn mowers, construction equipment , loudspeakers. Unfortunately the lakes have become human playgrounds; I fear there is little in our power to escape the inexorable property development, and increase of human activity. It would be nice if the DNR could mandate and enforce more stringent shoreline development regulation. It is so sad to see native trees and flora removed for new homes or to create a "better view." The ridiculous construction of huge storage sheds speaks to the number of "toys" people feel the need to have for their pleasure. The native species have less habitat all the time, and will be driven to lower numbers, being replaced by more tolerant species such as Canada Geese. Overall, there is an unstoppable trend of human infringement on the natural environment, both locally and globally, and we are all, in our desire to enjoy nature, changing it forever. None of us, regardless of age, is able to look back 20 years, and say we are better off now as a result of our "loving the lakes". We commend the efforts of the Lake Association. The Association is an essential organization to lead this effort. This survey is essential for you to identify and prioritize these threatening trends. Hopefully in collaboration with Tribal agencies and the DNR, strategies may arise which adopt regulation and enforcement, continued educational activities, and policy to promote cooperation among our neighbors, which may together slow the adverse effects of human activity to preserve our natural environment for the enjoyment of all.
38	Shish was a very good, balanced fishery for SM bass, in particular, musky and perch/walley until the DNR STUPIDLY stocked largemouth bass. They're OUT of control. Don't know if there's anything to be done, but it was THE dumbest thing EVER done by anyone in the 40 years we've been on Shish. Don't know what can be done now, but we wonder if it's contributed negatively to other aspects of the lake. Thank you for doing this survey! :-)
39	We have owned a vacation home on Gunlock lake for 9 years and believe the association is doing a fantastic job. Keep up the great work and thanks for everything you do!
40	Concerned about growing numbers of musky and reduced numbers of pan fish. This also brings greater number of guides and other fishermen putting more pressure on lakes.
41	Would like more stable water levels. Outlet blockages removed downstream if they exist. Would like more effective enforcement of power boat/water skiing hours. Many people violating at night skiing at sunset
42	I believe the association and it's leaders do a fabulous job. Keep up the good work!
43	I am very impressed with the Lake Assn! They are on top of everything and keep the residents well informed. They give me a good sense that they are truly good stewards of the lake
44	Thank you to everyone who is/has volunteered to keep our lakes a wonderful place, a harbor for wildlife & birds and trying to keep things as natural as possible!
45	I want to be clear that I value tribal culture and it's heritage in the area. I'm just not ready for opportunities to learn more about it at this time. Also, volunteering with the lake association is something I have in mind for that time when I'm retired and able to enjoy our place there more often and for longer periods of time. We greatly appreciate the efforts of those who are currently volunteering with the lake association. Thank you.
46	Would like lake monitored more by the DNR because of unsafe boating practices such as coming to close to piers & other boats. Times should be set for water skiing to allow equal time for fishermen.
47	Govern the over abundance of WAVE boats. We are very pleased with the active participation of the SGLA.
48	The lake vehicles should be restricted to low velocity motors to help preserve the beaches.
49	The SGLA board and is doing excellent job of managing the lakes. Proud to be a part of your lake association.
50	Board and committee chairs do an excellent job and have made a significant positive impact on our lakes
51	The lake association is doing a terrific job and our lake experience has been improved because of it. Please keep up the great work. Thanks for all your hard work and stewardship of the lakes.
52	Thank you to the SGLA and your volunteer hours!!
53	My family has been on Shishebogama since 1957, and I have seen it become overgrown with aquatic plants to the point my outboard motor has stalled out, and the fishery go from pike/musky/perch to stunted bass and sunfish. It has also become overrun by careless jet ski owners who have little regard for their sales or the safety of boaters/swimmers. I specifically exclude water skiers from this group as they routinely follow good practice. I fear the shoreline being overdeveloped to the point that it looks like a suburban pond.
54	We have a very committed & informative SGLA board. We enjoy the communication of the newsletter 7 Bob's continued emails to us on anything that is for sale, inquiries on items for sale, or any urgent matter that needs to get communicated to us members. Keep up the great work!!
55	I believe our association officers and board have done an outstanding job over the years. I'm very appreciative of their time and effort.
56	Water levels remain high out streams could be more useful
57	We find it difficult to catch fish. We know they are there but can you provide any tips/suggestions on how to improve catching them. Location, depth, time of day, bait, etc. Or anything else that would make that activity more successful. Thanks...
58	How to reduce the spreading weed and algae growth & what is acceptable levels for a healthy lake specific to my area on South Bay.

59	We're new to the lake and have heard alot of good things about its' quality
60	Is there is possibility of "no wake" on the lake when water levels get too high?
61	Kepp up with the great work.
62	The lake level has been extremely high for the past 3 years. The level needs to be lowered.
63	Continue the good work!
64	Weekend pontoon parking with participants pulling out aquatic plants on the shore to establish beaches, holding continuous parties from AM until after dark,with loud, progressively inebriated and or inconsiderate crowds have dramatically changed Shish during the summer months. This and the intense weekend motor traffic have altered the character of the lake from a natural resource to that of an urban water park for most of the summer.
65	The SGLA does a very good job in managing the lake quality, fish condition and invasive species. We would like the SGLA to assess the impact of the increased number of jet skis, speed boats on the lake and its impact on shoreline erosion. We would also like the SGLA to assess the impact of excessive firework use on the wildlife habitat and water quality as some are used during the winter and then the debris left on the ice and the impact of these fireworks on water fowl including nesting loons
66	would like to see less bright shoreline lights at nite and mercury vapor lights or downward shielding of them,make poontooners aware that it is illegal to drive with docking lights on,they are blinding to boaters and there green and red running lights are not visible
67	THE LAKES ASSOCIATION DOES A GOOD JOB OF KEEPING US INFORMED.
68	Great lake association...glad it is in place and doing what it has been doing
69	Hats off to the SGLA board.
70	Love the SGLA. A good number of people do many wonderful things.
71	Not being a consistent resident, volunteering would be difficult. Possibly in the future.
72	any factual history of the lakes would be of great value.
73	Question regulating wake boats.How has 5 pan fish...gills..over 7" been doing to change size?
74	all zoning management is to be done by the county or LDF zoning depts.- the SGLA should not be involved, I am harassed and threatened when using the boat landing " that I could be given a ticket if we don't comply with weed removal(which we do at home so not to block the busy gunlock landing, I do not appreciate the "volunteers" and their attitudes- specifically the nasty women. I will not break rules, but do not need an association to govern an ungovernable waterway. I do think a courtesy notice should be sent to all property owners of the "rules" of the lake, boating hours, etc, but we do not all agree on the rules- or many do not abide by them. the association cannot enforce the "rules" as they are not a governing body.
75	When we first moved in (2011) bluegill fishing was much better and the fish were larger. More recently, bluegill size has been limited but crappie fishing has improved.
76	Keep up the good work!!
77	We remain impressed with the SGLA organization's sophistication and level of commitment to our lakes system. Keep up the great work!
78	Thank you to the SGLA and the LDF Tribal Council for your efforts to protect both Shish & Gunlock lakes. It is much appreciated!
79	I'm new to the lake and hope to learn more as we spend more time in the area.
80	Regarding question # 16; the Musky fishing has definitely improved, panfishing is very good, not so much for walleye fishing (even with the increased stocking).
81	Though we don't know everything you do, we are very happy with the work that SGLA does. From monitoring the health of our lakes, working to protect them from invasive species and improving fishing. Fun social activities have helped us get to know our lake neighbors. Thank you for all you do.
82	SGLA association has done a great job
83	Both the Association, Tribal Water Resources and Fisheries are doing an outstanding job in support of our lakes.

2012 & 2020 SGLA Stakeholder Survey Response Comparison

Shishebogama and Gunlock Lake - Anonymous Stakeholder Survey Comparison

2020 Survey	2012 Survey
Surveys Distributed: 359	Surveys Distributed: 324
Surveys Returned: 209	Surveys Returned: 214
Response Rate: 58%	Response Rate: 66%
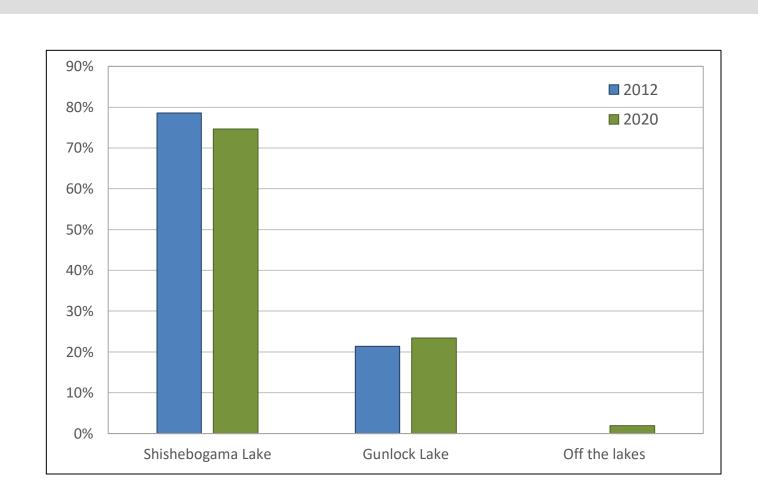
Shishebogama and Gunlock Lake Property

On which lake is your property located?

2020

Answer Options	Response Percent	Response Count
Shishebogama Lake	74.6%	153
Gunlock Lake	23.4%	48
Off the lakes	2.0%	4
answered question		205
skipped question		4

2012
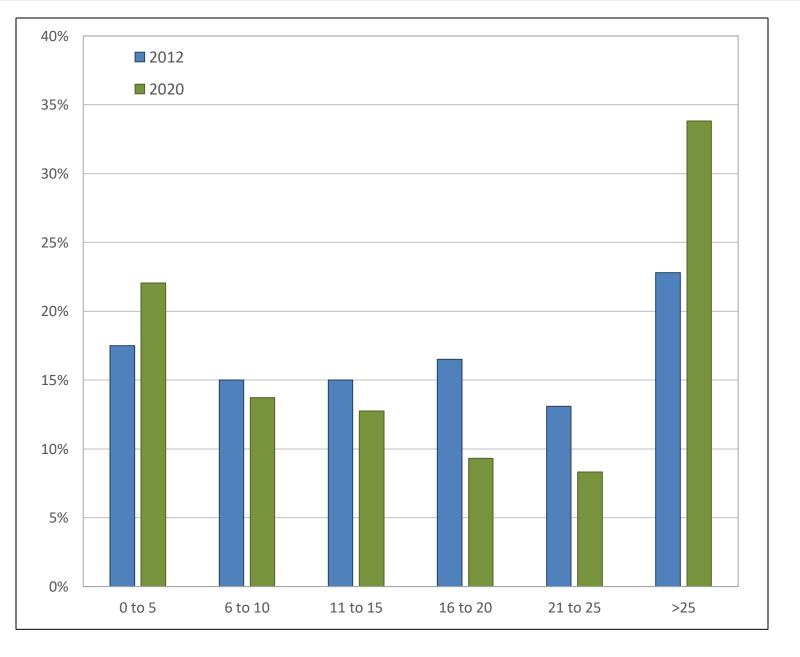
Answer Options	Response Percent	Response Count
Shishebogama Lake	79%	169
Gunlock Lake	21%	46
*Off the lakes not offered as an option		
answered question		214
skipped question		0

How long have you owned or leased your property on or near Shishebogama and Gunlock Lakes?

2020

Answer Options	Response Percent	Response Count
0 to 5	22.1%	45
6 to 10	13.7%	28
11 to 15	12.7%	26
16 to 20	9.3%	19
21 to 25	8.3%	17
>25	33.8%	69
answered question		204
skipped question		5

2012
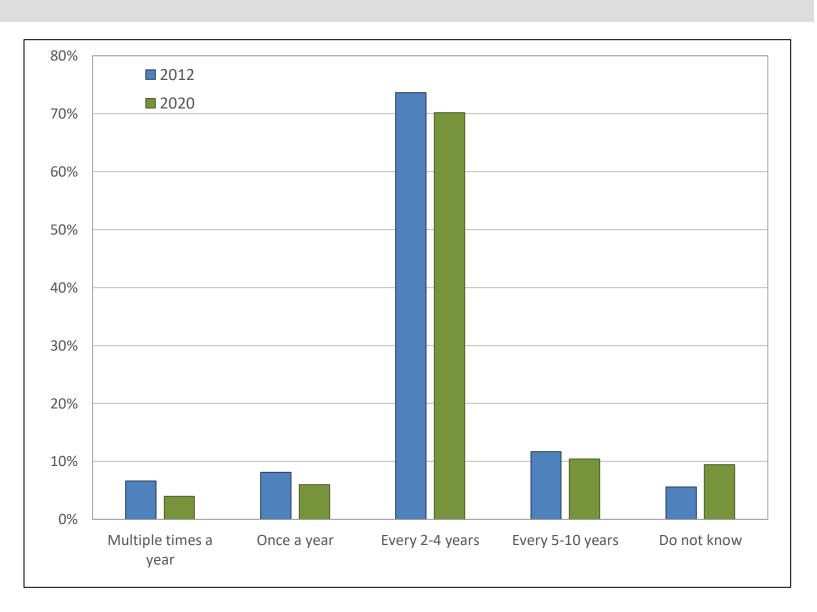
Answer Options	Response Percent	Response Count
0 to 5	18%	36
6 to 10	15%	31
11 to 15	15%	31
16 to 20	17%	34
21 to 25	13%	27
>25	23%	47
answered question		206
skipped question		8

How often is the septic system on your property pumped?

2020		
Answer Options	Response Percent	Response Count
Multiple times a year	4.0%	8
Once a year	6.0%	12
Every 2-4 years	70.2%	141
Every 5-10 years	10.5%	21
Do not know	9.5%	19
answered question		201
skipped question		8
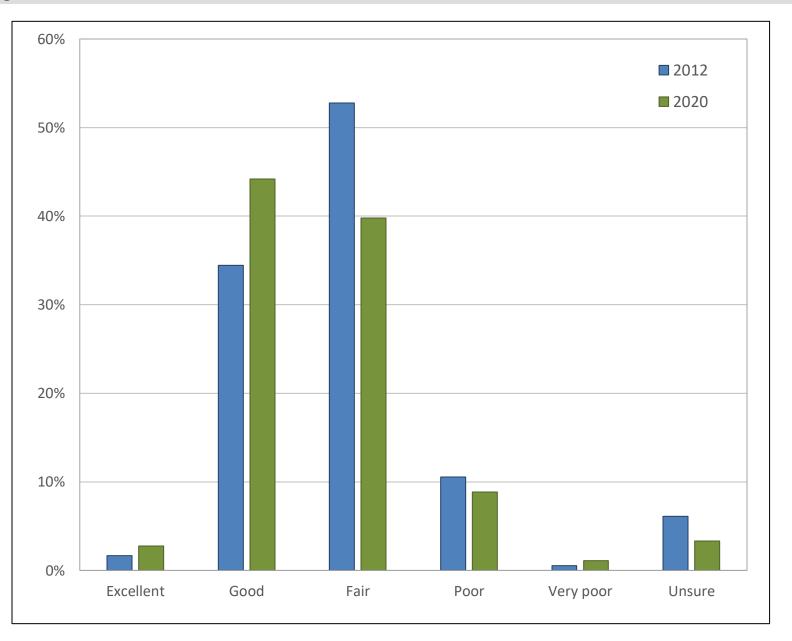
2012		
Answer Options	Response Percent	Response Count
Multiple times a year	6.6%	13
Once a year	8.1%	16
Every 2-4 years	73.6%	145
Every 5-10 years	11.7%	23
Do not know	5.6%	11
answered question		197
skipped question		17

How would you describe the current quality of fishing on Shishebogama and Gunlock Lakes?

2020		
Answer Options	Response Percent	Response Count
Excellent	2.8%	5
Good	44.2%	80
Fair	39.8%	72
Poor	8.8%	16
Very poor	1.1%	2
Unsure	3.3%	6
answered question		181
skipped question		28
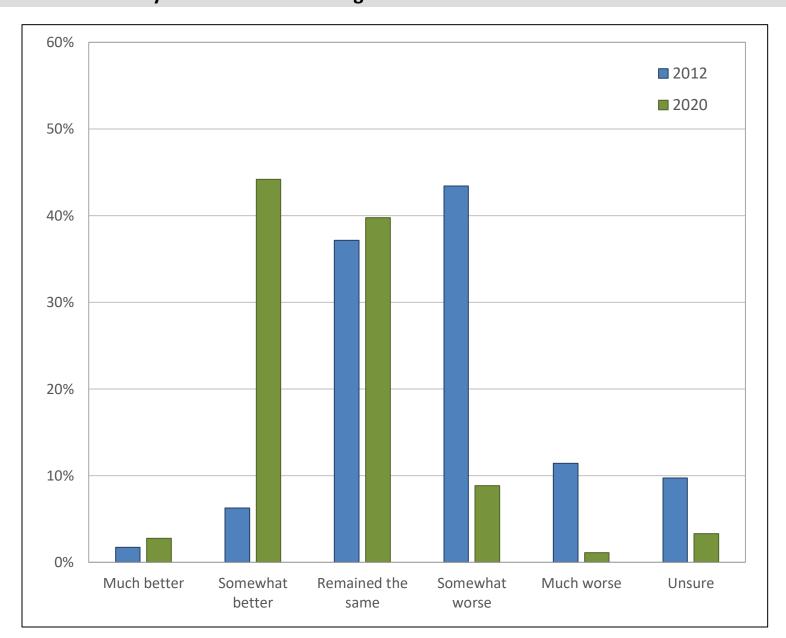
2012		
Answer Options	Response Percent	Response Count
Excellent	1.7%	3
Good	34.4%	62
Fair	52.8%	95
Poor	10.6%	19
Very poor	0.6%	1
Unsure	6.1%	11
answered question		180
skipped question		34

How has the quality of fishing changed on Shishebogama and Gunlock Lakes since you have started fishing the lake?

2020		
Answer Options	**Response Percent**	**Response Count**
Much better	2.8%	5
Somewhat better	44.2%	80
Remained the same	39.8%	72
Somewhat worse	8.8%	16
Much worse	1.1%	2
Unsure	3.3%	6
answered question		181
skipped question		28
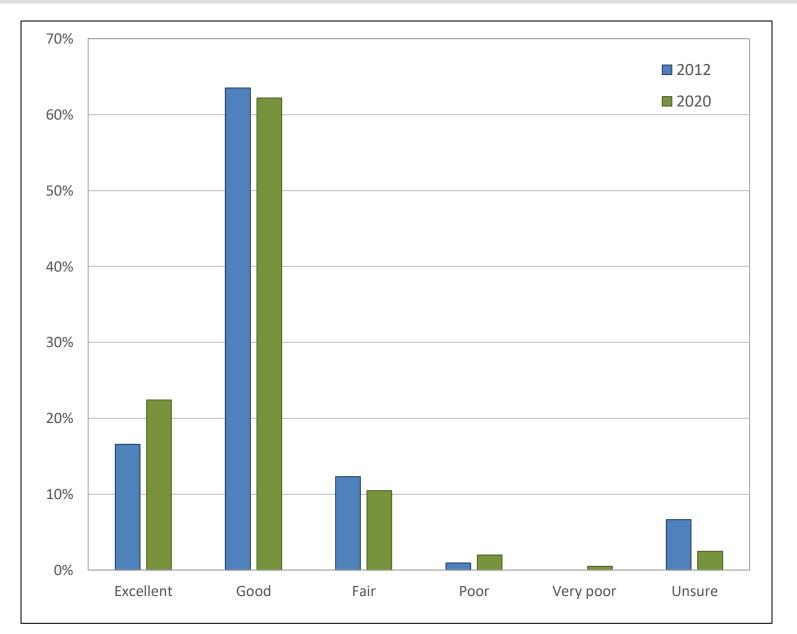
2012		
Answer Options	**Response Percent**	**Response Count**
Much better	1.7%	3
Somewhat better	6.3%	11
Remained the same	37.1%	65
Somewhat worse	43.4%	76
Much worse	11.4%	20
Unsure	9.7%	17
answered question		175
skipped question		39

How would you describe the current water quality of Shishebogama and Gunlock Lakes?

2020		
Answer Options	**Response Percent**	**Response Count**
Excellent	22.4%	45
Good	62.2%	125
Fair	10.4%	21
Poor	2.0%	4
Very poor	0.5%	1
Unsure	2.5%	5
answered question		201
skipped question		8
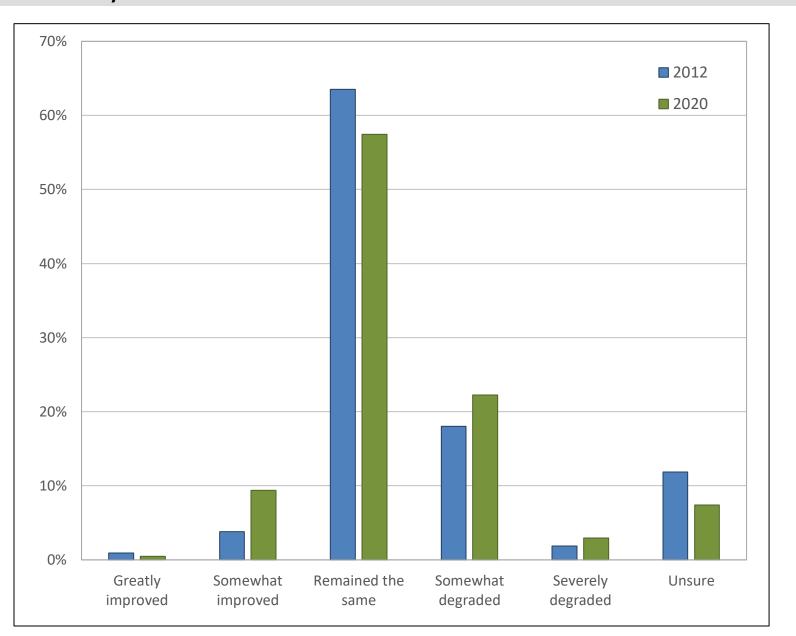
2012		
Answer Options	**Response Percent**	**Response Count**
Excellent	16.6%	35
Good	63.5%	134
Fair	12.3%	26
Poor	0.9%	2
Very poor	0.0%	0
Unsure	6.6%	14
answered question		211
skipped question		3

How has the water quality changed in Shishebogama and Gunlock Lakes since you first visited the lake?

2020		
Answer Options	Response Percent	Response Count
Greatly improved	0.5%	1
Somewhat improved	9.4%	19
Remained the same	57.4%	116
Somewhat degraded	22.3%	45
Severely degraded	3.0%	6
Unsure	7.4%	15
answered question		202
skipped question		7
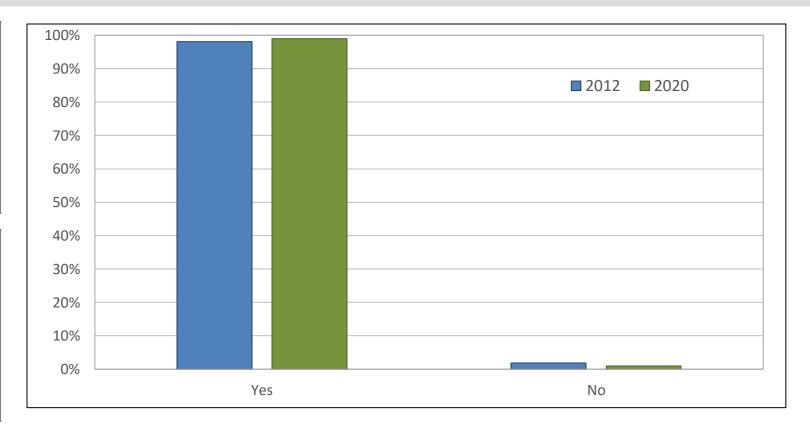
2012		
Answer Options	Response Percent	Response Count
Greatly improved	0.9%	2
Somewhat improved	3.8%	8
Remained the same	63.5%	134
Somewhat degraded	18.0%	38
Severely degraded	1.9%	4
Unsure	11.8%	25
answered question		211
skipped question		3

Have you ever heard of aquatic invasive species?
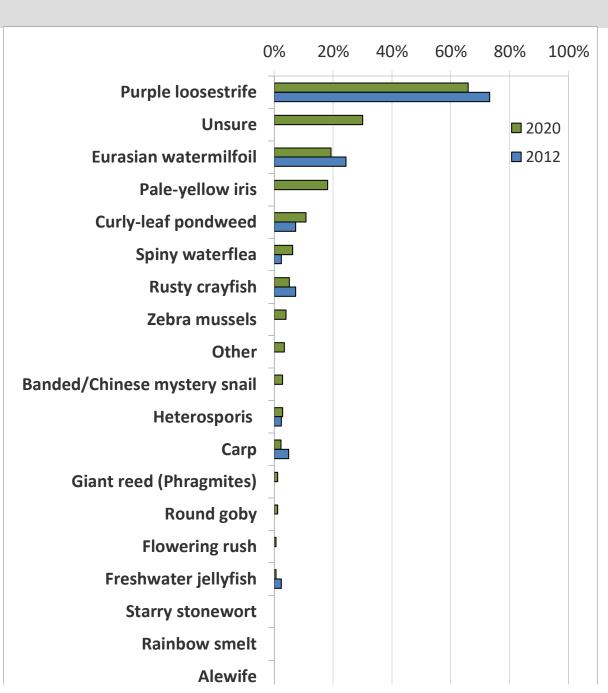
2020		
Answer Options	Response Percent	Response Count
Yes	99.0%	201
No	1.0%	2
answered question		203
skipped question		6

2012		
Answer Options	Response Percent	Response Count
Yes	98.1%	208
No	1.9%	4
answered question		212
skipped question		2

Which aquatic invasive species do you believe are in Shishebogama and Gunlock Lakes?
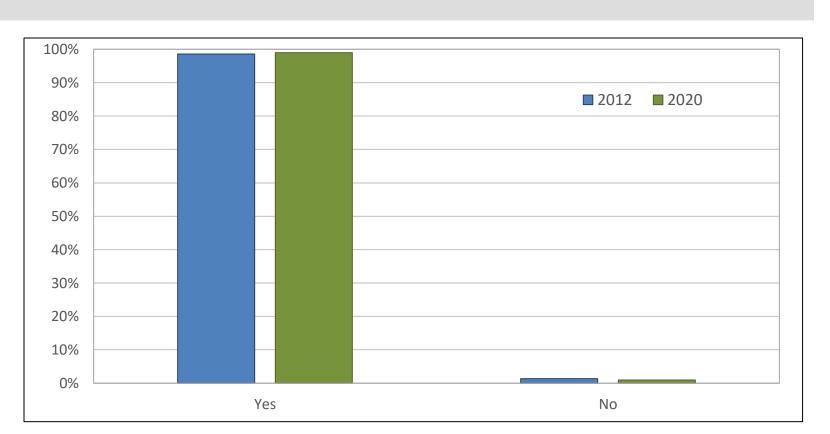
Answer Options	2020 Response Percent	2020 Response Count	2012 Response Percent	2012 Response Count
Purple loosestrife	66%	116	73%	30
Unsure but presume AIS to be present	30%	53	N/A	-
Eurasian watermilfoil	19%	34	24%	10
Pale-yellow iris	18%	32	0%	0
Curly-leaf pondweed	11%	19	7%	3
Spiny waterflea	6%	11	2%	1
Rusty crayfish	5%	9	7%	3
Zebra mussels	4%	7	0%	0
Other	3%	6	0%	0
Banded/Chinese mystery snail	3%	5	0%	0
Heterosporis (Yellow perch parasite)	3%	5	2%	1
Carp	2%	4	5%	2
Giant reed (Phragmites)	1%	2	N/A	-
Round goby	1%	2	0%	0
Flowering rush	1%	1	0%	0
Freshwater jellyfish	1%	1	2%	1
Starry stonewort	0%	0	N/A	-
Rainbow smelt	0%	0	0%	0
Alewife	N/A	-	0%	0
answered question		176		41
skipped question		33		173

Before receiving this mailing, had you ever heard of the SGLA?

2020		
Answer Options	**Response Percent**	**Response Count**
Yes	99.0%	199
No	1.0%	2
answered question		**199**
skipped question		**2**

2012		
Answer Options	**Response Percent**	**Response Count**
Yes	98.6%	209
No	1.4%	3
answered question		**212**
skipped question		**2**

C

APPENDIX C

Water Quality Data

Year	Secchi (feet)				Chlorophyll-*a* (µg/L)				Total Phosphorus (µg/L)			
	Growing Season		Summer		Growing Season		Summer		Growing Season		Summer	
	Count	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean
1990	3	10.2	1	9.8								
1991	1	9.0	1	9.0								
1992	0		0									
1993	0		0									
1994	0		0									
1995	0		0									
1996	0		0									
1997	0		0									
1998	0		0									
1999	3	9.2	2	10.8								
2000	4	8.4	2	10.0								
2001	5	9.8	3	11.5								
2002	4	8.8	1	10.5	4	5.6	2	1.8	4	19.5	2.0	16.5
2003	4	10.0	3	10.7	4	7.9	3	3.8	4	16.8	3.0	15.0
2004	3	12.2	2	12.5	3	4.9	2	3.8	3	17.7	2.0	14.5
2005	4	8.4	3	8.8	6	5.1	4	4.4	6	18.7	4.0	18.0
2006	5	10.3	3	9.8	4	9.0	3	9.1	5	18.2	3.0	21.0
2007	7	9.2	4	11.3	3	7.2	3	7.2	2	14.5	2.0	14.5
2008	4	10.1	4	10.1	4	5.0	3	5.0	4	20.5	3.0	20.7
2009	3	10.7	1	12.0	3	3.5	1	3.9	3	17.7	1.0	25.0
2010	3	11.0	2	12.5	3	4.0	2	3.7	3	18.0	2.0	12.5
2011	0		0		2	4.3	2	4.3	2	18.5	2.0	18.5
2012	3	9.8	3	9.8	2	5.8	2	5.8	3	14.7	3.0	14.7
2013	3	7.7	3	7.7	3	7.2	3	7.2	3	14.3	3.0	14.3
2014	2	8.3	1	10.5	2	4.8	2	4.8	3	14.4	2.0	13.8
2015	4	7.8	3	7.7	3	5.6	3	5.6	4	20.2	3.0	19.9
2016	3	6.7	3	6.7	3	8.3	3	8.3	3	21.9	3.0	21.9
2017	3	9.3	3	9.3	3	5.2	3	5.2	3	17.3	3.0	17.3
2018	4	7.8	3	7.7	3	6.8	3	6.8	4	16.4	3.0	17.2
2019	6	9.5	4	10.2	6	5.0	4	4.5	6	15.2	4.0	13.0
All Years (Weighted)		9.3		9.8		5.9		5.5		17.6		17.0
Statewide DLDL Median				8.5				7.0				23.0
NLF Ecoregion Median				8.9				5.6				21.0

Year	Secchi (feet)				Chlorophyll-*a* (µg/L)				Total Phosphorus (µg/L)			
	Growing Season		Summer		Growing Season		Summer		Growing Season		Summer	
	Count	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean
1979	1	12.0	1	12.0	1	6.2	1	6.2	1	23.0	1.0	23.0
1990	2	5.3	0									
1991	11	6.9	6	7.6								
1992	4	7.9	2	10.3								
1993	14	7.9	10	9.4								
1994	7	7.8	5	9.1								
1995	0		0									
1996	0		0									
1997	0		0									
1998	0		0									
1999	0		0									
2000	0		0		10	6.7	6	6.8	5	25.0	3.0	20.0
2001	0		0		0		0		0		0.0	
2002	0		0		0		0		0		0.0	
2003	0		0		0		0		0		0.0	
2004	0		0		0		0		0		0.0	
2005	0		0		2	6.0	1	4.0	2	30.5	1.0	30.0
2006	0		0		0		0		0		0.0	
2007	0		0		0		0		0		0.0	
2008	5	7.8	3	7.2	0		0		0		0.0	
2009	10	8.0	6	8.4	4	3.4	3	4.3	4	25.5	3.0	26.7
2010	5	10.0	2	8.0	0		0		0		0.0	
2011	4	7.9	3	7.9	3	10.1	3	10.1	4	25.8	3.0	22.3
2012	4	7.6	3	7.2	3	12.8	3	12.8	4	26.8	3.0	25.3
2013	5	7.6	3	7.7	3	10.2	3	10.2	4	24.7	3.0	25.6
2014	5	9.2	3	12.0	3	6.3	3	6.3	4	19.1	3.0	17.8
2015	5	5.7	3	5.7	3	11.9	3	11.9	4	36.0	3.0	34.9
2016	4	7.5	3	8.3	3	10.1	3	10.1	3	24.0	3.0	24.0
2017	9	7.1	7	7.3	3	10.8	3	10.8	3	23.8	3.0	23.8
2018	7	7.1	5	7.5	3	8.7	3	8.7	4	18.7	3.0	18.8
2019	10	7.7	7	8.3	6	6.1	4	5.9	7	21.1	4.0	15.3
All Years (Weighted)		7.7		8.3		8.0		8.5		24.6		23.1
Statewide SHDL Median				5.6				7.5				29.0
NLF Ecoregion Median				8.9				5.6				21.0

D

APPENDIX D

Point-Intercept Aquatic Macrophyte Survey Data

Gunlock Lake

Scientific Name	Common Name	LFOO (%) 2009	LFOO (%) 2019
Bidens beckii	Water marigold	1.7	5.2
Brasenia schreberi	Watershield	6.9	4.5
Carex vesicaria	Blister sedge	0.3	0.0
Ceratophyllum demersum	Coontail	40.8	38.6
Chara spp.	Muskgrasses	4.8	2.1
Dulichium arundinaceum	Three-way sedge	2.1	0.0
Elatine minima	Waterwort	0.3	0.0
Eleocharis acicularis	Needle spikerush	3.1	0.0
Elodea canadensis	Common waterweed	10.7	16.6
Fissidens spp. & *Fontinalis* spp.	Aquatic Moss	0.0	0.3
Heteranthera dubia	Water stargrass	4.2	4.8
Isoetes lacustris	Lake quillwort	3.5	0.0
Juncus pelocarpus	Brown-fruited rush	1.7	0.3
Lemna minor	Lesser duckweed	0.7	0.7
Lemna trisulca	Forked duckweed	1.7	1.7
Myriophyllum alterniflorum	Alternate-flowered watermilfoil	0.0	0.3
Myriophyllum sibiricum	Northern watermilfoil	12.1	13.4
Myriophyllum tenellum	Dwarf watermilfoil	2.1	0.7
Najas flexilis	Slender naiad	12.5	16.6
Nitella spp.	Stoneworts	15.9	9.3
Nuphar variegata	Spatterdock	11.8	6.9
Nymphaea odorata	White water lily	10.0	4.8
Pontederia cordata	Pickerelweed	5.5	2.4
Potamogeton alpinus	Alpine pondweed	0.7	0.0
Potamogeton amplifolius	Large-leaf pondweed	7.6	5.5
Potamogeton foliosus	Leafy pondweed	0.3	1.0
Potamogeton friesii	Fries' pondweed	4.2	0.7
Potamogeton gramineus	Variable-leaf pondweed	5.2	1.7
Potamogeton hybrid	Pondweed Hybrid	1.4	0.0
Potamogeton illinoensis	Illinois pondweed	0.3	0.0
Potamogeton natans	Floating-leaf pondweed	1.0	0.0
Potamogeton praelongus	White-stem pondweed	3.1	1.7
Potamogeton pusillus	Small pondweed	4.2	25.5
Potamogeton richardsonii	Clasping-leaf pondweed	8.7	3.1
Potamogeton robbinsii	Fern-leaf pondweed	24.9	19.3
Potamogeton vaseyi	Vasey's pondweed	0.7	0.0
Potamogeton zosteriformis	Flat-stem pondweed	35.6	14.8
Ranunculus aquatilis	White water crowfoot	4.2	0.7
Ranunculus flammula	Creeping spearwort	1.0	0.3
Sagittaria cristata	Crested arrowhead	7.3	5.5
Schoenoplectus acutus	Hardstem bulrush	6.2	0.0
Schoenoplectus tabernaemontani	Softstem bulrush	0.0	0.3
Sparganium angustifolium	Narrow-leaf bur-reed	0.3	0.0
Sparganium fluctuans	Floating-leaf bur-reed	0.3	0.3
Spirodela polyrhiza	Greater duckweed	0.3	0.0
Typha angustifolia	Narrow-leaved cattail	0.3	0.0
Utricularia gibba	Creeping bladderwort	0.0	0.3
Utricularia intermedia	Flat-leaf bladderwort	1.0	0.0
Utricularia minor	Small bladderwort	0.0	0.7
Utricularia vulgaris	Common bladderwort	2.8	3.1
Vallisneria americana	Wild celery	6.6	12.4

LFOO = Littoral Frequency of Occurrence

2009 N = 289 ; 2019 N = 290

Gunlock Lake 2009

Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Carex vesicaria	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Elodea canadensis	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton hybrid	Potamogeton alpinus	Potamogeton amplifolius	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton illinoensis	Potamogeton natans	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Schoenoplectus acutus	Sparganium angustifolium	Sparganium fluctuans	Spirodela polyrhiza	Typha angustifolia	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
1	45.905768	-89.827006	5	M	P			2		V																	1	V															1														
2	45.905345	-89.827007	3	S	P			2																			2																												
3	45.904922	-89.827008	3	M	P			4										1																							1				1	1									
4	45.904499	-89.827010	2	S	P			5	1																			1	1	1																		1							
5	45.907036	-89.826396	6	M	P			2																			1																				1								
6	45.906613	-89.826397	5	M	P			4			1																1																		1		1								
7	45.906190	-89.826398	11	M	P			4			3														1																														
8	45.905767	-89.826400	9		R			3			3																																												
9	45.905344	-89.826401	13		R			0																																															
10	45.904921	-89.826402	11	M	P			1			1																																												
11	45.904498	-89.826404	3	M	P			3			2																															1														
12	45.911265	-89.825777	6	M	P			5			3														1																					1										
13	45.910842	-89.825778	9	M	P			3			2														1																															
14	45.908304	-89.825786	8	S	P			0																																															
15	45.907881	-89.825787	13		R			4																			3																	1									
16	45.907458	-89.825788	13		R			1																			1																											
17	45.907035	-89.825790	11		R			2			2																																												
18	45.906612	-89.825791	14		R			1			1																																												
19	45.906189	-89.825792	15		R			3			1							1																											1										
20	45.905766	-89.825794	14		R			1																																					1										
21	45.905343	-89.825795	14		R			0																																														
22	45.904920	-89.825796	14		R			0																																															
23	45.904497	-89.825798	4	S	P			9	1	1							1						1					1	1					1													1	1								
24	45.912110	-89.825168	8	S	P			8				1						1								1		1		1									1													1	1			
25	45.911687	-89.825169	16					0																																															
26	45.911264	-89.825171						0																																															
27	45.910841	-89.825172						0																																															
28	45.910418	-89.825173	7	M	P			2																																	1					1										
29	45.908726	-89.825178	6	S	P			1																																		1														
30	45.908303	-89.825180	15		R			2			1							1																																						
31	45.907880	-89.825181	16		R			0																																															
32	45.907457	-89.825182	14		R			2																		1																			1									
33	45.907034	-89.825184	15		R			1																		1																												
34	45.906611	-89.825185	16		R			0																																															
35	45.906188	-89.825186	16		R			1																																					1										
36	45.905765	-89.825188	15		R			0																																															
37	45.905342	-89.825189	15		R			0																																															
38	45.904919	-89.825190	14		R			2			1																																		1										
39	45.904496	-89.825192	2	S	P			4										1										1	1																						1					
40	45.914648	-89.824554	5	S	P			2																			1																						1					
41	45.914225	-89.824555	9	M	P			7								1																							1						1	1			1	1					1
42	45.913802	-89.824557	4	S	P			8										1										1													1	2			1	1	1								
43	45.913379	-89.824558	4	S	P			4									1										1	1																										1
44	45.912956	-89.824559	5	S	P			7									1										3													1						1							1
45	45.912533	-89.824561	8	M	P			7																			1	1												1				2	1	1								
46	45.912110	-89.824562						0																																															
47	45.911687	-89.824563						0																																															
48	45.911263	-89.824565						0																																															
49	45.910840	-89.824566						0																																															
50	45.910417	-89.824567						0																																															
51	45.909994	-89.824569	6	M	P			4																																	1	2											1
52	45.909571	-89.824570	6	S	P			2																		1		V	V									1																

Gunlock Lake 2009

Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Carex vesicaria	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Elodea canadensis	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton hybrid	Potamogeton alpinus	Potamogeton amplifolius	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton illinoensis	Potamogeton natans	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Schoenoplectus acutus	Sparganium angustifolium	Sparganium fluctuans	Spirodela polyrhiza	Typha angustifolia	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
53	45.908725	-89.824573	14		R			0																																														
54	45.908302	-89.824574	15		R			1									1																																				
55	45.907879	-89.824575	15		R			0																																													
56	45.907456	-89.824577	13		R			3									1									1																		1											
57	45.907033	-89.824578	16		R			1																																			1											
58	45.906610	-89.824579	16		R			3																1																			2											
59	45.906187	-89.824581	13		R			1																																													
60	45.905764	-89.824582	15		R			1																																		1											
61	45.905341	-89.824583	15		R			1			1																																									
62	45.904918	-89.824585	13		R			2																			1																1											
63	45.904495	-89.824586	5	S	P			2																				1																							1	
64	45.915070	-89.823946	3	S	P			4																			1	1	1															1											
65	45.914647	-89.823948	12		R			5																	3												2														
66	45.914224	-89.823949	15		R			0																																													
67	45.913801	-89.823950						0																																													
68	45.913378	-89.823952	15		R			0																																													
69	45.912955	-89.823953						0																																													
70	45.912532	-89.823954						0																																													
71	45.912109	-89.823956						0																																													
72	45.911686	-89.823957	9	M	P			1																1																												
73	45.911263	-89.823959						0																																													
74	45.910840	-89.823960						0																																													
75	45.910416	-89.823961						0																																													
76	45.909993	-89.823963						0																																													
77	45.909570	-89.823964			R			0																																													
78	45.909147	-89.823965	19					0																																													
79	45.908724	-89.823967						0																																													
80	45.908301	-89.823968	16		R			0																																													
81	45.907878	-89.823969	15		R			1																			1																								
82	45.907455	-89.823971	6	M	P			2																			1																	1										
83	45.907032	-89.823972	6					1																		V																1										
84	45.906609	-89.823973	10		R			4			3																																1										
85	45.906186	-89.823975	15		R			0																																													
86	45.905763	-89.823976	16		R			0																																													
87	45.905340	-89.823977	13		R			1																																		1										
88	45.904917	-89.823979	10	S	P			0																																													
89	45.917607	-89.823332	5	M	P			3			1															V																	1								1		
90	45.917184	-89.823334	13	M	P			2			2																																									
91	45.916761	-89.823335	9	S	P			2			1													1																											
92	45.916338	-89.823336	4	S	P			5								1											2	1								1																
93	45.915492	-89.823339	5	S	P			5																			2																1		1				1			
94	45.915069	-89.823340	17					0																																													
95	45.914646	-89.823342						0																																													
96	45.914223	-89.823343						0																																													
97	45.913800	-89.823344						0																																													
98	45.913377	-89.823346						0																																													
99	45.912954	-89.823347						0																																													
100	45.912531	-89.823348						0																																													
101	45.912108	-89.823350						0																																													
102	45.911685	-89.823351	14		R			0																																													
103	45.911262	-89.823352	5	M	P			3			1													1																1												
104	45.910839	-89.823354						0																																													

Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Carex vesicaria	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Elodea canadensis	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton hybrid	Potamogeton alpinus	Potamogeton amplifolius	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton illinoensis	Potamogeton natans	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Schoenoplectus acutus	Sparganium angustifolium	Sparganium fluctuans	Spirodela polyrhiza	Typha angustifolia	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
105	45.910416	-89.823355						0																																														
106	45.909993	-89.823357	15		R			1																			1																											
107	45.909570	-89.823358	20		R			0																																														
108	45.909146	-89.823359																																																				
109	45.908723	-89.823361						0																																														
110	45.908300	-89.823362	13		R			1									1																																					
111	45.907877	-89.823363	13		R			3			1															1															1													
112	45.907454	-89.823365						0																																														
113	45.906608	-89.823367	11	M	P			1																																		1											
114	45.906185	-89.823369	9	M	P			6			3	1																													1	1											
115	45.905762	-89.823370	10	M	P			2				1																														1											
116	45.905339	-89.823371	7	M	P			5				1													1																1	1	1									
117	45.904916	-89.823373	2	S	P			3																															1			1						1					1
118	45.917606	-89.822726	6	M	P			3																																		2					1						
119	45.917183	-89.822728	13		R			3																			3																											
120	45.916760	-89.822729	13		R			1																			1																											
121	45.916337	-89.822730	13		R			2																			2																											
122	45.915914	-89.822732						0																																														
123	45.915491	-89.822733	16					0																																														
124	45.915068	-89.822734	18					0																																														
125	45.914645	-89.822736						0																																														
126	45.914222	-89.822737						0																																														
127	45.913799	-89.822738						0																																														
128	45.913376	-89.822740						0																																														
129	45.912953	-89.822741						0																																														
130	45.912530	-89.822742						0																																														
131	45.912107	-89.822744						0																																														
132	45.911684	-89.822745						0																																														
133	45.911261	-89.822746	15		R			0																																														
134	45.910838	-89.822748						0																																														
135	45.910415	-89.822749	15		R			2				1														1																											
136	45.909992	-89.822751						0																																														
137	45.909569	-89.822752	16		R			1																			1																											
138	45.909146	-89.822753	16		R			2																			2																											
139	45.908723	-89.822755	15		R			1																			1																											
140	45.908300	-89.822756	7	M	P			4				1																														2	1											
141	45.907877	-89.822757	1	S	P			4																1							1																					1	1	
142	45.906607	-89.822761	2	S	P			3																						1	1																						1	
143	45.906184	-89.822763	6	M	P			3				2																																	1								
144	45.905761	-89.822764	9	M	P			3				1																																	2								
145	45.905338	-89.822765	8	M	P			4				1																														1				2							
146	45.917605	-89.822120	6	S	P			2																				1											1															
147	45.917182	-89.822122	15		R			0																																														
148	45.916759	-89.822123						0																																														
149	45.916336	-89.822124						0																																														
150	45.915913	-89.822126						0																																														
151	45.915490	-89.822127						0																																														
152	45.915067	-89.822128	17					0																																														
153	45.914644	-89.822130						0																																														
154	45.914221	-89.822131						0																																														
155	45.913798	-89.822132						0																																														
156	45.913375	-89.822134						0																																														

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Carex vesicaria	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Elodea canadensis	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton hybrid	Potamogeton alpinus	Potamogeton amplifolius	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton illinoensis	Potamogeton natans	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Schoenoplectus acutus	Sparganium angustifolium	Sparganium fluctuans	Spirodela polyrhiza	Typha angustifolia	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
157	45.912952	-89.822135						0																																														
158	45.912529	-89.822136						0																																														
159	45.912106	-89.822138	8	S	P			1																																														1
160	45.911683	-89.822139	8	S	P			2																																	1			1											
161	45.911260	-89.822140	15		R			1																			1																												
162	45.910837	-89.822142	6	M	P			4			1																					1												1											1
163	45.910414	-89.822143	14		R			1																			1																												
164	45.909991	-89.822145	14		R			1																			1																												
165	45.909568	-89.822146						0																																														
166	45.909145	-89.822147	5	S	P			1																																						1								
167	45.908722	-89.822149	4	S	P			1																																													1	
168	45.906183	-89.822157	6	M	P			4			1							1																									1	1										
169	45.905760	-89.822158	7	M	P			4																																			1	3										
170	45.905337	-89.822159	6	M	P			5			1																																1	3										
171	45.904914	-89.822161	5	M	P			1																																			1											
172	45.917604	-89.821514	6	S	P			0																																														
173	45.917181	-89.821515						0																																														
174	45.916758	-89.821517						0																																														
175	45.916335	-89.821518						0																																														
176	45.915912	-89.821520						0																																														
177	45.915489	-89.821521						0																																														
178	45.915066	-89.821522	19					0																																														
179	45.914643	-89.821524						0																																														
180	45.914220	-89.821525						0																																														
181	45.913797	-89.821526						0																																														
182	45.913374	-89.821528						0																																														
183	45.912951	-89.821529						0																																														
184	45.912528	-89.821530	10	S	P			0																																														
185	45.911259	-89.821534	7	M	P			2											1																							1											
186	45.910836	-89.821536	4	S	P			4			1																1					1																						1
187	45.910413	-89.821537	4	R	P			3																			1												1							1							
188	45.909990	-89.821539	7	M	P			5			1	1														1	V													1						1							
189	45.909567	-89.821540	5	S	P			3																			1												1							1							
190	45.906183	-89.821551	5	M	P			4			1						1																									1	1										
191	45.905760	-89.821552	5	M	P			4			1						1															1										1											
192	45.905336	-89.821553	6	M	P			4									1																									2	1										
193	45.904913	-89.821555	5	M	P			4																																		2	2										
194	45.904490	-89.821556	3	M	P			4																																		2	2										
195	45.904067	-89.821557	2	M	P			7	1	1							1										1	1															1										1	
196	45.917603	-89.820908	15		R			1																																				1										
197	45.917180	-89.820909						0																																														
198	45.916757	-89.820911						0																																														
199	45.916334	-89.820912						0																																														
200	45.915911	-89.820913						0																																														
201	45.915488	-89.820915						0																																														
202	45.915065	-89.820916	20					0																																														
203	45.914642	-89.820918						0																																														
204	45.914219	-89.820919						0																																														
205	45.913796	-89.820920						0																																														
206	45.913373	-89.820922						0																																														
207	45.912950	-89.820923						0																																														
208	45.912527	-89.820924	4	S	P			2																			1													1														

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Carex vesicaria	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Elodea canadensis	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton hybrid	Potamogeton alpinus	Potamogeton amplifolius	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton illinoensis	Potamogeton natans	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Schoenoplectus acutus	Sparganium angustifolium	Sparganium fluctuans	Spirodela polyrhiza	Typha angustifolia	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
209	45.906182	-89.820945	3	M	P			11			1	1					1	1					1				1	1														2			1	1									
210	45.905759	-89.820946	5	M	P			6			2						2																							1				1									
211	45.905336	-89.820947	7	M	P			2			1	1																																									
212	45.904913	-89.820949	7	M	P			3			1																													1				1									
213	45.904489	-89.820950	6	M	P			7			1						1																							3				2									
214	45.904066	-89.820952	3	M	P			9	1	1							1								1		1	1													2				1									
215	45.903643	-89.820953	2	M	P			11			1						1	1								1	1	1			1					1					1			1									1
216	45.918025	-89.820301						0																																														
217	45.917602	-89.820302						0																																														
218	45.917179	-89.820303						0																																														
219	45.916756	-89.820305						0																																														
220	45.916333	-89.820306						0																																														
221	45.915910	-89.820307						0																																														
222	45.915487	-89.820309						0																																														
223	45.915064	-89.820310	11	M	P			6			3												1		1																							1					
224	45.914641	-89.820312						0																																														
225	45.914218	-89.820313						0																																														
226	45.913795	-89.820314						0																																														
227	45.913372	-89.820316						0																																														
228	45.912949	-89.820317						0																																														
229	45.912526	-89.820318	14		R			3																	1	1												1															
230	45.906181	-89.820339	4	M	P			5			1						2																							1				1									
231	45.905758	-89.820340	5	M	P			5			1						1																							3													
232	45.905335	-89.820342	7	M	P			5			1						1																							2				1									
233	45.904912	-89.820343	6	M	P			5			1						1																							1				3									
234	45.904489	-89.820344	3	M	P			5		1							1															1								2													
235	45.904066	-89.820346	3	M	P			6	1	1		1															1	1																									1	
236	45.918447	-89.819693	4	M	P			2																1																1													
237	45.918024	-89.819695	8	M	P			2			1																																	1									
238	45.917601	-89.819696						0																																														
239	45.917178	-89.819697						0																																														
240	45.916755	-89.819699						0																																														
241	45.916332	-89.819700						0																																														
242	45.915909	-89.819701						0																																														
243	45.915486	-89.819703						0																																														
244	45.915063	-89.819704	20					0																																														
245	45.914640	-89.819705						0																																														
246	45.914217	-89.819707						0																																														
247	45.913794	-89.819708	8	M	P			3			1												1		1																												
248	45.913371	-89.819711	4	S	P			8			1						1																				1		1				1	1									1
249	45.912948	-89.819711	15		R			7				3													2																	1		1						
250	45.912525	-89.819712	15		R			2																	2																										
251	45.912102	-89.819714	4	M	P			9											1	1					1		1	1																			1	1		1	1	
252	45.906180	-89.819733	4	M	P			11		1							1					1			1		1	1	1	1	1																1				1	
253	45.905757	-89.819734	5	M	P			8		1							1				1					1	1									1			1													
254	45.905334	-89.819736	6	M	P			6			1						1																							3				1									
255	45.904911	-89.819737	6	M	P			6			1						1																							3				1									
256	45.904488	-89.819738	3	M	P			8		1	2						1			1							1	1												1													
257	45.904065	-89.819740						0																																														
258	45.919715	-89.819083	3	S	P			6								1									1		1	1			1																					1
259	45.919292	-89.819084	7	M	P			4																																2	1											1
260	45.918869	-89.819086	13		R			2																	2																										

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Carex vesicaria	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Elodea canadensis	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton hybrid	Potamogeton alpinus	Potamogeton amplifolius	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton illinoensis	Potamogeton natans	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Schoenoplectus acutus	Sparganium angustifolium	Sparganium fluctuans	Spirodela polyrhiza	Typha angustifolia	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
261	45.918446	-89.819087	12		R			4			1															3																												
262	45.918023	-89.819088	14		R			4			2													1																			1											
263	45.917600	-89.819090						0																																													
264	45.917177	-89.819091						0																																													
265	45.916754	-89.819093						0																																													
266	45.916331	-89.819094						0																																													
267	45.915908	-89.819095						0																																													
268	45.915485	-89.819097						0																																													
269	45.915062	-89.819098	21					0																																													
270	45.914639	-89.819099						0																																													
271	45.914216	-89.819101	15		R			2																			2																											
272	45.913793	-89.819102	2	S	P			3				2																																	1										
273	45.913370	-89.819104	15		R			3			1															1																		1										
274	45.912947	-89.819105	15		R			4															1			3																											
275	45.912524	-89.819106	16		R			1																		1																											
276	45.912101	-89.819108	15		R			1																		1																											
277	45.911678	-89.819109	7	S	P			6									1		1		1	1						1													1				1									1	
278	45.905756	-89.819128						0																																													
279	45.905333	-89.819130	4	M				9	1			1					1					1						1	1						1									1	1										
280	45.904910	-89.819131	6	M	P			2				1												1																														
281	45.904487	-89.819132						0																																													
282	45.904064	-89.819134						0																																													
283	45.920983	-89.818473	2	S	P			5											1			1	1				V	V	V																	1							1			
284	45.920560	-89.818474	3	M	P			4				3															V	V																		1									
285	45.920137	-89.818475	11	M	P			3				2										1																															
286	45.919714	-89.818477	14	M	P			1																			1																											
287	45.919291	-89.818478	14		R			1																			1																											
288	45.918868	-89.818480	14		R			0																																													
289	45.918445	-89.818481	16					0																																													
290	45.918022	-89.818482						0																																													
291	45.917599	-89.818484						0																																													
292	45.917176	-89.818485						0																																													
293	45.916753	-89.818486						0																																													
294	45.916330	-89.818488						0																																													
295	45.915907	-89.818489						0																																													
296	45.915484	-89.818491						0																																													
297	45.915061	-89.818492	23					0																																													
298	45.914638	-89.818493						0																																													
299	45.914215	-89.818495						0																																													
300	45.913792	-89.818496						0																																													
301	45.913369	-89.818498						0																																													
302	45.912946	-89.818499						0																																													
303	45.912523	-89.818500	17		R			0																																													
304	45.912100	-89.818502						0																																													
305	45.911677	-89.818503	17		R			0																																													
306	45.911254	-89.818504	15		R			0																																													
307	45.910831	-89.818506	7	M	P			1																																						1										
308	45.910408	-89.818507	3	M	P			4																		1														1							1					1				
309	45.909985	-89.818509	6	M	P			7			1																	1	1																	3	1									
310	45.909562	-89.818510	6	M	P			7									1										1	1																	3	1									
311	45.909139	-89.818511	4	M	P			7		2	1																1	1																	1									1
312	45.908716	-89.818513	4	M	P			9		1	1						1										1	1	V			1									1				1							1

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Carex vesicaria	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Elodea canadensis	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton hybrid	Potamogeton alpinus	Potamogeton amplifolius	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton illinoensis	Potamogeton natans	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Schoenoplectus acutus	Sparganium angustifolium	Sparganium fluctuans	Spirodela polyrhiza	Typha angustifolia	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
313	45.904909	-89.818525	4	M				2			1														1																													
314	45.904486	-89.818526			P			0																																															
315	45.921406	-89.817865	5	M	P			4																												1					1			1											1
316	45.920983	-89.817867	10	M	P			2																																	1			1											
317	45.920559	-89.817868	11	M	P			1																																				1											
318	45.920136	-89.817869	12		R			1																																			1											
319	45.919713	-89.817871	14		R			0																																													
320	45.919290	-89.817872	15		R			0																																													
321	45.918867	-89.817873	18		R			0																																													
322	45.918444	-89.817875						0																																													
323	45.918021	-89.817876			R			0																																													
324	45.917598	-89.817878						0																																													
325	45.917175	-89.817879						0																																													
326	45.916752	-89.817880						0																																													
327	45.916329	-89.817882						0																																													
328	45.915906	-89.817883						0																																													
329	45.915483	-89.817885						0																																													
330	45.915060	-89.817886	23					0																																													
331	45.914637	-89.817887						0																																													
332	45.914214	-89.817889						0																																													
333	45.913791	-89.817890						0																																													
334	45.913368	-89.817891						0																																													
335	45.912945	-89.817893						0																																													
336	45.912522	-89.817894						0																																													
337	45.912099	-89.817896						0																																													
338	45.911676	-89.817897	6	M	P			1																					1																									
339	45.910830	-89.817900	11	M	P			1			1																																										
340	45.910407	-89.817901	6	M	P			3			2																														1													
341	45.909984	-89.817903	7	M	P			5			3																																1	1										
342	45.909561	-89.817904	6	M	P			6			1							1													1											3											
343	45.909138	-89.817905	4	M	P			5			1										1				1	1															1											
344	45.908715	-89.817907	4	M	P			9	1		1					1							1				1	1												1			1								1		
345	45.904908	-89.817919	6	M				3			1																1									1																	
346	45.904485	-89.817921			P			0																																													
347	45.921405	-89.817259	8	M	P			3			1																												1			1										
348	45.920982	-89.817260	11	M	P			1			1																																									
349	45.920559	-89.817262	11		R			2			1																														1											
350	45.920136	-89.817263	14		R			0																																													
351	45.919712	-89.817265	15		R			1			1																																									
352	45.919289	-89.817266	17		R			0																																													
353	45.918866	-89.817267	18		R			0																																													
354	45.918443	-89.817269						0																																													
355	45.918020	-89.817270			R			0																																													
356	45.917597	-89.817272						0																																													
357	45.917174	-89.817273						0																																													
358	45.916751	-89.817274						0																																													
359	45.916328	-89.817276						0																																													
360	45.915905	-89.817277						0																																													
361	45.915482	-89.817279						0																																													
362	45.915059	-89.817280	23					0																																													
363	45.914636	-89.817281						0																																													
364	45.914213	-89.817283						0																																													

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Carex vesicaria	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Elodea canadensis	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton hybrid	Potamogeton alpinus	Potamogeton amplifolius	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton illinoensis	Potamogeton natans	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Schoenoplectus acutus	Sparganium angustifolium	Sparganium fluctuans	Spirodela polyrhiza	Typha angustifolia	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
365	45.913790	-89.817284						0																																													
366	45.913367	-89.817285						0																																													
367	45.912944	-89.817287						0																																													
368	45.912521	-89.817288						0																																													
369	45.912098	-89.817290	7	S	P			2																																	1	1													
370	45.910406	-89.817295	5	M	P			5									1																										2	2										
371	45.909983	-89.817297	7	M	P			5			1																																3	1										
372	45.909560	-89.817298	6	M	P			6																									1										1	3	1										
373	45.909137	-89.817299	4	M	P			10		1	2												1		1		1	1				1											2											
374	45.908714	-89.817301	4	M	P			8		1	1						1						1				1	1																								1	1
375	45.905330	-89.817312						0																																													
376	45.904907	-89.817313	6	M	P			5		1													1				1										1					1											
377	45.921404	-89.816653	7	M	P			3			1																												1			1											
378	45.920981	-89.816654	10	M	P			2			1																															1											
379	45.920558	-89.816656	12		R			1			1																																									
380	45.920135	-89.816657	14		R			1																																		1										
381	45.919712	-89.816659	14		R			1			1																																									
382	45.919289	-89.816660	15		R			0																																												
383	45.918865	-89.816661	9		R			5			2															3																										
384	45.918442	-89.816663						0																																													
385	45.918019	-89.816664						0																																													
386	45.917596	-89.816665						0																																													
387	45.917173	-89.816667						0																																													
388	45.916750	-89.816668						0																																													
389	45.916327	-89.816670						0																																													
390	45.915904	-89.816671						0																																													
391	45.915481	-89.816672						0																																													
392	45.915058	-89.816674	20					0																																													
393	45.914635	-89.816675						0																																													
394	45.914212	-89.816677						0																																													
395	45.913789	-89.816678						0																																													
396	45.913366	-89.816679						0																																													
397	45.912943	-89.816681						0																																													
398	45.912520	-89.816682	14		R			1																															1														
399	45.912097	-89.816684	3	S	P			4											1	1							1																			1					
400	45.910405	-89.816689	4	M	P			10	1	1	1						2										1	1																1	1						1
401	45.909982	-89.816691	3	M	P			11	1	1	1						3										1	1																2	1						
402	45.909559	-89.816692	3	M	P			8		1	1						2								1			1		1													1								
403	45.909136	-89.816693	3	M	P			11	1	1	1	1															1	1									1							1	1	1	1		1			
404	45.905329	-89.816706						0																																													
405	45.904906	-89.816707	6	M	P			3																			1	1										1													
406	45.921403	-89.816047	7	M	P			5			2																		1													1	1							
407	45.920980	-89.816048	10	M	P			5			1											1							1	1						1													
408	45.920557	-89.816050	12		R			1			1																																									
409	45.920134	-89.816051	15		R			0																																													
410	45.919711	-89.816052	14		R			1																1																											
411	45.919288	-89.816054	14		R			0																																												
412	45.918864	-89.816055	4	S	P			3																							1											1									1
413	45.918441	-89.816057	4	M	P			1																							1																			
414	45.918018	-89.816058	15		R			3																	3																									
415	45.917595	-89.816059						0																																													
416	45.917172	-89.816061						0																																													

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Carex vesicaria	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Elodea canadensis	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton hybrid	Potamogeton alpinus	Potamogeton amplifolius	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton illinoensis	Potamogeton natans	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Schoenoplectus acutus	Sparganium angustifolium	Sparganium fluctuans	Spirodela polyrhiza	Typha angustifolia	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
417	45.916749	-89.816062						0																																												
418	45.916326	-89.816064						0																																												
419	45.915903	-89.816065						0																																												
420	45.915480	-89.816066						0																																												
421	45.915057	-89.816068	17					0																																												
422	45.914634	-89.816069	13		R			3															1			1														1														
423	45.914211	-89.816071	15		R			3			1															2																											
424	45.913788	-89.816072	8	M	P			6			1									1			1																1	1			1										
425	45.913365	-89.816073	8	M	P			4			1												1																		1		1										
426	45.912942	-89.816075	7	M	P			3			1																														1		1										
427	45.912519	-89.816076	2	S	P			6							1					1	1											1					1																1	
428	45.909981	-89.816085						0																																												
429	45.909558	-89.816086						0																																												
430	45.904905	-89.816101	6	M	P			2			1												1																														
431	45.921402	-89.815441	6	M	P			4																														1					1								1	1	
432	45.920979	-89.815442	9	M	P			3			1																											1					1										
433	45.920556	-89.815444	11		R			0																																												
434	45.920133	-89.815445	13		R			0																																												
435	45.919710	-89.815446	13		R			0																																												
436	45.919287	-89.815448	13	S	P			2																	2																										
437	45.918864	-89.815449	13	S	P			3			1														1																1										
438	45.918441	-89.815451	6	M	P			5			1											1																	1			1										1
439	45.918017	-89.815452	8	M	P			7			3												1															1	1			1										
440	45.917594	-89.815453	7	M	P			5			3																											1				1										
441	45.917171	-89.815455						0																																												
442	45.916748	-89.815456	16		R			0																																												
443	45.916325	-89.815458	15		R			1																	1																										
444	45.915902	-89.815459	7	M	P			5			1												2																		1	1									
445	45.915479	-89.815460	5	S	P			5															1				1	1													1										1
446	45.915056	-89.815462	5	M	P			1																					1																						
447	45.914633	-89.815463	5	M	P			4																					1											2	1									
448	45.914210	-89.815465	4	S	P			7				1			1	1	1						1												1										1							
449	45.913787	-89.815466	2	S	P			4				1							1						1																			1							
450	45.921401	-89.814835						0																																												
451	45.920978	-89.814836	7	M	P			2			1																													1										
452	45.920555	-89.814837	11		R			3			2																													1										
453	45.920132	-89.814839	11		R			1																																1										
454	45.919709	-89.814840	12	M	P			0																																												
455	45.919286	-89.814842	13	M	P			4			1														3																										
456	45.918863	-89.814843	7	M	P			6			2																											1	1		1										1
457	45.918440	-89.814844	7	M	P			5			2																2														1										
458	45.918017	-89.814846	4	M	P			6			1																		1							1	1	1		1										
459	45.917593	-89.814847	2	S	P			4			1												1		V																								1	1	
460	45.917170	-89.814849	3	S	P			5								1									1								1															1	1	
461	45.916747	-89.814850	11	S	P			0																																												
462	45.916324	-89.814851	11	S	P			1																																												1
463	45.915901	-89.814853	2	S	P			7				1							1				1			1														1										1		1
464	45.915478	-89.814854	2	S	P			5				1							1						1																								1	1	
465	45.915055	-89.814856	1	S	P			2						1																													1								
466	45.920977	-89.814230	4	S	P			1			1																																									
467	45.920554	-89.814231	8		P			4			1												1																		2										
468	45.920131	-89.814233	10	M	P			2			1																													1										

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Carex vesicaria	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Elodea canadensis	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton hybrid	Potamogeton alpinus	Potamogeton amplifolius	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton illinoensis	Potamogeton natans	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Schoenoplectus acutus	Sparganium angustifolium	Sparganium fluctuans	Spirodela polyrhiza	Typha angustifolia	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
469	45.919708	-89.814234	10	M	P			4			3												1																																
470	45.919285	-89.814236	7	M	P			5	1																															1				1	1	1								1
471	45.918862	-89.814237	6	M	P			4			1																													2														
472	45.918439	-89.814238						0																																													
473	45.917592	-89.814241	2	S	P			5								1				1							1		1						1																			
474	45.917169	-89.814243	3	S	P			3												1				1																						1							
475	45.916746	-89.814244	3	S	P			9			1	1				1			1								1							1				1								1	1					
476	45.916323	-89.814245	3	S	P			4								1											1		1																	1							
477	45.920553	-89.813625						0																																													
478	45.920130	-89.813627	4	S	P			2			1																															1											
479	45.919707	-89.813628	3	S	P			6			1								1				1			1																1		1								
480	45.919284	-89.813629	3	S	P			11							1		1		1	1				1	1		1		1										1				1	1									1
481	45.918861	-89.813631	2	S	P			7			1										1						1	1	1																1				1			

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Notes	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Elodea canadensis	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Juncus pelocarpus	Lemna minor	Lemna trisulca	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Schoenoplectus tabernaemontani	Sparganium fluctuans	Utricularia gibba	Utricularia minor	Utricularia vulgaris	Vallisneria americana
1	45.905768	-89.827006	4	M	P			1			1				1				1					1												1								1
2	45.905345	-89.827007	4	M	P			1		1	1		1							1																1	1	1	1					
3	45.904922	-89.827008	8	M	P			2			1																									2								
4	45.904499	-89.827010				Visual																		v	v																			
5	45.907036	-89.826396	4.5	M	P			1					1		1																					1		1						
6	45.906613	-89.826397	10.1	M	R			1			1				1					1													1	1			1							1
7	45.906190	-89.826398	9	S	P			1			1				1				1													1											
8	45.905767	-89.826400	10.4	M	R			1																												1		1					
9	45.905344	-89.826401	11.4	M	R			1			1		1																		1												
10	45.904921	-89.826402	12.4	M	R			1					1																															
11	45.904498	-89.826404	4.4	M	P			1			1													1	1	1											1	1	1						
12	45.911265	-89.825777	7.5	M	P			2			1																										1						1
13	45.910842	-89.825778	9	M	P			2			2													1												1		1						
14	45.908304	-89.825786	12.6	M	R			1	1										1																									
15	45.907881	-89.825787	14.4	M	R																																							
16	45.907458	-89.825788	14.5	M	R			1			1																																	
17	45.907035	-89.825790	16.8	M	R			1			1																																	
18	45.906612	-89.825791	15.8	R	R																																				1				
19	45.906189	-89.825792	13	M	R																																							
20	45.905766	-89.825794	12.8	M	R			1			1																																	
21	45.905343	-89.825795	13.5	M	R			1			1																																	
22	45.904920	-89.825796	13.5	M	R			1										1																										
23	45.904497	-89.825798	4.5	M	P			1			1													1		1																		
24	45.912110	-89.825168	2.5	S	P			1			1		1											1									1											
25	45.911687	-89.825169	16	M	R																																							
26	45.911264	-89.825171	17	M	R																																							
27	45.910841	-89.825172	18																																								
28	45.910418	-89.825173	10	M	P			2			2											1											1					1	1					
29	45.908726	-89.825178	3	S	P			1	1																															1				
30	45.908303	-89.825180	15.3	M	R																																							
31	45.907880	-89.825181	15.2	M	R																																							
32	45.907457	-89.825182	15.1	M	R																																							
33	45.907034	-89.825184	15	M	R																																							
34	45.906611	-89.825185	16.5	M	R																																							
35	45.906188	-89.825186	16	M	R																																							
36	45.905765	-89.825188	15	M	R																																							
37	45.905342	-89.825189	16	M	R																																							
38	45.904919	-89.825190	14	M	R																																							
39	45.904496	-89.825192	4	M	P			3			2		1						1					1		3			1								1	1					
40	45.914648	-89.824554	4	M	P			1																1	1											1							1
41	45.914225	-89.824555	7	M	P			2					1											1												2							
42	45.913802	-89.824557	6	M	P			1			1																		1						1	1	1						1
43	45.913379	-89.824558	4	M	P			1											1					1	1											1	1						
44	45.912956	-89.824559	4	M	P			1											1					1		1																
45	45.912533	-89.824561	7	M	P			2											1					1												2	1						1
46	45.912110	-89.824562	15	M	R																																							
47	45.911687	-89.824563	23																																								
48	45.911263	-89.824565	14																																								
49	45.910840	-89.824566	20.3																																								
50	45.910417	-89.824567	18.9																																								
51	45.909994	-89.824569	12.5	M	R			1					1				1							1																				
52	45.909571	-89.824570				Dock																																					
53	45.908725	-89.824573	17																																								
54	45.908302	-89.824574	18																																								
55	45.907879	-89.824575	15.5	M	R																																							
56	45.907456	-89.824577	16	M	R																																							
57	45.907033	-89.824578	16	M	R			1			1																																	
58	45.906610	-89.824579	15.2	M	R																																							
59	45.906187	-89.824581	15	M	R																																							
60	45.905764	-89.824582	15	M	R																																							
61	45.905341	-89.824583	16	M	R																																							
62	45.904918	-89.824585	12	M	R																																							
63	45.904495	-89.824586				Visual																		v		v																	
64	45.915070	-89.823946	3.5	S	P			1			1								1					1																				
65	45.914647	-89.823948	14	M	R			1														1																						
66	45.914224	-89.823949	18																																								
67	45.913801	-89.823950	18																																								
68	45.913378	-89.823952	18.5																																								
69	45.912955	-89.823953	19																																								
70	45.912532	-89.823954	19																																								
71	45.912109	-89.823956	23																																								

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Notes	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Elodea canadensis	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Juncus pelocarpus	Lemna minor	Lemna trisulca	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Schoenoplectus tabernaemontani	Sparganium fluctuans	Utricularia gibba	Utricularia minor	Utricularia vulgaris	Vallisneria americana
72	45.911686	-89.823957	18.5																																									
73	45.911263	-89.823959	18.5																																									
74	45.910840	-89.823960	19.8																																									
75	45.910416	-89.823961	20.6																																									
76	45.909993	-89.823963	18.3																																									
77	45.909570	-89.823964	20.2																																									
78	45.909147	-89.823965	19.7																																									
79	45.908724	-89.823967	17.1																																									
80	45.908301	-89.823968	19.6																																									
81	45.907878	-89.823969	15.4	M	R																																						
82	45.907455	-89.823971	6	S	P			1	1						1					1		1	1											1			1			1				1
83	45.907032	-89.823972	4	S	P			1														1			1		v					1												
84	45.906609	-89.823973	13.9	M	R																																							
85	45.906186	-89.823975	14	M	R																																							
86	45.905763	-89.823976	13	M	R																																							
87	45.905340	-89.823977	14	M	R																																							
88	45.904917	-89.823979	8	S	P			1				1			1																														1
89	45.917607	-89.823332	4	S	P			1				1											1		1																			
90	45.917184	-89.823334	12	M	R			1										1						1																					
91	45.916761	-89.823335	10	S	R																																								
92	45.916338	-89.823336	3	S	P			1														1		1	1									1										
93	45.915492	-89.823339	5.5	S	P			2														2													1									1
94	45.915069	-89.823340	16.5	M	R																																								
95	45.914646	-89.823342	21																																									
96	45.914223	-89.823343	21																																									
97	45.913800	-89.823344	22																																									
98	45.913377	-89.823346	22																																									
99	45.912954	-89.823347	23																																									
100	45.912531	-89.823348	21																																									
101	45.912108	-89.823350	18																																									
102	45.911685	-89.823351	15.5	M	R																																							
103	45.911262	-89.823352	11	M	R			3				3																													1				
104	45.910839	-89.823354	18.1																																									
105	45.910416	-89.823355	17.5																																									
106	45.909993	-89.823357	18.7																																									
107	45.909570	-89.823358	20.4																																									
108	45.909146	-89.823359	19.2																																									
109	45.908723	-89.823361	16.8	M	R																																							
110	45.908300	-89.823362	16.2	M	R																																							
111	45.907877	-89.823363	14.9	M	R			1																											1										
112	45.907454	-89.823365	2	S	P																																							
113	45.906608	-89.823367	12.5	M	R																																							
114	45.906185	-89.823369	8	M	R			1				1																							1	1					1				
115	45.905762	-89.823370	12	M	R			1				1																																	
116	45.905339	-89.823371	10	R	P			1				1								1																									1
117	45.904916	-89.823373	2	S	P			1				1												1								1												1
118	45.917606	-89.822726	4	S	P			1												1					1															1				
119	45.917183	-89.822728	14	M	R																																								
120	45.916760	-89.822729	13.5																																									
121	45.916337	-89.822730	15	M	R																																							
122	45.915914	-89.822732	16	M	R																																							
123	45.915491	-89.822733	18																																									
124	45.915068	-89.822734	19.5																																									
125	45.914645	-89.822736	20																																									
126	45.914222	-89.822737	23																																									
127	45.913799	-89.822738	23																																									
128	45.913376	-89.822740	23																																									
129	45.912953	-89.822741	23																																									
130	45.912530	-89.822742	19																																									
131	45.912107	-89.822744	17	S	R																																							
132	45.911684	-89.822745	16	M	R																																							
133	45.911261	-89.822746	13	M	R			1				1																																		
134	45.910838	-89.822748	7	M	P			3				1															2						1	1		1			2				
135	45.910415	-89.822749	15.2	S	R																																								
136	45.909992	-89.822751	15.6	M	R																																								
137	45.909569	-89.822752	15.7	M	R																																								
138	45.909146	-89.822753	16.1	M	R																																								
139	45.908723	-89.822755	15.9	M	R																																								
140	45.908300	-89.822756	14.4	M	R																																								
141	45.907877	-89.822757				Visual																																						
142	45.906607	-89.822761	2	S	P			1			v		1	1											v	1																		

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Notes	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Elodea canadensis	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Juncus pelocarpus	Lemna minor	Lemna trisulca	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Schoenoplectus tabernaemontani	Sparganium fluctuans	Utricularia gibba	Utricularia minor	Utricularia vulgaris	Vallisneria americana
143	45.906184	-89.822763	9	M	P			2			1									1							1				2														2
144	45.905761	-89.822764	12	M	P			2																							1						2						2	
145	45.905338	-89.822765	9	M	P			2												1											2						1						1	
146	45.917605	-89.822120	4	S	P			1							1					1		1																1							
147	45.917182	-89.822122	16																																										
148	45.916759	-89.822123	14																																										
149	45.916336	-89.822124	18																																										
150	45.915913	-89.822126	19.5																																										
151	45.915490	-89.822127	20																																										
152	45.915067	-89.822128	19																																										
153	45.914644	-89.822130	21																																										
154	45.914221	-89.822131	22																																										
155	45.913798	-89.822132	22																																										
156	45.913375	-89.822134	22																																										
157	45.912952	-89.822135	26																																										
158	45.912529	-89.822136	18																																										
159	45.912106	-89.822138	12	M	R			1																																			1	
160	45.911683	-89.822139	6	R	P			1			1									1		1											1												
161	45.911260	-89.822140	14	M	R			1																									1					1							
162	45.910837	-89.822142	9	M	P			3	1		3																											2	2					1
163	45.910414	-89.822143	10.9	S	R																																								
164	45.909991	-89.822145	15.6	M	R																																								
165	45.909568	-89.822146	15.9	M	R																																								
166	45.909145	-89.822147	7	M	R			1							1	1				1													1											
167	45.908722	-89.822149				Terrestrial																																							
168	45.906183	-89.822157	6	M	P			1			1																						1												
169	45.905760	-89.822158	10	M	P			2			1									1													1					1							
170	45.905337	-89.822159	11	M	P			1																														1							
171	45.904914	-89.822161	7	M	P			2	1		2																						1				1	1							1
172	45.917604	-89.821514	7	M	P			1																1			1						1							1					
173	45.917181	-89.821515	7.5																																										
174	45.916758	-89.821517	19																																										
175	45.916335	-89.821518	20																																										
176	45.915912	-89.821520	19																																										
177	45.915489	-89.821521	19																																										
178	45.915066	-89.821522	19.5																																										
179	45.914643	-89.821524	22																																										
180	45.914220	-89.821525	23																																										
181	45.913797	-89.821526	28																																										
182	45.913374	-89.821528	29																																										
183	45.912951	-89.821529	28																																										
184	45.912528	-89.821530	7	M	P			2			1									1				1	1							2	1		1									1
185	45.911259	-89.821534	4	M	P			1																1		1			1			1	1											1
186	45.910836	-89.821536	7	M	P			2							1					1				1						1		2	1											
187	45.910413	-89.821537	2.1	R	P			1																1																				
188	45.909990	-89.821539	9	M	P			1							1					1				1								1												1
189	45.909567	-89.821540	8.5	S	P			1																1	1							1												
190	45.906183	-89.821551	6	M	P			2	1		1		2																			1												
191	45.905760	-89.821552	5	M	P			1			1		1																			1	1											1
192	45.905336	-89.821553	9	M	P			2			2																					1	1											
193	45.904913	-89.821555	9	M	P			3			3		2																			1	2											
194	45.904490	-89.821556	5	M	P			2			2													1	v							1					1							
195	45.904067	-89.821557	4	M	P			3	1	1			2							2					1			1			1													
196	45.917603	-89.820908	12	S	P																																								
197	45.917180	-89.820909	17																																										
198	45.916757	-89.820911	20																																										
199	45.916334	-89.820912	21																																										
200	45.915911	-89.820913	20																																										
201	45.915488	-89.820915	21																																										
202	45.915065	-89.820916	20.5																																										
203	45.914642	-89.820918	23																																										
204	45.914219	-89.820919	27																																										
205	45.913796	-89.820920	29																																										
206	45.913373	-89.820922	31																																										
207	45.912950	-89.820923	24																																										
208	45.912527	-89.820924	4	R	P			1																1																				1
209	45.906182	-89.820945	5	M	P			1	1	1			1											1	v	v							1												
210	45.905759	-89.820946	7	M	P			3			2		2																									2						
211	45.905336	-89.820947	8	M	P			1			1		1																				1				1							
212	45.904913	-89.820949	9	M	P			3			3																											3	2					
213	45.904489	-89.820950	8	M	P			3			1																											3	1					

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Notes	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Elodea canadensis	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Juncus pelocarpus	Lemna minor	Lemna trisulca	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Schoenoplectus tabernaemontani	Sparganium fluctuans	Utricularia gibba	Utricularia minor	Utricularia vulgaris	Vallisneria americana
214	45.904066	-89.820952	9	M	P			3		3	2		2											2										2	1									
215	45.903643	-89.820953				Visual																		v	v																			
216	45.918025	-89.820301				Dock																																						
217	45.917602	-89.820302	17	M	R																																							
218	45.917179	-89.820303	18.5																																									
219	45.916756	-89.820305	21																																									
220	45.916333	-89.820306	23																																									
221	45.915910	-89.820307	22																																									
222	45.915487	-89.820309	14	M	R			1			1																																		
223	45.915064	-89.820310	11	M	R																																								
224	45.914641	-89.820312	23																																									
225	45.914218	-89.820313	25																																									
226	45.913795	-89.820314	24																																									
227	45.913372	-89.820316	23																																									
228	45.912949	-89.820317	22																																									
229	45.912526	-89.820318	10	M	P			2														1	1											2										
230	45.906181	-89.820339	4	M	P			2	2						1																			1	1										1
231	45.905758	-89.820340	6	M	P			2			1		1																					1	2	1									
232	45.905335	-89.820342	8	M	P			3			1																								3	1									
233	45.904912	-89.820343	9	M	P			3			3																								3	1									
234	45.904489	-89.820344	6	M	P			3			2		1																						3										
235	45.904066	-89.820346				Visual																			v																			
236	45.918447	-89.819693	1.5	S	P			1																1										1										
237	45.918024	-89.819695	6	M	R			1																										1										
238	45.917601	-89.819696	16	M	R																																							
239	45.917178	-89.819697	19.5																																									
240	45.916755	-89.819699	24																																									
241	45.916332	-89.819700	24																																									
242	45.915909	-89.819701	23.5																																									
243	45.915486	-89.819703	21																																									
244	45.915063	-89.819704	20.5																																									
245	45.914640	-89.819705	25																																									
246	45.914217	-89.819707	22																																									
247	45.913794	-89.819708	11	M	P			1																										1										
248	45.913371	-89.819710	5	M	P			2			1	1	1							1							1																	1
249	45.912948	-89.819711	19																																									
250	45.912525	-89.819712	16	M	R																																							
251	45.912102	-89.819714	2	R	P			1																1	v																			
252	45.906180	-89.819733				Visual																																						
253	45.905757	-89.819734	4	M	P			3			1									1														1	1	1									
254	45.905334	-89.819736	6	M	P			2												1															2										
255	45.904911	-89.819737	7	M	P																																								
256	45.904488	-89.819738	3	M	P			1	1	1	1				1	1	1		1					1	1									1									1	1	
257	45.904065	-89.819740				Visual									1								v	v																			
258	45.919715	-89.819083	2	S	P			1																	1																			
259	45.919292	-89.819084	6	M	P			2																									1	1										1
260	45.918869	-89.819086	13	M	R			1			1																					1										1	
261	45.918446	-89.819087	15	M	R			1			1																					1											
262	45.918023	-89.819088	15	M	R																																							
263	45.917600	-89.819090	20																																									
264	45.917177	-89.819091	25																																									
265	45.916754	-89.819093	26																																									
266	45.916331	-89.819094	25																																									
267	45.915908	-89.819095	24.5																																									
268	45.915485	-89.819097	23																																									
269	45.915062	-89.819098	22																																									
270	45.914639	-89.819099	24																																									
271	45.914216	-89.819101	13	M	R																																							
272	45.913793	-89.819102	2.5	S	P			1					1																															1
273	45.913370	-89.819104	13	M	R																																							
274	45.912947	-89.819105	18																																									
275	45.912524	-89.819106	16	M	R																																							
276	45.912101	-89.819108	17	M	R			1			1																																	
277	45.911678	-89.819109	11	M	R			1														1																						
278	45.905756	-89.819128	3	S	P			1																1																				
279	45.905333	-89.819130	6	M	P			1			1		1		1										v	1								1	1										
280	45.904910	-89.819131	7	M	P			1																														1							
281	45.904487	-89.819132	7	M	P			1		1														1										1										1	
282	45.904064	-89.819134				Visual																																						
283	45.920983	-89.818473	1	S	P			1															1		1																			
284	45.920560	-89.818474	4	S	P			1			1				1					1		1		1	1	1																			

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Notes	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Elodea canadensis	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Juncus pelocarpus	Lemna minor	Lemna trisulca	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Schoenoplectus tabernaemontani	Sparganium fluctuans	Utricularia gibba	Utricularia minor	Utricularia vulgaris	Vallisneria americana
285	45.920137	-89.818475	12	M	R																																								
286	45.919714	-89.818477	13	M	R																																								
287	45.919291	-89.818478	12.5	M	R			1																										1													
288	45.918868	-89.818480	18	M	R																																								
289	45.918445	-89.818481	20																																									
290	45.918022	-89.818482	24																																									
291	45.917599	-89.818484	24																																									
292	45.917176	-89.818485	26.5																																									
293	45.916753	-89.818486	26.5																																									
294	45.916330	-89.818488	25.5																																									
295	45.915907	-89.818489	25																																									
296	45.915484	-89.818491	24																																									
297	45.915061	-89.818492	23																																									
298	45.914638	-89.818493	24																																									
299	45.914215	-89.818495	23																																									
300	45.913792	-89.818496	21																																									
301	45.913369	-89.818498	22																																									
302	45.912946	-89.818499	21																																									
303	45.912523	-89.818500	20																																									
304	45.912100	-89.818502	17	M	R																																								
305	45.911677	-89.818503	16	M	R																																								
306	45.911254	-89.818504	15	M	R																																								
307	45.910831	-89.818506	12	M	R			1				1																		1														
308	45.910408	-89.818507	3	S	P																																								
309	45.909985	-89.818509	8	M	P			1				1																																	
310	45.909562	-89.818510	6	M	P			3				1	1																							3	1									
311	45.909139	-89.818511	4	M	P			2		1	1													1									1	1											
312	45.908716	-89.818513	2	M	P			2	1	1	1													1	1	1		1					1											
313	45.904909	-89.818525	7	M	P			1			1	1															1							1										1	
314	45.904486	-89.818526				Visual				v	v																																	v	
315	45.921406	-89.817865	3	M	P			2				2																						1				1	1							
316	45.920983	-89.817867	11	M	R																																								
317	45.920559	-89.817868	11.5	M	R			1																1																					
318	45.920136	-89.817869	13	M	R																																								
319	45.919713	-89.817871	14.5	M	R																																								
320	45.919290	-89.817872	15	M	R																																								
321	45.918867	-89.817873	18.3	M	R																																								
322	45.918444	-89.817875	20	M	R																																								
323	45.918021	-89.817876	23																																									
324	45.917598	-89.817878	20																																									
325	45.917175	-89.817879	26.5																																									
326	45.916752	-89.817880	26.5																																									
327	45.916329	-89.817882	25.5																																									
328	45.915906	-89.817883	24.5																																									
329	45.915483	-89.817885	24.5																																									
330	45.915060	-89.817886	24																																									
331	45.914637	-89.817887	25																																									
332	45.914214	-89.817889	23																																									
333	45.913791	-89.817890	23																																									
334	45.913368	-89.817891	22																																									
335	45.912945	-89.817893	20																																									
336	45.912522	-89.817894	20																																									
337	45.912099	-89.817896	18																																									
338	45.911676	-89.817897	5	M	P			1																																					1
339	45.910830	-89.817900	8	M	P			2				1																						1												
340	45.910407	-89.817901	10	M	P			1				1																						1												
341	45.909984	-89.817903	9	M	P			1				1																						1												
342	45.909561	-89.817904	7	M	P			3				2	1							1																					1				
343	45.909138	-89.817905	6	M	P			2				1								1		1																						1	
344	45.908715	-89.817907	2	M	P			2				1	1												1															1				1	
345	45.904908	-89.817919	6	M	P			2																1	1		1																1	
346	45.904485	-89.817921	4	M	P			1		1	1	1				1								1	1																		1		
347	45.921405	-89.817259	8	M	P			3	1		1									1													3												1
348	45.920982	-89.817260	9	M	R			1																										1		1										
349	45.920559	-89.817262	13	M	R			1				1										1																							
350	45.920136	-89.817263	14	M	R																																								
351	45.919712	-89.817265	13.5	M	R																																								
352	45.919289	-89.817266	15.5	M	R			1				1																																		
353	45.918866	-89.817267	19	M	R																																								
354	45.918443	-89.817269	19.5	M	R																																								
355	45.918020	-89.817270	19																																									

Gunlock Lake 2019

Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Notes	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Elodea canadensis	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Juncus pelocarpus	Lemna minor	Lemna trisulca	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Schoenoplectus tabernaemontani	Sparganium fluctuans	Utricularia gibba	Utricularia minor	Utricularia vulgaris	Vallisneria americana
356	45.917597	-89.817272	20																																									
357	45.917174	-89.817273	24																																									
358	45.916751	-89.817274	26																																									
359	45.916328	-89.817276	25																																									
360	45.915905	-89.817277	24.5																																									
361	45.915482	-89.817279	24																																									
362	45.915059	-89.817280	24																																									
363	45.914636	-89.817281	23																																									
364	45.914213	-89.817283	23																																									
365	45.913790	-89.817284	22																																									
366	45.913367	-89.817285	22																																									
367	45.912944	-89.817287	22																																									
368	45.912521	-89.817288	21																																									
369	45.912098	-89.817290	5.5	M	P			1												1													1												1
370	45.910406	-89.817295	8	M	P			2			1																1						1		1	1									
371	45.909983	-89.817297	7	M	P			3			1																									3									
372	45.909560	-89.817298	6	M	P			3			1	1																								2	1								
373	45.909137	-89.817299	6	M	P			2			1	1							1																1									
374	45.908714	-89.817301	3	M	P			2		1	1								1		1			1																			1	
375	45.905330	-89.817312				Terrestrial																																						
376	45.904907	-89.817313	8	M	P			2	1												1			1											1								1	
377	45.921404	-89.816653	8	M	P			2											1													2		1										
378	45.920981	-89.816654	9	M	R			1			1																																	
379	45.920558	-89.816656	13	M	R																																							
380	45.920135	-89.816657	14.5	M	R																																							
381	45.919712	-89.816659	15	M	R																																							
382	45.919289	-89.816660	15	M	R																																							
383	45.918865	-89.816661	15	M	R																																							
384	45.918442	-89.816663	18	M	R																																							
385	45.918019	-89.816664	19																																									
386	45.917596	-89.816665	19																																									
387	45.917173	-89.816667	19																																									
388	45.916750	-89.816668	22																																									
389	45.916327	-89.816670	22																																									
390	45.915904	-89.816671	22																																									
391	45.915481	-89.816672	23.5																																									
392	45.915058	-89.816674	22																																									
393	45.914635	-89.816675	22																																									
394	45.914212	-89.816677	22																																									
395	45.913789	-89.816678	21																																									
396	45.913366	-89.816679	22																																									
397	45.912943	-89.816681	20																																									
398	45.912520	-89.816682	14	M	R																																							
399	45.912097	-89.816684				Terrestrial																																						
400	45.910405	-89.816689	4	M	P			1	1	v	1		1									1		1	1							1												
401	45.909982	-89.816691	5	M	P			2			1		1											1				1				1												
402	45.909559	-89.816692	4	M	P			2		1	1		1											1	1							1												
403	45.909136	-89.816693				Terrestrial				v																v																			
404	45.905329	-89.816706				Terrestrial																																						
405	45.904906	-89.816707	6	M	P			1									1					1			1																			
406	45.921403	-89.816047	7	M	P			3	1		1																					3												
407	45.920980	-89.816048	9	M	R			1			1																					1												
408	45.920557	-89.816050	13	M	R			1			1	1									1																						
409	45.920134	-89.816051	14	M	R																																							
410	45.919711	-89.816052	13.5	M	R																																							
411	45.919288	-89.816054	14	M	R			1																								1												
412	45.918864	-89.816055	4	S	R			1			1	1																				1										1	
413	45.918441	-89.816057	8	M	P			2											1																								1
414	45.918018	-89.816058	16	M	R			1													1																						
415	45.917595	-89.816059	19																																									
416	45.917172	-89.816061	19																																									
417	45.916749	-89.816062	19																																									
418	45.916326	-89.816064	19																																									
419	45.915903	-89.816065	19																																									
420	45.915480	-89.816066	20																																									
421	45.915057	-89.816068	18.5																																									
422	45.914634	-89.816069	18.5																																									
423	45.914211	-89.816071	13	M	R			1			1	1									1											1					1							
424	45.913788	-89.816072	12	M	R			1			1								1		1											1				1								
425	45.913365	-89.816073	7	M	P			1																												1								1
426	45.912942	-89.816075	7	M	P			1																												1	1								1

Gunlock Lake 2019

Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Notes	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Elodea canadensis	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Juncus pelocarpus	Lemna minor	Lemna trisulca	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Schoenoplectus tabernaemontani	Sparganium fluctuans	Utricularia gibba	Utricularia minor	Utricularia vulgaris	Vallisneria americana
427	45.912519	-89.816076	1.5	S	P			1																		v														1					
428	45.909981	-89.816085				Terrestrial																																							
429	45.909558	-89.816086				Terrestrial																																							
430	45.904905	-89.816101	7	M	P																																								
431	45.921402	-89.815441	6	M	P			2			2															v							1	1	1	1									
432	45.920979	-89.815442	9	M	R			1			1																						1		1										
433	45.920556	-89.815444	13	M	R			1																									1	1											
434	45.920133	-89.815445	15	M	R			1			1																																		
435	45.919710	-89.815446	12	M	R			1			1																																		
436	45.919287	-89.815448	14	M	R																																								
437	45.918864	-89.815449	13.5	M	R			1																									1		1										
438	45.918441	-89.815451	9	M	P			2			1									2							1																	1
439	45.918017	-89.815452	10	M	P			2			1		1																				1											
440	45.917594	-89.815453	8.5	M	P			2																									1											1
441	45.917171	-89.815455	15	M	R			1									1																											
442	45.916748	-89.815456	18																																									
443	45.916325	-89.815458	17	M	R																																							
444	45.915902	-89.815459	9	M	R			1														1	1																					
445	45.915479	-89.815460	6.5	M	P			2	1		1									1		1										1	1											1
446	45.915056	-89.815462	11	M	P			1																								1												
447	45.914633	-89.815463	5.5	M	P			3													1														3									
448	45.914210	-89.815465	2	S	P			1					1								1															1								
449	45.913787	-89.815466	1	S	P			1																																				1
450	45.921401	-89.814835	0.5	S	P																																							
451	45.920978	-89.814836	11	M	P			1			1		1																			1												
452	45.920555	-89.814837	11	M	R			1			1		1								1											1												
453	45.920132	-89.814839	12	M	R			1			1										1																							
454	45.919709	-89.814840	11.5	M	R			1					1							1	1																							
455	45.919286	-89.814842	14	M	R																																							
456	45.918863	-89.814843	8	M	P			3			3									1												2	1											
457	45.918440	-89.814844	9	M	P			1					1																															1
458	45.918017	-89.814846	4	M	P			1																											1									
459	45.917593	-89.814847	2.5	S	P			1			1	1	1															1																
460	45.917170	-89.814849	4	S	P			1	1		1																	1																
461	45.916747	-89.814850	13.5	M	R			1																									1												
462	45.916324	-89.814851	13	S	R			1														1	1									1												
463	45.915901	-89.814853	3	S	P			1			1	1												v																				
464	45.915478	-89.814854	2	M	P			1			1		1													1						1												1
465	45.915055	-89.814856				Terrestrial																																						
466	45.920977	-89.814230	3	S	P			1			1		1							1		1										1	1											1
467	45.920554	-89.814231	10	M	R																																							
468	45.920131	-89.814233	11	M	R			1														1											1												
469	45.919708	-89.814234	10	M	P			1			1																																	
470	45.919285	-89.814236	10	S	P			3			1						1																												
471	45.918862	-89.814237	6	M	P			3			1																	1							3									
472	45.918439	-89.814238				Non-Navigable																																						
473	45.917592	-89.814241				Non-Navigable																																						
474	45.917169	-89.814243	2	S	P			1																			1																	
475	45.916746	-89.814244	3	S	P			1					1																					1										
476	45.916323	-89.814245	2.5	M	P			3			1		1									1			1																			1
477	45.920553	-89.813625	1.5	S	P			1			1					1					1																				1			
478	45.920130	-89.813627				Non-Navigable																																						
479	45.919707	-89.813628	2	S	P																																							v
480	45.919284	-89.813629	2.5	S	P			1				1								1												1												
481	45.918861	-89.813631	1.5	S	P			1			1		1											1	1							1											

Shishebogama Lake

Scientific Name	Common Name	LFOO (%)	
		2009	2019
Bidens beckii	Water marigold	5.7	3.9
Brasenia schreberi	Watershield	4.8	2.4
Ceratophyllum demersum	Coontail	32.4	21.2
Chara spp.	Muskgrasses	8.8	10.4
Dulichium arundinaceum	Three-way sedge	0.4	0.0
Elatine minima	Waterwort	0.2	0.0
Eleocharis acicularis	Needle spikerush	3.6	0.8
Eleocharis palustris	Creeping spikerush	0.7	0.2
Elodea canadensis	Common waterweed	5.6	11.3
Equisetum fluviatile	Water horsetail	0.2	0.0
Eriocaulon aquaticum	Pipewort	0.7	0.2
Fissidens spp. & *Fontinalis* spp.	Aquatic Moss	0.0	0.2
Heteranthera dubia	Water stargrass	2.9	3.8
Isoetes spp.	Quillwort spp.	2.7	0.6
Juncus pelocarpus	Brown-fruited rush	1.6	0.5
Lemna minor	Lesser duckweed	0.2	0.0
Lemna trisulca	Forked duckweed	0.4	0.9
Lemna turionifera	Turion duckweed	0.0	0.2
Lobelia dortmanna	Water lobelia	0.7	0.0
Myriophyllum alterniflorum	Alternate-flowered watermilfoil	0.4	0.0
Myriophyllum sibiricum	Northern watermilfoil	15.8	7.1
Myriophyllum tenellum	Dwarf watermilfoil	2.2	0.5
Myriophyllum verticillatum	Whorled watermilfoil	0.2	0.0
Najas flexilis	Slender naiad	16.1	14.4
Nitella spp.	Stoneworts	21.5	7.5
Nuphar variegata	Spatterdock	6.8	1.7
Nymphaea odorata	White water lily	4.8	3.1
Pontederia cordata	Pickerelweed	4.3	2.2
Potamogeton amplifolius	Large-leaf pondweed	8.2	7.4
Potamogeton berchtoldii	Slender pondweed	0.0	0.9
Potamogeton epihydrus	Ribbon-leaf pondweed	0.4	0.9
Potamogeton foliosus	Leafy pondweed	0.0	0.2
Potamogeton friesii	Fries' pondweed	5.6	0.6
Potamogeton gramineus	Variable-leaf pondweed	12.4	8.2
Potamogeton illinoensis	Illinois pondweed	0.4	0.0
Potamogeton praelongus	White-stem pondweed	3.6	1.7
Potamogeton praelongus x *P. richardsonii*	White-stem x Clasping-leaf pondweed	0.5	1.1
Potamogeton pusillus	Small pondweed	23.5	18.2
Potamogeton richardsonii	Clasping-leaf pondweed	9.3	5.8
Potamogeton robbinsii	Fern-leaf pondweed	22.0	12.4
Potamogeton spirillus	Spiral-fruited pondweed	0.5	0.8
Potamogeton vaseyi	Vasey's pondweed	0.4	2.8
Potamogeton zosteriformis	Flat-stem pondweed	18.1	6.8
Ranunculus aquatilis	White water crowfoot	3.8	1.1
Ranunculus flammula	Creeping spearwort	0.5	0.0
Sagittaria cristata	Crested arrowhead	1.3	0.0
Sagittaria sp. (rosette)	Arrowhead sp. (rosette)	1.4	2.0
Schoenoplectus acutus	Hardstem bulrush	2.5	0.9
Schoenoplectus subterminalis	Water bulrush	0.4	0.2
Schoenoplectus tabernaemontani	Softstem bulrush	0.2	0.2
Sparganium angustifolium	Narrow-leaf bur-reed	0.5	0.0
Sparganium eurycarpum	Common bur-reed	0.7	0.0
Sparganium fluctuans	Floating-leaf bur-reed	0.7	0.2
Spirodela polyrhiza	Greater duckweed	0.2	0.0
Stuckenia pectinata	Sago pondweed	0.4	0.2
Utricularia intermedia	Flat-leaf bladderwort	0.4	0.0
Utricularia vulgaris	Common bladderwort	0.7	0.9
Vallisneria americana	Wild celery	14.9	15.4

LFOO = Littoral Frequency of Occurrence
2009 N = 558; 2019 N = 637

Shishebogama Lake 2009

Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Brasenia schreberi	Ceratophyllum demersum	Bidens beckii	Chara spp.	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Equisetum fluviatile	Eriocaulon aquaticum	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Lobelia dortmanna	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Myriophyllum verticillatum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton epihydrus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium angustifolium	Sparganium eurycarpum	Sparganium fluctuans	Spirodela polyrhiza	Stuckenia pectinata	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
1	45.887515	-89.843725	4	M	P				1						1										1																				2															
2	45.887029	-89.843726																																																								
3	45.888486	-89.843026	5	M	P													1										1					1	1	1							1	1				1															
4	45.888000	-89.843028	8	M	P			2							1																									2				1															
5	45.887514	-89.843029	10	M	P			1																	2																				2															
6	45.887028	-89.843030																																																								
7	45.886542	-89.843032	6	M	P																																							3															
8	45.888971	-89.842329	5	M	P			1							1										1																				2	1														1
9	45.888485	-89.842330	5	M	P			1																																				1															
10	45.887999	-89.842332	10	M	P			1																	1																	1			1															
11	45.887513	-89.842333	14		R																																																						
12	45.887027	-89.842334	15		R			1																																				1															
13	45.886541	-89.842336	9	M	P			3																	3																				1															
14	45.889456	-89.841631																																																								
15	45.888970	-89.841633	6	M	P					1																																		3															
16	45.888484	-89.841634	6	M	P			1																																	1				1												1		
17	45.887998	-89.841636	12	M	P			2																																	1			1														
18	45.887512	-89.841637	16		R			1																																																			
19	45.887026	-89.841638	15		R																																																						
20	45.886540	-89.841640	12	M	P			1																																				2															
21	45.894316	-89.840922	2	M	P		1			1				1					1									1	1	1	1								1																		1		1	
22	45.893830	-89.840923																																																								
23	45.893343	-89.840924																																																								
24	45.889455	-89.840935																																																								
25	45.888969	-89.840937	8	M	P			1																			1											1		1													1
26	45.888483	-89.840938	10	M	P			2																														1																		
27	45.887997	-89.840940	14		R																																																						
28	45.887511	-89.840941	15		R			2																																	1			2														
29	45.887025	-89.840942	10	M	P			2										1							1																			1														
30	45.886539	-89.840944	10	M	P																																																					
31	45.894315	-89.840226	6	M	P																					1		1	1		1										1	1													
32	45.893829	-89.840227	5	M	P			1							1																												1													
33	45.893343	-89.840228	5	R	P																																																					
34	45.890426	-89.840237	5	M	P													1									3										1			1													
35	45.889940	-89.840238	7	R	P																					1																												
36	45.889454	-89.840239	6	M	P			2																																			1													
37	45.888968	-89.840241	10	M	P			2																																			1													
38	45.888482	-89.840242	14		R			2																																																
39	45.887996	-89.840244	15		R			1							1																										1															
40	45.887510	-89.840245	3	R	P					1						1											1	1																											
41	45.887024	-89.840246	6	M	P			1																															1			2	1												

Shishebogama Lake 2009

Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Brasenia schreberi	Ceratophyllum demersum	Bidens beckii	Chara spp.	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Equisetum fluviatile	Eriocaulon aquaticum	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Lobelia dortmanna	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Myriophyllum verticillatum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton epihydrus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium angustifolium	Sparganium eurycarpum	Sparganium fluctuans	Spirodela polyrhiza	Stuckenia pectinata	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
42	45.886538	-89.840248	8	M	P			2																	1				1																1															
43	45.894800	-89.839528	2	S	P								1						1							1											1											1												
44	45.894314	-89.839529	1	M	P			1																1																	1	1				1													
45	45.893828	-89.839531	11	M	P			1																																			1															
46	45.893342	-89.839532	12	M	P			1																					1															1														
47	45.892856	-89.839534	3	S	P					1									1										1	1	1					1																							1
48	45.891883	-89.839536	3	R	P		1																									1									1				1														1
49	45.891397	-89.839538	5	M	P																																						1															
50	45.890911	-89.839539	7	M	P										1																										2				1														1
51	45.890425	-89.839541	6	M	P			1												1																								1															
52	45.889939	-89.839542	10	M	P			1																					1											1																		
53	45.889453	-89.839543	15		R			1																																																	
54	45.888967	-89.839545	17		R																																			1																		
55	45.888481	-89.839546	16		R			1																																																	
56	45.887995	-89.839548	2	R	P													1											1																													
57	45.894313	-89.838833	13		R			1																					1											3																			
58	45.893827	-89.838835	17																																																						
59	45.893341	-89.838836																																																							
60	45.892855	-89.838838	16		R			1																																																	
61	45.892368	-89.838839	11	M	P			2																					1											1	1																
62	45.891882	-89.838840	8	R	P			1	1							1									1				1	1										1	1																	
63	45.891396	-89.838842	9	M	P			2																																1																	
64	45.890910	-89.838843	9	R	P			1							1										1								1									1					1												1
65	45.890424	-89.838845	7	R	P			1																	2					1											1	1				1												
66	45.889938	-89.838846	15		R			2																					1											1					1												
67	45.889452	-89.838847																																																							
68	45.888966	-89.838849																																																							
69	45.888480	-89.838850	14		R																																																				
70	45.894798	-89.838136	6	M	P				1						1																								1	1				1		1	1												
71	45.894312	-89.838137	17		R																																																				
72	45.893826	-89.838139																																																							
73	45.893340	-89.838140																																																							
74	45.892854	-89.838142																																																							
75	45.892368	-89.838143	17		R																																																				
76	45.891881	-89.838144	16		R			1																					2																												
77	45.891395	-89.838146																																																							
78	45.890909	-89.838147	2	R	P																	1																																	1			
79	45.890423	-89.838149	15		R																																			1	1																	
80	45.889937	-89.838150	16		R																																																				
81	45.889451	-89.838151																																																							
82	45.888965	-89.838153	16		R																																																				

Shishebogama Lake 2009

Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Brasenia schreberi	Ceratophyllum demersum	Bidens beckii	Chara spp.	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Equisetum fluviatile	Eriocaulon aquaticum	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Lobelia dortmanna	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Myriophyllum verticillatum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton epihydrus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium angustifolium	Sparganium eurycarpum	Sparganium fluctuans	Spirodela polyrhiza	Stuckenia pectinata	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
83	45.888479	-89.838154	6	M	P																												1		1								1			1	1	1													
84	45.894797	-89.837440	7	M	P			1	1																1									1								1	2			1															
85	45.894311	-89.837441																																																										
86	45.893825	-89.837443																																																										
87	45.893339	-89.837444																																																										
88	45.892853	-89.837446																																																										
89	45.892367	-89.837447																																																										
90	45.891880	-89.837448	17		R																																																							
91	45.890422	-89.837453	8	M	P			1								1		1																									1			1															
92	45.889936	-89.837454	12	M	P			2																																	1				2															
93	45.889450	-89.837455	13	M	P			1																																	1				1															
94	45.888964	-89.837457	12	M	P			2																																	1				1															
95	45.888478	-89.837458	7	M	P																									1												3																	1
96	45.894796	-89.836744	17		R																									1																														
97	45.894310	-89.836745																																																										
98	45.893824	-89.836747																																																										
99	45.893338	-89.836748																																																										
100	45.892852	-89.836750																																																										
101	45.892366	-89.836751																																																										
102	45.889935	-89.836758	8	M	P			3																																																				
103	45.889449	-89.836759	8	M	P			2																																1	1				1															
104	45.888963	-89.836761	6	M	P					1																													1			3																	
105	45.888477	-89.836762	2	M	P		1												1										1	1	1																													
106	45.895281	-89.836046	7	M	P																								1		1											2																	1
107	45.894795	-89.836048																																																										
108	45.894309	-89.836049																																																										
109	45.893823	-89.836051																																																										
110	45.893337	-89.836052																																																										
111	45.892851	-89.836053																																																										
112	45.892365	-89.836055																																																										
113	45.891879	-89.836056	9	S	P													1							1					1			1	1								1				1														
114	45.890420	-89.836061																																																										
115	45.889934	-89.836062	9	M	P			1																						1																														
116	45.889448	-89.836063	6	M	P																																																							
117	45.895280	-89.835350	7	S	P			1		1															1																	1	1																	
118	45.894794	-89.835352																																																										
119	45.894308	-89.835353																																																										
120	45.893822	-89.835355																																																										
121	45.893336	-89.835356																																																										
122	45.892850	-89.835357																																																										
123	45.892364	-89.835359																																																										

Shishebogama Lake 2009

Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Brasenia schreberi	Ceratophyllum demersum	Bidens beckii	Chara spp.	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Equisetum fluviatile	Eriocaulon aquaticum	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Lobelia dortmanna	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Myriophyllum verticillatum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton epihydrus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium angustifolium	Sparganium eurycarpum	Sparganium fluctuans	Spirodela polyrhiza	Stuckenia pectinata	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
124	45.891878	-89.835360																											1																																	
125	45.891391	-89.835362	15		R																								1												1																				
126	45.890905	-89.835363	5	M	P			1											1												1									1																				
127	45.890419	-89.835365	6	M	P																																			1		1																		1
128	45.889933	-89.835366	9		R			2																	1															1			1																	
129	45.895279	-89.834654	4		R			1																					1											1	1																			
130	45.894793	-89.834656	16		R																																																						
131	45.894307	-89.834657																																																									
132	45.893821	-89.834659																																																									
133	45.893335	-89.834660																																																									
134	45.892849	-89.834661																																																									
135	45.892363	-89.834663																																																									
136	45.891877	-89.834664																																																									
137	45.891390	-89.834666																																																									
138	45.890904	-89.834667	11		R																																			1																				
139	45.890418	-89.834669	9	M	P			1																																	1																			
140	45.889932	-89.834670	9		R																				1															1	1	2																		
141	45.895278	-89.833958	2	S	P					1			1						1									1								1											1												
142	45.894792	-89.833960	4	S	P										1																	1		1	1																								1
143	45.894306	-89.833961	16		R																																																						
144	45.893820	-89.833962																																																									
145	45.893334	-89.833964																																																									
146	45.892848	-89.833965																																																									
147	45.892362	-89.833967																																																									
148	45.891875	-89.833968																																																									
149	45.891389	-89.833970																																																									
150	45.890903	-89.833971																																																									
151	45.890417	-89.833973	13		R																									1																														
152	45.889931	-89.833974	9		R																																			1																				1
153	45.894305	-89.833265	6	M	P																																			1																				1
154	45.893819	-89.833266																																																									
155	45.893333	-89.833268																																																									
156	45.892847	-89.833269																																																									
157	45.892361	-89.833271																																																									
158	45.891874	-89.833272																																																									
159	45.891388	-89.833274																																																									
160	45.890902	-89.833275																																																									
161	45.890416	-89.833277																																																									
162	45.889930	-89.833278	15		R																			1					1						1					1																				
163	45.889444	-89.833280	9		R																			1																1				1																
164	45.888958	-89.833281	5	M	P		1	1																					1																			1												

Shishebogama Lake 2009

Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Brasenia schreberi	Ceratophyllum demersum	Bidens beckii	Chara spp.	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Equisetum fluviatile	Eriocaulon aquaticum	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Lobelia dortmanna	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Myriophyllum verticillatum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton epihydrus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium angustifolium	Sparganium eurycarpum	Sparganium fluctuans	Spirodela polyrhiza	Stuckenia pectinata	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
165	45.898192	-89.832557	2	M	P																								1	1																														
166	45.897706	-89.832559	11		R			1																3				1																																
167	45.897220	-89.832560	7		R			2																2																																			
168	45.896734	-89.832562																																																									
169	45.896248	-89.832563	8	M	P			2																																																			
170	45.895762	-89.832565	13		R																																				3																			
171	45.895276	-89.832566	15		R																																				3	1																		
172	45.894790	-89.832567	16		R																							1													1																			
173	45.894304	-89.832569																																																									
174	45.893818	-89.832570																																																									
175	45.893332	-89.832572																																																									
176	45.892846	-89.832573																																																									
177	45.892359	-89.832575																																																									
178	45.891873	-89.832576																																																									
179	45.891387	-89.832578																																																									
180	45.890901	-89.832579																																																									
181	45.890415	-89.832581	14		R			1																																																			
182	45.889929	-89.832582	16		R																																																						
183	45.889443	-89.832584																																																									
184	45.888957	-89.832585	11		R			1																				1												1				1																
185	45.898677	-89.831860	4	M	P		1																									1	1	1						1	1																			
186	45.898191	-89.831861	10		R																							1																1																
187	45.897705	-89.831863																																																									
188	45.897219	-89.831864	15		R																																																						
189	45.896733	-89.831866	10		R																																				1																			
190	45.896247	-89.831867	12		R			2																																	1				1																
191	45.895761	-89.831868	7	M	P			1							1										1				1											1	1	1																		1
192	45.895275	-89.831870	15		R			1																				1												1	1																		
193	45.894789	-89.831871	17		R																																																						
194	45.894303	-89.831873																																																									
195	45.893817	-89.831874																																																									
196	45.893331	-89.831876																																																									
197	45.892844	-89.831877																																																									
198	45.892358	-89.831879	14		R			1																				1												1																			
199	45.891872	-89.831880	8	M	P																																					1																		1
200	45.891386	-89.831882	8	S	P																																				1	2	1																	
201	45.890900	-89.831883	8	S	P																																																						
202	45.890414	-89.831885																																																									
203	45.889928	-89.831886	15		R																							1												1																			
204	45.889442	-89.831888	14		R			1																				1												1																			
205	45.888956	-89.831889	10		R			2																				1												1																			

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Brasenia schreberi	Ceratophyllum demersum	Bidens beckii	Chara spp.	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Equisetum fluviatile	Eriocaulon aquaticum	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Lobelia dortmanna	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Myriophyllum verticillatum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton epihydrus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium angustifolium	Sparganium eurycarpum	Sparganium fluctuans	Spirodela polyrhiza	Stuckenia pectinata	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
206	45.888470	-89.831890	2	S	P				1										1																													1													
207	45.898676	-89.831164	12		R																							1											1																					
208	45.898190	-89.831165	12		R																																																							
209	45.897704	-89.831166	18		R																																																									
210	45.897218	-89.831168	16		R																																																									
211	45.896732	-89.831169	11		R																																			3				1																
212	45.896246	-89.831171	4	S	P					1			1		1				1																													1													
213	45.895760	-89.831172	6	M	P						1																													1		1																			
214	45.895274	-89.831174	13		R																																					2																			
215	45.894788	-89.831175																																																									
216	45.894302	-89.831177																																																										
217	45.893816	-89.831178																																																										
218	45.893329	-89.831180																																																										
219	45.892843	-89.831181																																																										
220	45.892357	-89.831183	3	S	P																							1					1																												
221	45.889927	-89.831190	11		R																							1	1											1																					
222	45.889441	-89.831192	15		R																																																							
223	45.888955	-89.831193	5	M	P					1								1																								1																			
224	45.888469	-89.831194																																																										
225	45.899161	-89.830466																																																										
226	45.898675	-89.830467																																																										
227	45.898189	-89.830469	19		R																																																								
228	45.897703	-89.830470																																																										
229	45.897217	-89.830472	15		R																																																								
230	45.896731	-89.830473	14		R					1															2															1	1																			
231	45.896245	-89.830475	7		R					1															1																1		1																		
232	45.895759	-89.830476	8	M	P					1																														1	1																			
233	45.895273	-89.830478	4	S	P						1																	1													1																			
234	45.894787	-89.830479	11		R																								1												1																			1
235	45.894301	-89.830481																																																										
236	45.893814	-89.830482	15	M	P																							1												1																			
237	45.893328	-89.830484	7	M	P					1						1												2												1	2																		
238	45.889926	-89.830494	5	M	P			1																	1								1	1																								1	
239	45.889440	-89.830496	8	M	P				2																															1	1	1																	
240	45.888954	-89.830497	10	M	P					1																	1													1	1																		
241	45.901590	-89.829762	3	S	P					1			1																											1												1						
242	45.899160	-89.829770	8	M	P																																			1	2	1																	1
243	45.898674	-89.829771	13		R																							1												1																			
244	45.898188	-89.829773	11		R					1															2				1												1	1																		
245	45.897702	-89.829774	16		R																																																							
246	45.897216	-89.829776	15		R																																																							

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Brasenia schreberi	Ceratophyllum demersum	Bidens beckii	Chara spp.	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Equisetum fluviatile	Eriocaulon aquaticum	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Lobelia dortmanna	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Myriophyllum verticillatum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton epihydrus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium angustifolium	Sparganium eurycarpum	Sparganium fluctuans	Spirodela polyrhiza	Stuckenia pectinata	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
247	45.896730	-89.829777	16		R																																																									
248	45.896244	-89.829779																																																											
249	45.895758	-89.829780	15	M	P																								1					1																											
250	45.895272	-89.829782	2	M	P			1																							1						1																							1	
251	45.894785	-89.829783	1	S	P																					1																																	
252	45.894299	-89.829785																																																											
253	45.902075	-89.829065	2	S	P			1						1										1					1		1																													1	
254	45.901589	-89.829066	14		R				1																					1																														
255	45.901103	-89.829068	8	M	P				2																2																	1																		
256	45.900617	-89.829069	7	M	P																								1			1																											
257	45.900131	-89.829071	13		R																								1													1																	
258	45.899645	-89.829072	16		R																								1																														
259	45.899159	-89.829074																																																											
260	45.898673	-89.829075	16		R				3																				1	1		1																											
261	45.898187	-89.829077	7	M	P																								1						1					1																			
262	45.897701	-89.829078	17		R																																																							
263	45.897215	-89.829080			R																																																							
264	45.896729	-89.829081	16		R																																																							
265	45.896243	-89.829083			R																																																							
266	45.895757	-89.829084	1	M	P																							1	1	V																							1				
267	45.902074	-89.828369	2	S	P					1														1					1																									1				
268	45.901588	-89.828370	8	M	P				1																1																			1	1													
269	45.901102	-89.828372			R																							2																														
270	45.900616	-89.828373	16		R																																			1																	
271	45.900130	-89.828375																																																									
272	45.899644	-89.828376																																																									
273	45.899158	-89.828378	14		R																							1																														
274	45.898672	-89.828379	14		R																							2																														
275	45.898186	-89.828381	17		R																																																						
276	45.897700	-89.828382	16		R																							1																														
277	45.897214	-89.828384	10		R																							1																														
278	45.896728	-89.828385	16		R																							1													1																	
279	45.896241	-89.828387	10		R																							1																														
280	45.902073	-89.827672	2	S	P															1																																					
281	45.901587	-89.827674	16		R																							1													1																	
282	45.901101	-89.827675																																																									
283	45.900615	-89.827677	18																																																								
284	45.900129	-89.827678																																																									
285	45.899643	-89.827680																																																									
286	45.899157	-89.827681	9		R																												1					1																			1
287	45.898671	-89.827683	3	S	P					1																																																

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Brasenia schreberi	Ceratophyllum demersum	Bidens beckii	Chara spp.	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Equisetum fluviatile	Eriocaulon aquaticum	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Lobelia dortmanna	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Myriophyllum verticillatum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton epihydrus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium angustifolium	Sparganium eurycarpum	Sparganium fluctuans	Spirodela polyrhiza	Stuckenia pectinata	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
288	45.898185	-89.827684	6	S	P					1																		1						1			1																									
289	45.897699	-89.827686	16	M	P																												1									1				1		1													
290	45.897213	-89.827687	8	S	P										1													1					1	1							1					1													
291	45.896726	-89.827689	3	M	P					1			1						1									1					1								1						1													
292	45.896240	-89.827691	3	M	P		1																							1	1	1																								1				
293	45.902072	-89.826976	5	S	P					1															1						1		1			1					1																			1
294	45.901586	-89.826978																																																									
295	45.901100	-89.826979																																																									
296	45.900614	-89.826981																																																									
297	45.900128	-89.826982																																																									
298	45.899642	-89.826984																																																									
299	45.899156	-89.826985	1	S	P																								1																									1					
300	45.902071	-89.826280	9	M	P			1					1												1																	1	2																	
301	45.901585	-89.826282	15		R																								1											1																	
302	45.901099	-89.826283																																																									
303	45.900613	-89.826285																																																									
304	45.900127	-89.826286																																																									
305	45.899641	-89.826288																																																									
306	45.902070	-89.825584	1	S	P						1		1			1												1						1																					1					
307	45.901584	-89.825586	6	M	P			1																																		1	1		1													1
308	45.901098	-89.825587																																																									
309	45.900611	-89.825589																																																									
310	45.900125	-89.825590																																																									
311	45.899639	-89.825592																																																									
312	45.901582	-89.824889																																																									
313	45.901096	-89.824891	12		R																																					1																
314	45.900610	-89.824892	6	S	P																								1		1	1												1													1
315	45.900124	-89.824894																																																									
316	45.899638	-89.824895	3	S	P																												1		1													1		1								
317	45.900123	-89.824198	9	S	P																			1				1							1			1	1																	
318	45.899637	-89.824199																																																									
319	45.899151	-89.824201	5	S	P													1											1						1					1	1														1
320	45.898665	-89.824202	3	S	P					1																		1																										1					
321	45.898179	-89.824204	3	S	P														1																				1	1														1			1
322	45.897693	-89.824206	3	S	P					1			1														1		1								1																			
323	45.897207	-89.824207	3	S	P										1														1	1																												
324	45.896721	-89.824209	3	M	P		1			1																	1		1	1	1																											
325	45.900122	-89.823502																																																									
326	45.899636	-89.823503																																																									
327	45.899150	-89.823505																																																									
328	45.898664	-89.823506	16		R																																																						

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Brasenia schreberi	Ceratophyllum demersum	Bidens beckii	Chara spp.	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Equisetum fluviatile	Eriocaulon aquaticum	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Lobelia dortmanna	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Myriophyllum verticillatum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton epihydrus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium angustifolium	Sparganium eurycarpum	Sparganium fluctuans	Spirodela polyrhiza	Stuckenia pectinata	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
329	45.898178	-89.823508																																																													
330	45.897692	-89.823509																																																													
331	45.897206	-89.823511	15		R																								3													1																				
332	45.896720	-89.823512	2	S	P																									1	1																														
333	45.900607	-89.822804	3	S	P					1			1						1														1			1													1												1
334	45.900121	-89.822806																																																													
335	45.899635	-89.822807																																																													
336	45.899149	-89.822809																																																													
337	45.898663	-89.822810																																																													
338	45.898177	-89.822812																																																													
339	45.897691	-89.822813																																																													
340	45.897205	-89.822815	15		R																																																									
341	45.889915	-89.822838	6	M	P																																							2																
342	45.889429	-89.822840	3	M	P		1	1					1					1							1		1			1		1											1		2	1	1													1
343	45.901092	-89.822106	3	S	P					1			1																	1																															
344	45.900606	-89.822108	6	S	P																				1									1		1											1													
345	45.900120	-89.822109																																																													
346	45.899634	-89.822111																																																													
347	45.899148	-89.822113																																																													
348	45.898662	-89.822114																																																													
349	45.898176	-89.822116																																																													
350	45.897690	-89.822117																																																													
351	45.897204	-89.822119	5	S	P					1															1					1			1				1	1										1													1
352	45.896718	-89.822120	3	S	P					1			1																	1							1												1												
353	45.896232	-89.822122	2	S	P																									1	1		1																		1		1									1
354	45.894288	-89.822128	2	S	P																									1																													1		
355	45.893802	-89.822130	1	S	P																									1				1		1			1										1											1		
356	45.893316	-89.822131	1	S	P																									1							1	1	1																			1				1
357	45.892830	-89.822133	2	S	P																									1							1	1	1																							
358	45.891372	-89.822137	9	M	P			1																	1																	1		1		1															
359	45.890886	-89.822139	14		R			2																						1																															
360	45.890400	-89.822140	12		R			1																																									1												
361	45.889914	-89.822142	13		R			2																																						1	1													
362	45.889428	-89.822144	2	S	P																									1			1																											
363	45.901577	-89.821409	3	S	P					1																1			1			1																												
364	45.901091	-89.821410	3	S	P					1																			1				1														1												1
365	45.900605	-89.821412																																																													
366	45.900119	-89.821413																																																													
367	45.899633	-89.821415																																																													
368	45.899147	-89.821416																																																													
369	45.898661	-89.821418																																																													

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Brasenia schreberi	Ceratophyllum demersum	Bidens beckii	Chara spp.	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Equisetum fluviatile	Eriocaulon aquaticum	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Lobelia dortmanna	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Myriophyllum verticillatum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton epihydrus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium angustifolium	Sparganium eurycarpum	Sparganium fluctuans	Spirodela polyrhiza	Stuckenia pectinata	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
370	45.898175	-89.821420																																																												
371	45.897689	-89.821421	14		R																							2												2																					
372	45.897203	-89.821423	9	M	P			1	1																1																		1		1																1
373	45.896717	-89.821424	17		R																							2																																
374	45.896231	-89.821426	7	M	P																				2																		1	1																	
375	45.895745	-89.821427	2	S	P					2																			1																																
376	45.895259	-89.821429	14		R																					1																		1	1																	
377	45.894773	-89.821430	14		R																								1																	1															1
378	45.894287	-89.821432																																																											
379	45.893801	-89.821434																																																											
380	45.893315	-89.821435	9	M	P			1																		1																	1	1	1																1
381	45.892829	-89.821437	9	M	P																					2																	2	1	1																1
382	45.892343	-89.821438																																																											
383	45.891857	-89.821440																																																											
384	45.891371	-89.821441	16		R																							2														1																			
385	45.890885	-89.821443	14		R																							3																																	
386	45.890399	-89.821444	13		R			1																																																						
387	45.889913	-89.821446	11	M	P			1																																					1																
388	45.902062	-89.820711	1	S	P						1			1						1			1																																						1
389	45.901576	-89.820712	2	S	P					1																		2								1																									1
390	45.901090	-89.820714																																																											
391	45.900604	-89.820716																																																											
392	45.900118	-89.820717																																																											
393	45.899632	-89.820719																																																											
394	45.899146	-89.820720																																																											
395	45.898660	-89.820722																																																											
396	45.898174	-89.820723																																																											
397	45.897688	-89.820725																																																											
398	45.897202	-89.820727																																																											
399	45.896716	-89.820728																																																											
400	45.896230	-89.820730																																																											
401	45.895744	-89.820731																																																											
402	45.895258	-89.820733																																																											
403	45.894772	-89.820734																																																											
404	45.894286	-89.820736																																																											
405	45.893800	-89.820738																																																											
406	45.893314	-89.820739																																																											
407	45.892828	-89.820741																																																											
408	45.892342	-89.820742																																																											
409	45.891856	-89.820744																																																											
410	45.891369	-89.820745	13		R			1																					2							1									1															

Shishebogama Lake 2009

Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Brasenia schreberi	Ceratophyllum demersum	Bidens beckii	Chara spp.	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Equisetum fluviatile	Eriocaulon aquaticum	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Lobelia dortmanna	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Myriophyllum verticillatum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton epihydrus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium angustifolium	Sparganium eurycarpum	Sparganium fluctuans	Spirodela polyrhiza	Stuckenia pectinata	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
411	45.890883	-89.820747	15		R																								2											1																				
412	45.890397	-89.820748	10		R			1																					2																	1														
413	45.889911	-89.820750	3	S	P					2			1						1														1		1					1						1														1
414	45.902061	-89.820015	3	S	P					1									1																1																								
415	45.901575	-89.820016																																																									
416	45.901089	-89.820018																																																									
417	45.900603	-89.820020																																																									
418	45.900117	-89.820021																																																									
419	45.899631	-89.820023																																																									
420	45.899145	-89.820024																																																									
421	45.898659	-89.820026																																																									
422	45.898173	-89.820027																																																									
423	45.897687	-89.820029																																																									
424	45.897201	-89.820030																																																									
425	45.896715	-89.820032																																																									
426	45.896229	-89.820034																																																									
427	45.895743	-89.820035																																																									
428	45.895257	-89.820037																																																									
429	45.894771	-89.820038																																																									
430	45.894285	-89.820040																																																									
431	45.893799	-89.820041																																																									
432	45.893312	-89.820043																																																									
433	45.892826	-89.820045																																																									
434	45.892340	-89.820046																																																									
435	45.891854	-89.820048																																																									
436	45.891368	-89.820049	16		R																			1				2																															
437	45.890882	-89.820051	13		R			1																																2																			
438	45.890396	-89.820052	13		R			1																	1				1																														
439	45.889910	-89.820054	4	S	P					1			1						1									1																		1														1
440	45.902546	-89.819317	2	S	P																							1											1							1													
441	45.902060	-89.819319	13		R			1																	2								1									1				1													1
442	45.901574	-89.819320																																																									
443	45.901088	-89.819322																																																									
444	45.900602	-89.819323																																																									
445	45.900116	-89.819325																																																									
446	45.899630	-89.819327																																																									
447	45.899144	-89.819328																																																									
448	45.898658	-89.819330																																																									
449	45.898172	-89.819331																																																									
450	45.897686	-89.819333																																																									
451	45.897200	-89.819334																																																									

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Brasenia schreberi	Ceratophyllum demersum	Bidens beckii	Chara spp.	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Equisetum fluviatile	Eriocaulon aquaticum	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Lobelia dortmanna	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Myriophyllum verticillatum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton epihydrus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium angustifolium	Sparganium eurycarpum	Sparganium fluctuans	Spirodela polyrhiza	Stuckenia pectinata	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
452	45.896714	-89.819336																																																												
453	45.896228	-89.819338																																																												
454	45.895742	-89.819339																																																												
455	45.895255	-89.819341																																																												
456	45.894769	-89.819342																																																												
457	45.894283	-89.819344																																																												
458	45.893797	-89.819345																																																												
459	45.893311	-89.819347																																																												
460	45.892825	-89.819349																																																												
461	45.892339	-89.819350																																																												
462	45.891853	-89.819352																																																												
463	45.891367	-89.819353	16		R																								2																																
464	45.890881	-89.819355	14		R																								1																																
465	45.890395	-89.819356	7	M	P			1	1						1															1															1																1
466	45.889909	-89.819358	3	S	P																			1			1					1													1															1
467	45.903031	-89.818619	2	S	P					1														1																																				
468	45.902545	-89.818621	8	M	P																							1				1		1							1	1																	1
469	45.902059	-89.818622																																																											
470	45.901573	-89.818624																																																											
471	45.901087	-89.818626																																																											
472	45.900601	-89.818627																																																											
473	45.900115	-89.818629																																																											
474	45.899629	-89.818630																																																											
475	45.899143	-89.818632																																																											
476	45.898657	-89.818634																																																											
477	45.898171	-89.818635																																																											
478	45.897685	-89.818637																																																											
479	45.897198	-89.818638																																																											
480	45.896712	-89.818640																																																											
481	45.896226	-89.818641																																																											
482	45.895740	-89.818643																																																											
483	45.895254	-89.818645																																																											
484	45.894768	-89.818646																																																											
485	45.894282	-89.818648																																																											
486	45.893796	-89.818649																																																											
487	45.893310	-89.818651																																																											
488	45.892824	-89.818653																																																											
489	45.892338	-89.818654																																																											
490	45.891852	-89.818656																																																											
491	45.891366	-89.818657	16		R																								3																																
492	45.890880	-89.818659	12		R				1																																1																				

Shishebogama Lake 2009

Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Brasenia schreberi	Ceratophyllum demersum	Bidens beckii	Chara spp.	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Equisetum fluviatile	Eriocaulon aquaticum	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Lobelia dortmanna	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Myriophyllum verticillatum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton epihydrus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium angustifolium	Sparganium eurycarpum	Sparganium fluctuans	Spirodela polyrhiza	Stuckenia pectinata	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
493	45.890394	-89.818660	1	S	P																															1														1												
494	45.903030	-89.817923	2	S	P					1			1												1		1									1																									1
495	45.902544	-89.817925	14		R																																			3																						
496	45.902058	-89.817926																																																											
497	45.901572	-89.817928																																																											
498	45.901086	-89.817930																																																											
499	45.900600	-89.817931																																																											
500	45.900114	-89.817933																																																											
501	45.899628	-89.817934																																																											
502	45.899141	-89.817936																																																											
503	45.898655	-89.817937																																																											
504	45.898169	-89.817939																																																											
505	45.897683	-89.817941																																																											
506	45.897197	-89.817942																																																											
507	45.896711	-89.817944																																																											
508	45.896225	-89.817945																																																											
509	45.895739	-89.817947																																																											
510	45.895253	-89.817949																																																											
511	45.894767	-89.817950																																																											
512	45.894281	-89.817952																																																											
513	45.893795	-89.817953																																																											
514	45.893309	-89.817955																																																											
515	45.892823	-89.817957																																																											
516	45.892337	-89.817958																																																											
517	45.891851	-89.817960	7	S	P					1																		2					1														1	1													
518	45.891365	-89.817961	3	S	P					2			1															1													1																				1
519	45.890879	-89.817963	2	S	P					1			1											1				1								1																									1
520	45.903515	-89.817225	2	S	P																											1			1																									1
521	45.903029	-89.817227	13		R																																		1																						
522	45.902543	-89.817229																																																											
523	45.902057	-89.817230																																																											
524	45.901570	-89.817232																																																											
525	45.901084	-89.817233																																																											
526	45.900598	-89.817235																																																											
527	45.900112	-89.817237																																																											
528	45.899626	-89.817238																																																											
529	45.899140	-89.817240																																																											
530	45.898654	-89.817241																																																											
531	45.898168	-89.817243																																																											
532	45.897682	-89.817245																																																											
533	45.897196	-89.817246																																																											

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Brasenia schreberi	Ceratophyllum demersum	Bidens beckii	Chara spp.	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Equisetum fluviatile	Eriocaulon aquaticum	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Lobelia dortmanna	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Myriophyllum verticillatum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton epihydrus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium angustifolium	Sparganium eurycarpum	Sparganium fluctuans	Spirodela polyrhiza	Stuckenia pectinata	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
534	45.896710	-89.817248																																																												
535	45.896224	-89.817249																																																												
536	45.895738	-89.817251																																																												
537	45.895252	-89.817252																																																												
538	45.894766	-89.817254																																																												
539	45.894280	-89.817256																																																												
540	45.893794	-89.817257																																																												
541	45.893308	-89.817259																																																												
542	45.892822	-89.817260																																																												
543	45.892336	-89.817262	10		R				1	1																	1																1	1	1		1														
544	45.891850	-89.817264	5	S	P					1																				1			1		1																										1
545	45.891364	-89.817265	4	S	P																												1		1	1					1	1																		1
546	45.890878	-89.817267	1	S	P																									1					1													1											
547	45.903513	-89.816529	6	S	P					1															1					1						1					1	1																		1
548	45.903027	-89.816531																																																												
549	45.902541	-89.816532																																																												
550	45.902055	-89.816534																																																												
551	45.901569	-89.816536																																																												
552	45.901083	-89.816537																																																												
553	45.900597	-89.816539																																																												
554	45.900111	-89.816540																																																												
555	45.899625	-89.816542																																																												
556	45.899139	-89.816544																																																												
557	45.898653	-89.816545																																																												
558	45.898167	-89.816547																																																												
559	45.897681	-89.816548																																																												
560	45.897195	-89.816550																																																												
561	45.896709	-89.816552																																																												
562	45.896223	-89.816553																																																												
563	45.895737	-89.816555																																																												
564	45.895251	-89.816556																																																												
565	45.894765	-89.816558																																																												
566	45.894279	-89.816560																																																												
567	45.893793	-89.816561																																																												
568	45.893307	-89.816563																																																												
569	45.892821	-89.816564																																																												
570	45.892335	-89.816566	6	S	P					1																									1		1									1															1
571	45.891849	-89.816568	5	S	P					1																							2	1							1	1																		1
572	45.891363	-89.816569	4	S	P																									1			1		1	1																								
573	45.903998	-89.815831	6	S	P			1																						1						1																								
574	45.903512	-89.815833																																																												

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Brasenia schreberi	Ceratophyllum demersum	Bidens beckii	Chara spp.	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Equisetum fluviatile	Eriocaulon aquaticum	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Lobelia dortmanna	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Myriophyllum verticillatum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton epihydrus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium angustifolium	Sparganium eurycarpum	Sparganium fluctuans	Spirodela polyrhiza	Stuckenia pectinata	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
575	45.903026	-89.815835																																																									
576	45.902540	-89.815836																																																									
577	45.902054	-89.815838																																																									
578	45.901568	-89.815839																																																									
579	45.901082	-89.815841																																																									
580	45.900596	-89.815843																																																									
581	45.900110	-89.815844																																																									
582	45.899624	-89.815846																																																									
583	45.899138	-89.815848																																																									
584	45.898652	-89.815849																																																									
585	45.898166	-89.815851																																																									
586	45.897680	-89.815852																																																									
587	45.897194	-89.815854																																																									
588	45.896708	-89.815856	6	S	P																			1															1	1																			1
589	45.896222	-89.815857	13		R																					1											2																				
590	45.895736	-89.815859																																																									
591	45.895250	-89.815860																																																									
592	45.894764	-89.815862																																																									
593	45.894278	-89.815864	15		R																					1											1																				
594	45.893792	-89.815865	11		R																					1											1																				
595	45.893306	-89.815867																																																									
596	45.892820	-89.815868																																																									
597	45.892334	-89.815870	6	S	P																						1	2															1															1
598	45.891848	-89.815872	5	S	P				1															1		1		1	1														1														1
599	45.891362	-89.815873	2	S	P																																1																	1			
600	45.904969	-89.815132	3	S	P																																1																				
601	45.904483	-89.815134																																																									
602	45.903997	-89.815135																																																									
603	45.903511	-89.815137																																																									
604	45.903025	-89.815138																																																									
605	45.902539	-89.815140																																																									
606	45.902053	-89.815142																																																									
607	45.901567	-89.815143																																																									
608	45.901081	-89.815145																																																									
609	45.900595	-89.815147																																																									
610	45.900109	-89.815148																																																									
611	45.899623	-89.815150																																																									
612	45.899137	-89.815151																																																									
613	45.898651	-89.815153																																																									
614	45.898165	-89.815155																																																									
615	45.897679	-89.815156																																																									

Shishebogama Lake 2009

Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Brasenia schreberi	Ceratophyllum demersum	Bidens beckii	Chara spp.	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Equisetum fluviatile	Eriocaulon aquaticum	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Lobelia dortmanna	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Myriophyllum verticillatum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton epihydrus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium angustifolium	Sparganium eurycarpum	Sparganium fluctuans	Spirodela polyrhiza	Stuckenia pectinata	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
616	45.897193	-89.815158																																																													
617	45.896707	-89.815159																																																													
618	45.896221	-89.815161	12		R																									1												1																				
619	45.895735	-89.815163																																																													
620	45.895249	-89.815164																																																													
621	45.894763	-89.815166	15		R																																																									
622	45.894277	-89.815168	7	S	P				1																	3																																				1
623	45.893791	-89.815169	3	R	P					1																											1					1																			
624	45.893305	-89.815171																																																													
625	45.892819	-89.815172	15		R																								2												1																				
626	45.892333	-89.815174	3	S	P					1	1																	1												1																				
627	45.891847	-89.815176	2	S	P					1																		1							1																								1
628	45.905940	-89.814433	3	M	P					1	1				1																														1														1	
629	45.905454	-89.814434	4	M	P																										1													1															
630	45.904968	-89.814436	3	R	P					1																																																			
631	45.904482	-89.814437	12		R																																																								
632	45.903996	-89.814439																																																													
633	45.903510	-89.814441																																																													
634	45.903024	-89.814442																																																													
635	45.902538	-89.814444																																																													
636	45.902052	-89.814446																																																													
637	45.901566	-89.814447																																																													
638	45.901080	-89.814449																																																													
639	45.900594	-89.814450																																																													
640	45.900108	-89.814452																																																													
641	45.899622	-89.814454	14		R																							1																																	
642	45.899136	-89.814455	14		R			1																				1																	1			1												
643	45.898650	-89.814457	12		R					1	1													1										1											1															1
644	45.898164	-89.814459																																																													
645	45.897678	-89.814460																																																													
646	45.897192	-89.814462																																																													
647	45.896706	-89.814463	14		R																							1																																	
648	45.896220	-89.814465																																																													
649	45.895734	-89.814467																																																													
650	45.895248	-89.814468																																																													
651	45.894762	-89.814470																																																													
652	45.894276	-89.814471	15		R																																																									
653	45.893790	-89.814473	8	S	P			1																	1												1					1						1	2	1										
654	45.893304	-89.814475	1	R	P																						1													1																				
655	45.892818	-89.814476	1	S	P					1																			1											1															1					
656	45.892332	-89.814478	1	S	P					1											1								1	1	1																													1

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Brasenia schreberi	Ceratophyllum demersum	Bidens beckii	Chara spp.	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Equisetum fluviatile	Eriocaulon aquaticum	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Lobelia dortmanna	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Myriophyllum verticillatum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton epihydrus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium angustifolium	Sparganium eurycarpum	Sparganium fluctuans	Spirodela polyrhiza	Stuckenia pectinata	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
657	45.904967	-89.813740	11		R			1																					1																																
658	45.904481	-89.813741																																																									
659	45.903995	-89.813743																																																										
660	45.903509	-89.813745																																																										
661	45.903023	-89.813746																																																										
662	45.902537	-89.813748																																																										
663	45.902051	-89.813749																																																										
664	45.901565	-89.813751																																																										
665	45.901079	-89.813753																																																										
666	45.900593	-89.813754																																																										
667	45.900107	-89.813756	14		R			1																	1																																			1
668	45.899621	-89.813758																																																										
669	45.899135	-89.813759	14		R			1																				1																															
670	45.898649	-89.813761																																																										
671	45.898163	-89.813762	13		R																																																						
672	45.897677	-89.813764																																																										
673	45.897191	-89.813766	4	R	P																																																						
674	45.896705	-89.813767	5	R	P				1									1							1																																		
675	45.896219	-89.813769																																																										
676	45.895733	-89.813771																																																										
677	45.895247	-89.813772	5	R	P																				1																																		
678	45.894761	-89.813774	15		R																						2													1																			
679	45.894275	-89.813775	16		R																						3																																
680	45.893788	-89.813777	10	S	P			1																							1																										1	1	
681	45.893302	-89.813779	1	S	P																																																						
682	45.905452	-89.813042	6	S	P																																			1																	1		
683	45.904966	-89.813043																																																										
684	45.904480	-89.813045	16		R			1												1								1																																
685	45.903994	-89.813047	16		R																																																						
686	45.903508	-89.813048																																																										
687	45.903022	-89.813050																																																										
688	45.902536	-89.813052																																																										
689	45.902050	-89.813053																																																										
690	45.901564	-89.813055	9	M	P			2	1																																																		1
691	45.901078	-89.813057	3	S	P					1																			1			1																										
692	45.900592	-89.813058	3	S	P					2				1															1																													
693	45.900106	-89.813060	2	S	P					1																														1																		
694	45.899620	-89.813061																																																										
695	45.899134	-89.813063	16		R																																																						
696	45.898648	-89.813065	12	S	P																							1																														
697	45.898162	-89.813066	4	S	P																							1																														1

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Brasenia schreberi	Ceratophyllum demersum	Bidens beckii	Chara spp.	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Equisetum fluviatile	Eriocaulon aquaticum	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Lobelia dortmanna	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Myriophyllum verticillatum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton epihydrus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium angustifolium	Sparganium eurycarpum	Sparganium fluctuans	Spirodela polyrhiza	Stuckenia pectinata	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
698	45.897676	-89.813068	14		R																																																								
699	45.897190	-89.813070	15		R																																																						
700	45.896704	-89.813071	6	M	P			1																	2														1	1						1	1						
701	45.896217	-89.813073																																																									
702	45.895731	-89.813074	14		R																																																						
703	45.895245	-89.813076	5	S	P			1																	1			1					1			1				1																				1
704	45.894759	-89.813078	5	S	P					1																		1																																1
705	45.894273	-89.813079	2	S	P																																																						
706	45.893787	-89.813081	1	S	P															1			1																																				
707	45.905937	-89.812344	8	M												1									1															1	1																		
708	45.905451	-89.812346																																																									
709	45.904965	-89.812347																																																									
710	45.904479	-89.812349																																																									
711	45.903993	-89.812351	16		R																					1																																
712	45.903507	-89.812352																																																									
713	45.903021	-89.812354	9	S	P																		1			1										1																							
714	45.902535	-89.812355	8	S	P																																	1	1	1																		1
715	45.902049	-89.812357	3	S	P					1																	1																					1											
716	45.901563	-89.812359	3	S	P																																																						
717	45.901077	-89.812360	2	S	P					1										1		1					1																							1								
718	45.900591	-89.812362	2	S	P					1			1														1					1											1														
719	45.900105	-89.812364	2	S	P					1															1	1																														1
720	45.899619	-89.812365	2	S	P								1													2					1																										
721	45.896702	-89.812375	1	R	P																																																						
722	45.896216	-89.812377	13		R																					1			1																													
723	45.895730	-89.812378	8	M	P			1																							1			1									1														
724	45.895244	-89.812380	4	S	P					1																					2			1																							
725	45.894758	-89.812382	2	S	P					1			1																	1													1														1
726	45.894272	-89.812383	1	S	P										1			1			1													1																								1
727	45.906422	-89.811646	3	M	P																					1																	1														
728	45.905936	-89.811648																																																									
729	45.905450	-89.811649																																																									
730	45.904964	-89.811651																																																									
731	45.904478	-89.811653	16		R																					1																																
732	45.903992	-89.811654	7	M	P																		1								1	1						1	1	1																	
733	45.903506	-89.811656	7	S	P																										1	1						1	1																			
734	45.903020	-89.811658	2	S	P					1																																																
735	45.902533	-89.811659	2	S	P																													1																								
736	45.896215	-89.811681	11		R																				1			1					1										1														
737	45.895729	-89.811682	10	M	P																										3																											
738	45.895243	-89.811684	7	M	P					1																											1	1	1			1															

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Brasenia schreberi	Ceratophyllum demersum	Bidens beckii	Chara spp.	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Equisetum fluviatile	Eriocaulon aquaticum	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Lobelia dortmanna	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Myriophyllum verticillatum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton epihydrus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium angustifolium	Sparganium eurycarpum	Sparganium fluctuans	Spirodela polyrhiza	Stuckenia pectinata	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
739	45.894757	-89.811686	2	S	P					1									1									1							1																										
740	45.906421	-89.810950	6	M	P																							1																																	
741	45.905935	-89.810952	16		R																								1																																
742	45.905448	-89.810953																																																									
743	45.904962	-89.810955																																																									
744	45.903990	-89.810958	4	M	P		1																						1	1	1			1										1										1					
745	45.903018	-89.810962	3	M	P		1																						1	1	1												1															
746	45.896700	-89.810983	3	M	P		1	1																					1	1																												1
747	45.896214	-89.810985	9	M	P					1															1				1											1	1																	
748	45.895728	-89.810986	12		R																																		2				1															
749	45.895242	-89.810988	10	M	P					1																													2																			
750	45.894756	-89.810990	9	M	P																																																					
751	45.906419	-89.810254	10	M	P			2																															1																			
752	45.905933	-89.810255	11		R																				1				1																													1
753	45.905447	-89.810257																																																								
754	45.904961	-89.810259																																																								
755	45.904475	-89.810260	12		R																						3																															
756	45.903989	-89.810262	15		R					1																	1											1				1															
757	45.903503	-89.810264	13		R																						3																														
758	45.903017	-89.810265	5	M	P		1	1																			1														1															
759	45.897185	-89.810285	3	S	P													1								1							1																								
760	45.896699	-89.810287	7	M	P			2																															1				1														
761	45.896213	-89.810289	10	M	P			1																															1				1														
762	45.895727	-89.810290	14		R			1																															1				3														
763	45.895241	-89.810292	11	M	P																																		3																		
764	45.894755	-89.810293	7	S	P																																	2				1														
765	45.906418	-89.809558	5	M	P																							1			1	1																								
766	45.905932	-89.809559	7	M	P			1																1														1																		1
767	45.905446	-89.809561																																																							
768	45.904960	-89.809563																																																							
769	45.904474	-89.809564	17		R																																																					
770	45.903988	-89.809566	15		R																						3																														
771	45.902044	-89.809573	6																																																						
772	45.897184	-89.809589	7	M	P			1																			1											2				1														
773	45.896698	-89.809591	8	M	P			1																1														1				1														
774	45.896212	-89.809592	10	M	P			1																														3				1														
775	45.895726	-89.809594	13		R			2																																		3														
776	45.895240	-89.809596	12	M	P			1																														3				1														
777	45.894754	-89.809597	4	S	P																							2																												
778	45.907389	-89.808858	5	M	P																																		1																		
779	45.906903	-89.808860	8	M	P																																																				

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Brasenia schreberi	Ceratophyllum demersum	Bidens beckii	Chara spp.	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Equisetum fluviatile	Eriocaulon aquaticum	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Lobelia dortmanna	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Myriophyllum verticillatum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton epihydrus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium angustifolium	Sparganium eurycarpum	Sparganium fluctuans	Spirodela polyrhiza	Stuckenia pectinata	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
780	45.906417	-89.808861	14		R																							3																																	
781	45.905931	-89.808863	14		R																								3											1																					
782	45.905445	-89.808865																																																											
783	45.904959	-89.808866																																																											
784	45.904473	-89.808868	18																																																										
785	45.903987	-89.808870	14		R			2																				2																																
786	45.903501	-89.808871																																																											
787	45.903015	-89.808873	5	M	P			1	1																							V												1																
788	45.902529	-89.808875	5	M	P			1																	1				1		1													3															
789	45.902043	-89.808876	4	M	P																																																						
790	45.901557	-89.808878	2	M	P																																																						
791	45.901071	-89.808880																																																											
792	45.897183	-89.808893	2	S	P																							1																																1
793	45.896697	-89.808895	6	S	P			1	1																															1		2																		1
794	45.896211	-89.808896	11	M	P																																		3			1																	
795	45.895725	-89.808898	10	M	P			1																														2																				
796	45.895239	-89.808900	13		R			1																				1										1				2																
797	45.894752	-89.808901	8	S	P																																				1	2																
798	45.907874	-89.808160	1	S	P		1																					1	1	1			1		1																				1			
799	45.907388	-89.808162	7	M	P			1																1																					1															1
800	45.906902	-89.808163	15		R			1																					1																													
801	45.906416	-89.808165	16		R																																																					
802	45.905930	-89.808167																																																									
803	45.905444	-89.808168																																																									
804	45.904958	-89.808170																																																									
805	45.904472	-89.808172	20		R																																																					
806	45.903986	-89.808173	10																										1																													
807	45.903500	-89.808175	13		R			1																					1																													
808	45.903014	-89.808177	9	M	P			1																3																																			
809	45.902528	-89.808179	4	M	P		1			1				1		1													1	1																												
810	45.902042	-89.808180	3	M	P																																																						
811	45.901556	-89.808182	6	M	P																																																						
812	45.901070	-89.808184	5	S	P																																																						
813	45.896695	-89.808199	3	S	P																							1										1																						
814	45.896209	-89.808200	6	R	P																																																					
815	45.895723	-89.808202	12	M	P			2																													1				1																
816	45.895237	-89.808204	10	M	P			1																													1				1																
817	45.894751	-89.808205	12		R			1																				1										1		1																	
818	45.894265	-89.808207																																																									
819	45.907873	-89.807464	3	M	P			1																				1	1																													
820	45.907387	-89.807466	12		R			1																																																			1

Shishebogama Lake 2009

Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Brasenia schreberi	Ceratophyllum demersum	Bidens beckii	Chara spp.	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Equisetum fluviatile	Eriocaulon aquaticum	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Lobelia dortmanna	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Myriophyllum verticillatum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton epihydrus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium angustifolium	Sparganium eurycarpum	Sparganium fluctuans	Spirodela polyrhiza	Stuckenia pectinata	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
821	45.906901	-89.807467	15		R																																																							
822	45.906415	-89.807469																																																									
823	45.905929	-89.807471																																																									
824	45.905443	-89.807472	16		R																																																						
825	45.904957	-89.807474																																																									
826	45.904471	-89.807476	17		R																																																						
827	45.903985	-89.807477																																																									
828	45.903499	-89.807479	14		R																							3																															
829	45.903013	-89.807481	14		R																							1														1			1														
830	45.902527	-89.807482	5	M	P			3											1							1				1	1												1																
831	45.902041	-89.807484	1	M	P																																																					
832	45.901555	-89.807486	6	M	P				1						1																											3																
833	45.901068	-89.807487	3	S	P																																																				
834	45.895722	-89.807506	10	M	P					1															3																	1																
835	45.895236	-89.807508	7	M	P					1																																1																
836	45.894750	-89.807509	9		R					1															2																1	1																
837	45.894264	-89.807511	5	M	P																																				3			1														1
838	45.893778	-89.807513																															1																									
839	45.907872	-89.806768	3	M	P																						1					1																									
840	45.907386	-89.806769	14		R																							3																															
841	45.906900	-89.806771	17		R																																																						
842	45.906414	-89.806773																																																									
843	45.905928	-89.806774	15		R																																																						
844	45.905442	-89.806776	15		R																																																						
845	45.904955	-89.806778																																																									
846	45.904469	-89.806779																																																									
847	45.903983	-89.806781	12		R																							1																															
848	45.903497	-89.806783	13		R																							3																															
849	45.903011	-89.806785	11		R																							1																															
850	45.902525	-89.806786	12		R																																																						
851	45.902039	-89.806788	9		R																																																						
852	45.901553	-89.806790	9	M	P				1						1																												2																
853	45.901067	-89.806791	6	M	P										2																																												
854	45.900581	-89.806793	6	M	P				1																																				1														
855	45.895721	-89.806810																																																									
856	45.895235	-89.806811	10	M	P					1															2																					2														
857	45.894749	-89.806813	9	M	P					1															1																1	2			1														
858	45.894263	-89.806815	7	M	P				1	1					1																												3																
859	45.893777	-89.806817	6	M	P																																						1	2																
860	45.893291	-89.806818	3	M	P		1	1																						1													1																1	
861	45.892805	-89.806820																																																									

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Brasenia schreberi	Ceratophyllum demersum	Bidens beckii	Chara spp.	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Equisetum fluviatile	Eriocaulon aquaticum	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Lobelia dortmanna	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Myriophyllum verticillatum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton epihydrus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium angustifolium	Sparganium eurycarpum	Sparganium fluctuans	Spirodela polyrhiza	Stuckenia pectinata	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
862	45.907870	-89.806071	5	M	P			1																				1					1									1	1																		
863	45.907384	-89.806073	15		R																									1																														
864	45.906898	-89.806075																																																										
865	45.906412	-89.806077																																																										
866	45.905926	-89.806078	16		R																																																						
867	45.905440	-89.806080	16		R																																																						
868	45.904954	-89.806082	12		R																																																						
869	45.904468	-89.806083	10		R																								1																										1					
870	45.903982	-89.806085	8	M	P				1																1																		1											1					
871	45.903496	-89.806087	11		R				1																																			1															
872	45.903010	-89.806088	13		R																									2														1										1					
873	45.902524	-89.806090	10		R																									2																													
874	45.902038	-89.806092	12		R																																																						
875	45.901552	-89.806093	10	M	P				1																1																		1											1					
876	45.901066	-89.806095	9	M	P																																								3															
877	45.900580	-89.806097	5	M	P																													V										3															
878	45.900094	-89.806099	3	M	P		1							1					1											1	1																									1				1	
879	45.895720	-89.806114																																																										
880	45.895234	-89.806115	4	M	P																																								3															
881	45.894748	-89.806117	2	S	P								1								1					1															1	1					1														
882	45.894262	-89.806119	1	R	P																																																						1
883	45.893776	-89.806121	6	M	P																																								3															
884	45.893290	-89.806122	4	M	P		1							1														1														2															
885	45.892804	-89.806124	3	M	P		1	1																		1			1	1	1												1											1			1		
886	45.892318	-89.806126	3	M	P		1																					1	1																													2
887	45.891832	-89.806127	2	M	P		1																	1				1	1						1																						3
888	45.908841	-89.805372	1	M	P		V																						V	V	V																							V					
889	45.908355	-89.805374	14		R																																																						
890	45.907869	-89.805375	14		R																								1																													
891	45.907383	-89.805377	16		R																																																					
892	45.906897	-89.805379	15		R																																																					
893	45.906411	-89.805380																																											1													
894	45.905925	-89.805382	17		R																																																					
895	45.905439	-89.805384	12		R				1																					1															1													
896	45.904953	-89.805385							1																1																1	1															1
897	45.904467	-89.805387	6	S	P				1																					V																		1										
898	45.903981	-89.805389	12		R				1																																																	
899	45.903495	-89.805391	11		R				2																1																																	
900	45.903009	-89.805392	13		R				1																																												1					
901	45.902523	-89.805394	7	S	P					1																																											1		1			
902	45.902037	-89.805396	5	M	P																																																						

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Brasenia schreberi	Ceratophyllum demersum	Bidens beckii	Chara spp.	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Equisetum fluviatile	Eriocaulon aquaticum	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Lobelia dortmanna	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Myriophyllum verticillatum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton epihydrus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium angustifolium	Sparganium eurycarpum	Sparganium fluctuans	Spirodela polyrhiza	Stuckenia pectinata	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
903	45.901551	-89.805397	2	S	P																							1																			1													
904	45.895233	-89.805419	2	S	P			1												1								2			1		1	1													1		1										1
905	45.893775	-89.805424	3	M	P		1	1																	1					1	1					1																							1	1	
906	45.893289	-89.805426	3	M	P		1								1															1	1	1																								1		1		
907	45.892803	-89.805428																																																							
908	45.908840	-89.804676	9	M	P																																						1			1															
909	45.908354	-89.804677	12		R			1																						1																														
910	45.907868	-89.804679	15		R																																																						
911	45.907382	-89.804681	15		R																																																						
912	45.906896	-89.804682	16		R																																																						
913	45.906410	-89.804684	7	M	P			3																				1														1			1															
914	45.905924	-89.804686	15		R																									1																													
915	45.905438	-89.804688	8	M	P					1																		1													1						1													
916	45.904952	-89.804689	8	M	P			1																				1														1																	1
917	45.904466	-89.804691	15		R			1																				1		1																													
918	45.903980	-89.804693	12		R																																			3																			
919	45.903494	-89.804694	10	M	P																							1																															
920	45.903008	-89.804696	4	S	P																									1			1												1															
921	45.908839	-89.803979	4	S	P										1																		1								1																			
922	45.908353	-89.803981	13		R			1																						1																													
923	45.907867	-89.803983	16		R																																																						
924	45.907381	-89.803984	18																																																							
925	45.906895	-89.803986	16		R																																																						
926	45.906409	-89.803988	15		R																								2																													
927	45.905923	-89.803990	15		R			1																						1																													
928	45.905437	-89.803991	7	R	P																									1	1														1														
929	45.904951	-89.803993	14		R																								3																													
930	45.904465	-89.803995	15		R																								3																													
931	45.903979	-89.803996	12		R			2																						1												2																	
932	45.903493	-89.803998	5	M	P		1	1						1														1		1	1	1																									1			
933	45.908838	-89.803283	3	S	P																									1			1																								V			
934	45.908352	-89.803285	14		R			1																						2											1																		
935	45.907866	-89.803287																																																							
936	45.907380	-89.803288	16		R																																																						
937	45.906894	-89.803290	15		R																																																						
938	45.906408	-89.803292	13		R																																																						
939	45.905922	-89.803293	16		R																								1																													
940	45.905436	-89.803295	10		R																								2																													
941	45.904950	-89.803297	7	M	R																																			1					1	1													
942	45.904464	-89.803299	3	S	P			1																					1											1					1													
943	45.903978	-89.803300	3	M	P																								1																												1		

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	Brasenia schreberi	Ceratophyllum demersum	Bidens beckii	Chara spp.	Dulichium arundinaceum	Elatine minima	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Equisetum fluviatile	Eriocaulon aquaticum	Heteranthera dubia	Isoetes lacustris	Juncus pelocarpus	Lemna minor	Lemna trisulca	Lobelia dortmanna	Myriophyllum alterniflorum	Myriophyllum sibiricum	Myriophyllum tenellum	Myriophyllum verticillatum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton epihydrus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Ranunculus flammula	Sagittaria cristata	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium angustifolium	Sparganium eurycarpum	Sparganium fluctuans	Spirodela polyrhiza	Stuckenia pectinata	Utricularia intermedia	Utricularia vulgaris	Vallisneria americana
944	45.903491	-89.803302	4																																																										
945	45.908837	-89.802587	2	M	P			2							1																											1				1															
946	45.908351	-89.802589	13		R																																																							
947	45.907864	-89.802590	8	M	P																																					1																			
948	45.907378	-89.802592	8	M	P			1																																	1	3																		
949	45.906892	-89.802594	6	M	P																																					1	1		1															1
950	45.906406	-89.802595	14		R																								1																														
951	45.905920	-89.802597	15		R																								2										1																			
952	45.905434	-89.802599	3	S	P																																															V			
953	45.904948	-89.802601	1	S	P						1																																		1													1	
954	45.908835	-89.801891	1	S	P																								1	V																										1	1	
955	45.908349	-89.801892	4	M	P		V		1						1																	1					1			1	1																	
956	45.907863	-89.801894	3	M	P			1							1																	1																	1									
957	45.907377	-89.801896	6	S	P				1																							1											1														1
958	45.906891	-89.801898	8	M	P			2																																1			1														
959	45.906405	-89.801899	14		R																							3											1			1														
960	45.905919	-89.801901	6	M	P																			1																	1			1												
961	45.907862	-89.801198	2	M	P			1																								1					1																	V				
962	45.907376	-89.801200	4	S	P			1																							1		1									1											V				
963	45.906890	-89.801201	11		R			1																																																	
964	45.906404	-89.801203	13		R																																																					
965	45.905918	-89.801205																																																							
966	45.906889	-89.800505	3	S	P																								1																											
967	45.906403	-89.800507	2	M	P			1							1	1																									1	1																1

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Eriocaulon aquaticum	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Isoetes spp.	Juncus pelocarpus	Lemna trisulca	Lemna turionifera	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton berchtoldii	Potamogeton epihydrus	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium fluctuans	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana
1	45.887515	-89.843725	6	Muck	Pole	SAMPLED		1																																		1												
2	45.887029	-89.843726	3	Muck	Pole	SAMPLED		3		1	1				1												1												1	2													
3	45.888486	-89.843026	6	Muck	Pole	SAMPLED		1			1				1									1																													
4	45.888000	-89.843028	10	Muck	Pole	SAMPLED		1																														1				1										
5	45.887514	-89.843029	11	Muck	Pole	SAMPLED		1																														1														
6	45.887028	-89.843030	11	Muck	Pole	SAMPLED		3			1																											3				1										
7	45.886542	-89.843032	7	Muck	Pole	SAMPLED		1			1				1															1												1		1							
8	45.888971	-89.842329	5	Muck	Pole	SAMPLED		1			1																																									
9	45.888485	-89.842330	9	Muck	Pole	SAMPLED		1																																	1										
10	45.887999	-89.842332	12	Muck	Pole	SAMPLED		1																													1														
11	45.887513	-89.842333	15	Muck	Pole	SAMPLED		0																																											
12	45.887027	-89.842334	16	Muck	Pole	SAMPLED		0																																											
13	45.886541	-89.842336	13	Muck	Pole	SAMPLED		0																																											
14	45.889456	-89.841631	0			DOCK																																												
15	45.888970	-89.841633	8	Muck	Pole	SAMPLED		1			1																											1														
16	45.888484	-89.841634	11	Muck	Pole	SAMPLED		1																																	1											
17	45.887998	-89.841636	13	Muck	Pole	SAMPLED		0																																											
18	45.887512	-89.841637	16		Rope	SAMPLED		1			1																																							
19	45.887026	-89.841638	16		Rope	SAMPLED		0																																											
20	45.886540	-89.841640	14	Muck	Pole	SAMPLED		0																																											
21	45.894316	-89.840922	0			NONNAVIGABLE (PLANTS)																																												
22	45.893830	-89.840923	0			NONNAVIGABLE (PLANTS)																																												
23	45.893343	-89.840924	0			NONNAVIGABLE (PLANTS)																																												
24	45.889455	-89.840935	7	Muck	Pole	SAMPLED		1																														1	1												
25	45.888969	-89.840937	11	Muck	Pole	SAMPLED		2																														2													
26	45.888483	-89.840938	12	Muck	Pole	SAMPLED		0																																											
27	45.887997	-89.840940	16		Rope	SAMPLED		0																																											
28	45.887511	-89.840941	14	Muck	Pole	SAMPLED		0																																											
29	45.887025	-89.840942	12	Muck	Pole	SAMPLED		1			1																											1													
30	45.886539	-89.840944	14	Muck	Pole	SAMPLED		0																																											
31	45.894315	-89.840226	6	Muck	Pole	SAMPLED		3			1																															3										
32	45.893829	-89.840227	7	Muck	Pole	SAMPLED		1	1	1																															1										
33	45.893343	-89.840228	3	Rock	Pole	SAMPLED		1																	1																											
34	45.890426	-89.840237	5	Muck	Pole	SAMPLED		2			1																										1	1				1									1
35	45.889940	-89.840238	8	Muck	Pole	SAMPLED		1																															1												
36	45.889454	-89.840239	12	Muck	Pole	SAMPLED		1																														1				1									
37	45.888968	-89.840241	16		Rope	SAMPLED		0																																											
38	45.888482	-89.840242	18		Rope	SAMPLED		0																																											
39	45.887996	-89.840244	15	Muck	Pole	SAMPLED		0																																											
40	45.887510	-89.840245	2	Rock	Pole	SAMPLED		1								1																						1													
41	45.887024	-89.840246	8	Muck	Pole	SAMPLED		1			1																													1										
42	45.886538	-89.840248	10	Muck	Pole	SAMPLED		1			1																											1		1										
43	45.894800	-89.839528	0			NONNAVIGABLE (PLANTS)																																												
44	45.894314	-89.839529	10	Muck	Pole	SAMPLED		2			2																											1				1									

Shishebogama Lake 2019

Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Eriocaulon aquaticum	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Isoetes spp.	Juncus pelocarpus	Lemna trisulca	Lemna turionifera	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton berchtoldii	Potamogeton epihydrus	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium fluctuans	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana
45	45.893828	-89.839531	15		Rope	SAMPLED		0																																													
46	45.893342	-89.839532	14	Muck	Pole	SAMPLED		1																															1														
47	45.892856	-89.839534	2	Rock	Pole	SAMPLED		1																	1		1																									
48	45.891883	-89.839536	4	Muck	Pole	SAMPLED		2		1	2				1			1																																			
49	45.891397	-89.839538	8	Muck	Pole	SAMPLED		1				1																																									1
50	45.890911	-89.839539	9	Muck	Pole	SAMPLED		1																															1				1										
51	45.890425	-89.839541	11	Muck	Pole	SAMPLED		0																																												
52	45.889939	-89.839542	13	Muck	Pole	SAMPLED		1														1																															
53	45.889453	-89.839543	17		Rope	SAMPLED		0																																												
54	45.888967	-89.839545	18		Rope	SAMPLED		0																																												
55	45.888481	-89.839546	16		Rope	SAMPLED		0																																												
56	45.887995	-89.839548	2	Rock	Pole	SAMPLED		1				1													1																												
57	45.894313	-89.838833	14	Muck	Pole	SAMPLED		0																																												
58	45.893827	-89.838835	19			DEEP																																														
59	45.893341	-89.838836	17		Rope	SAMPLED		0																																												
60	45.892855	-89.838838	16		Rope	SAMPLED		0																																												
61	45.892368	-89.838839	10	Muck	Pole	SAMPLED		2				1																											2	1													
62	45.891882	-89.838840	12	Muck	Pole	SAMPLED		1																1																			1										
63	45.891396	-89.838842	11	Muck	Pole	SAMPLED		1																	1	1																											1
64	45.890910	-89.838843	9	Rock	Pole	SAMPLED		2				1																				1											1										1
65	45.890424	-89.838845	8	Sand	Pole	SAMPLED		2				1							2																									1										
66	45.889938	-89.838846	17		Rope	SAMPLED		0																																												
67	45.889452	-89.838847	20			DEEP																																														
68	45.888966	-89.838849	21			DEEP																																														
69	45.888480	-89.838850	15	Muck	Pole	SAMPLED		0																																												
70	45.894798	-89.838136	4	Muck	Pole	SAMPLED		1			1	1	1																																							1
71	45.894312	-89.838137	17		Rope	SAMPLED		0																																												
72	45.893826	-89.838139	22			DEEP																																														
73	45.893340	-89.838140	25			DEEP																																														
74	45.892854	-89.838142	21			DEEP																																														
75	45.892368	-89.838143	17		Rope	SAMPLED		0																																												
76	45.891881	-89.838144	16		Rope	SAMPLED		0																																												
77	45.891395	-89.838146	20			DEEP																																														
78	45.890909	-89.838147	1	Rock	Pole	SAMPLED		1																																								1					
79	45.890423	-89.838149	15	Rock	Pole	SAMPLED		0																																												
80	45.889937	-89.838150	16		Rope	SAMPLED		0																																												
81	45.889451	-89.838151	18		Rope	SAMPLED		0																																												
82	45.888965	-89.838153	16	Muck	Pole	SAMPLED		0																																												
83	45.888479	-89.838154	4	Muck	Pole	SAMPLED		1				1																				1																					1
84	45.894797	-89.837440	8	Muck	Pole	SAMPLED		3				1																											3	1													
85	45.894311	-89.837441	19			DEEP																																														
86	45.893825	-89.837443	0			DEEP																																														
87	45.893339	-89.837444	0			DEEP																																														
88	45.892853	-89.837446	0			DEEP																																														

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Eriocaulon aquaticum	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Isoetes spp.	Juncus pelocarpus	Lemna trisulca	Lemna turionifera	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton berchtoldii	Potamogeton epihydrus	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium fluctuans	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana
89	45.892367	-89.837447	23			DEEP																																															
90	45.891880	-89.837448	18		Rope	SAMPLED		0																																												
91	45.890422	-89.837453	6	Muck	Pole	SAMPLED		1			1																														1												
92	45.889936	-89.837454	14	Muck	Pole	SAMPLED		0																																												
93	45.889450	-89.837455	16		Rope	SAMPLED		0																																												
94	45.888964	-89.837457	14	Muck	Pole	SAMPLED		0																																												
95	45.888478	-89.837458	9	Muck	Pole	SAMPLED		2			1												1											1					1	1													1
96	45.894796	-89.836744	17		Rope	SAMPLED		0																																												
97	45.894310	-89.836745	25			DEEP																																														
98	45.893824	-89.836747	0			DEEP																																														
99	45.893338	-89.836748	0			DEEP																																														
100	45.892852	-89.836750	0			DEEP																																														
101	45.892366	-89.836751	15			DEEP																																														
102	45.889935	-89.836758	10	Muck	Pole	SAMPLED		1																											1																	
103	45.889449	-89.836759	9	Rock	Pole	SAMPLED		2			1												1																1													
104	45.888963	-89.836761	6	Muck	Pole	SAMPLED		2																																	2		1									1
105	45.888477	-89.836762	1	Muck	Pole	SAMPLED		1		1															1															1												
106	45.895281	-89.836046	3	Muck	Pole	SAMPLED		1																			1																									
107	45.894795	-89.836048	21			DEEP																																														
108	45.894309	-89.836049	0			DEEP																																														
109	45.893823	-89.836051	0			DEEP																																														
110	45.893337	-89.836052	0			DEEP																																														
111	45.892851	-89.836053	0			DEEP																																														
112	45.892365	-89.836055	22			DEEP																																														
113	45.891879	-89.836056	12	Muck	Pole	SAMPLED		0																																												
114	45.890420	-89.836061	1	Muck	Pole	SAMPLED		1																			1	1																								
115	45.889934	-89.836062	12	Muck	Pole	SAMPLED		1			1							1							1														1												
116	45.889448	-89.836063	11	Muck	Pole	SAMPLED		1																			1														1												
117	45.895280	-89.835350	14	Muck	Pole	SAMPLED		1																			1																									
118	45.894794	-89.835352	20			DEEP																																														
119	45.894308	-89.835353	0			DEEP																																														
120	45.893822	-89.835355	0			DEEP																																														
121	45.893336	-89.835356	0			DEEP																																														
122	45.892850	-89.835357	0			DEEP																																														
123	45.892364	-89.835359	26			DEEP																																														
124	45.891878	-89.835360	18		Rope	SAMPLED		0																																												
125	45.891391	-89.835362	15	Muck	Pole	SAMPLED		0																																												
126	45.890905	-89.835363	3	Muck	Pole	SAMPLED		1																			1													1												1
127	45.890419	-89.835365	10	Muck	Pole	SAMPLED		0																																												
128	45.889933	-89.835366	13	Muck	Pole	SAMPLED		0																																												
129	45.895279	-89.834654	13	Muck	Pole	SAMPLED		1																			1																									
130	45.894793	-89.834656	18		Rope	SAMPLED		0																																												
131	45.894307	-89.834657	21			DEEP																																														
132	45.893821	-89.834659	0			DEEP																																														

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Eriocaulon aquaticum	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Isoetes spp.	Juncus pelocarpus	Lemna trisulca	Lemna turionifera	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton berchtoldii	Potamogeton epihydrus	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium fluctuans	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana
133	45.893335	-89.834660	0			DEEP																																														
134	45.892849	-89.834661	0			DEEP																																														
135	45.892363	-89.834663	0			DEEP																																														
136	45.891877	-89.834664	26			DEEP																																														
137	45.891390	-89.834666	24			DEEP																																														
138	45.890904	-89.834667	15	Rock	Pole	SAMPLED		0																																												
139	45.890418	-89.834669	12	Muck	Pole	SAMPLED		1				1																																							
140	45.889932	-89.834670	12	Muck	Pole	SAMPLED		1																															1														
141	45.895278	-89.833958	2	Sand	Pole	SAMPLED		1							1										1																											
142	45.894792	-89.833960	5	Rock	Pole	SAMPLED		1																		1		1											1														1
143	45.894306	-89.833961	17		Rope	SAMPLED		0																																												
144	45.893820	-89.833962	21			DEEP																																														
145	45.893334	-89.833964	0			DEEP																																														
146	45.892848	-89.833965	0			DEEP																																														
147	45.892362	-89.833967	0			DEEP																																														
148	45.891875	-89.833968	0			DEEP																																														
149	45.891389	-89.833970	0			DEEP																																														
150	45.890903	-89.833971	19			DEEP																																														
151	45.890417	-89.833973	18		Rope	SAMPLED		0																																												
152	45.889931	-89.833974	4	Muck	Pole	SAMPLED		1							1																									1														1
153	45.894305	-89.833265	12	Muck	Pole	SAMPLED		1																		1																											
154	45.893819	-89.833266	19			DEEP																																														
155	45.893333	-89.833268	0			DEEP																																														
156	45.892847	-89.833269	0			DEEP																																														
157	45.892361	-89.833271	0			DEEP																																														
158	45.891874	-89.833272	0			DEEP																																														
159	45.891388	-89.833274	0			DEEP																																														
160	45.890902	-89.833275	20			DEEP																																														
161	45.890416	-89.833277	18		Rope	SAMPLED		0																																												
162	45.889930	-89.833278	16		Rope	SAMPLED		0																																												
163	45.889444	-89.833280	7	Muck	Pole	SAMPLED		1	1																														1		1												1
164	45.888958	-89.833281	3	Muck	Pole	SAMPLED		2																		1	1												1		1												
165	45.898192	-89.832557	2	Sand	Pole	SAMPLED		1				1				1											1																									1	
166	45.897706	-89.832559	12	Muck	Pole	SAMPLED		2																	2						1																					
167	45.897220	-89.832560	13	Muck	Pole	SAMPLED		1																	1																											
168	45.896734	-89.832562	11	Muck	Pole	SAMPLED		3																						1									3													
169	45.896248	-89.832563	13	Muck	Pole	SAMPLED		1																	1																											
170	45.895762	-89.832565	15	Sand	Pole	SAMPLED		1																	1																											
171	45.895276	-89.832566	17		Rope	SAMPLED		0																																													
172	45.894790	-89.832567	16		Rope	SAMPLED		0																																													
173	45.894304	-89.832569	20			DEEP																																														
174	45.893818	-89.832570	19			DEEP																																														
175	45.893332	-89.832572	20			DEEP																																														
176	45.892846	-89.832573	20			DEEP																																														

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Eriocaulon aquaticum	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Isoetes spp.	Juncus pelocarpus	Lemna trisulca	Lemna turionifera	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton berchtoldii	Potamogeton epihydrus	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium fluctuans	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana
177	45.892359	-89.832575	24			DEEP																																															
178	45.891873	-89.832576	24			DEEP																																															
179	45.891387	-89.832578	22			DEEP																																															
180	45.890901	-89.832579	18		Rope	SAMPLED		0																																														
181	45.890415	-89.832581	18		Rope	SAMPLED		0																																														
182	45.889929	-89.832582	16		Rope	SAMPLED		0																																														
183	45.889443	-89.832584	17		Rope	SAMPLED		0																																														
184	45.888957	-89.832585	15	Muck	Pole	SAMPLED		0																																														
185	45.898677	-89.831860	2	Sand	Pole	SAMPLED		2																1				1																									
186	45.898191	-89.831861	15	Muck	Pole	SAMPLED		0																																														
187	45.897705	-89.831863	18		Rope	SAMPLED		0																																														
188	45.897219	-89.831864	18		Rope	SAMPLED		0																																														
189	45.896733	-89.831866	16	Muck	Pole	SAMPLED		0																																														
190	45.896247	-89.831867	13	Muck	Pole	SAMPLED		1																																	1													
191	45.895761	-89.831868	6	Sand	Pole	SAMPLED		2	1						2								1																1				1									1
192	45.895275	-89.831870	17		Rope	SAMPLED		1			1																																										
193	45.894789	-89.831871	18		Rope	SAMPLED		0																																														
194	45.894303	-89.831873	22			DEEP																																															
195	45.893817	-89.831874	26			DEEP																																															
196	45.893331	-89.831876	28			DEEP																																															
197	45.892844	-89.831877	27			DEEP																																															
198	45.892358	-89.831879	16		Rope	SAMPLED		0																																														
199	45.891872	-89.831880	6	Muck	Pole	SAMPLED		3			1																													2													1
200	45.891386	-89.831882	7	Muck	Pole	SAMPLED		2																																	1	1												1
201	45.890900	-89.831883	9	Muck	Pole	SAMPLED		1																																	1			1										
202	45.890414	-89.831885	17		Rope	SAMPLED		0																																														
203	45.889928	-89.831886	16		Rope	SAMPLED		0																																														
204	45.889442	-89.831888	16	Muck	Pole	SAMPLED		0																																														
205	45.888956	-89.831889	11	Muck	Pole	SAMPLED		1	1		1													1																	1													
206	45.888470	-89.831890	0			DOCK																																															
207	45.898676	-89.831164	12	Muck	Pole	SAMPLED		1																1																														
208	45.898190	-89.831165	17		Rope	SAMPLED		0																																														
209	45.897704	-89.831166	18		Rope	SAMPLED		0																																														
210	45.897218	-89.831168	18		Rope	SAMPLED		0																																														
211	45.896732	-89.831169	15	Muck	Pole	SAMPLED		0																																														
212	45.896246	-89.831171	4	Sand	Pole	SAMPLED		2			1				1																												2								1
213	45.895760	-89.831172	5	Sand	Pole	SAMPLED		2																1		2		1																									1
214	45.895274	-89.831174	16		Rope	SAMPLED		1			1																	1												1													
215	45.894788	-89.831175	19			DEEP																																															
216	45.894302	-89.831177	30			DEEP																																															
217	45.893816	-89.831178	28			DEEP																																															
218	45.893329	-89.831180	24			DEEP																																															
219	45.892843	-89.831181	18		Rope	SAMPLED		0																																														
220	45.892357	-89.831183	13	Muck	Pole	SAMPLED		1																																	1													

Shishebogama Lake 2019

Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Eriocaulon aquaticum	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Isoetes spp.	Juncus pelocarpus	Lemna trisulca	Lemna turionifera	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton berchtoldii	Potamogeton epihydrus	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium fluctuans	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana
221	45.889927	-89.831190	16		Rope	SAMPLED		0																																												
222	45.889441	-89.831192	16		Rope	SAMPLED		0																																												
223	45.888955	-89.831193	6	Muck	Pole	SAMPLED		2	1						1				1																					1	1												
224	45.888469	-89.831194	2	Muck	Pole	SAMPLED		0																																												
225	45.899161	-89.830466	2	Sand	Pole	SAMPLED		1				1						1	1																																	
226	45.898675	-89.830467	17		Rope	SAMPLED		0																																												
227	45.898189	-89.830469	19			DEEP																																														
228	45.897703	-89.830470	18		Rope	SAMPLED		0																																												
229	45.897217	-89.830472	18		Rope	SAMPLED		0																																												
230	45.896731	-89.830473	12	Muck	Pole	SAMPLED		2			2																																									
231	45.896245	-89.830475	14	Muck	Pole	SAMPLED		0																																												
232	45.895759	-89.830476	8	Muck	Pole	SAMPLED		2							1								1				1												1					1										1
233	45.895273	-89.830478	4	Sand	Pole	SAMPLED		2					1		1												1												1			1										
234	45.894787	-89.830479	11	Muck	Pole	SAMPLED		1																		1													1													
235	45.894301	-89.830481	20			DEEP																																														
236	45.893814	-89.830482	17		Rope	SAMPLED		0																																												
237	45.893328	-89.830484	4	Muck	Pole	SAMPLED		2			1				1			1					1																1					1									
238	45.889926	-89.830494	0			NONNAVIGABLE (PLANTS)																																															
239	45.889440	-89.830496	13	Muck	Pole	SAMPLED		0																																												
240	45.888954	-89.830497	7	Muck	Pole	SAMPLED		1															1																												1
241	45.901590	-89.829762	1	Sand	Pole	SAMPLED		1																	1															1	1					1							
242	45.899160	-89.829770	7	Sand	Pole	SAMPLED		2																														2	1	1												1
243	45.898674	-89.829771	15	Muck	Pole	SAMPLED		0																																												
244	45.898188	-89.829773	7	Muck	Pole	SAMPLED		3							1								3														1	1													1
245	45.897702	-89.829774	17		Rope	SAMPLED		0																																												
246	45.897216	-89.829776	17		Rope	SAMPLED		0																																												
247	45.896730	-89.829777	19			DEEP																																														
248	45.896244	-89.829779	19			DEEP																																														
249	45.895758	-89.829780	17		Rope	SAMPLED		0																																												
250	45.895272	-89.829782	1	Sand	Pole	SAMPLED		1				1											1																						1					
251	45.894785	-89.829783	2	Muck	Pole	SAMPLED		1				1			1																								1												
252	45.894299	-89.829785	0			NONNAVIGABLE (PLANTS)																																													
253	45.902075	-89.829065	2	Sand	Pole	SAMPLED		2		1	1				1								1				1	1										1												1	1
254	45.901589	-89.829066	12	Muck	Pole	SAMPLED		0																																												
255	45.901103	-89.829068	14	Muck	Pole	SAMPLED		2															2																												
256	45.900617	-89.829069	6	Sand	Pole	SAMPLED		3			3				1			1					1																1												
257	45.900131	-89.829071	7	Sand	Pole	SAMPLED		3							1																							3	1													1
258	45.899645	-89.829072	17		Rope	SAMPLED		0																																												
259	45.899159	-89.829074	19			DEEP																																														
260	45.898673	-89.829075	16		Rope	SAMPLED		2															2																												
261	45.898187	-89.829077	9	Muck	Pole	SAMPLED		1															1																1												
262	45.897701	-89.829078	18		Rope	SAMPLED		0																																												
263	45.897215	-89.829080	19			DEEP																																														
264	45.896729	-89.829081	22			DEEP																																														

Shishebogama Lake 2019

Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Eriocaulon aquaticum	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Isoetes spp.	Juncus pelocarpus	Lemna trisulca	Lemna turionifera	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton berchtoldii	Potamogeton epihydrus	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium fluctuans	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana
265	45.896243	-89.829083	21			DEEP																																														
266	45.895757	-89.829084	2	Sand	Pole	SAMPLED		1																			1														1													
267	45.902074	-89.828369	3	Muck	Pole	SAMPLED		1				1															1											1												1	
268	45.901588	-89.828370	11	Muck	Pole	SAMPLED		2			1																											2													1
269	45.901102	-89.828372	16	Muck	Pole	SAMPLED		1			1																																							
270	45.900616	-89.828373	17		Rope	SAMPLED		0																																										
271	45.900130	-89.828375	17		Rope	SAMPLED		0																																										
272	45.899644	-89.828376	20			DEEP																																											
273	45.899158	-89.828378	20			DEEP																																											
274	45.898672	-89.828379	18		Rope	SAMPLED		0																																										
275	45.898186	-89.828381	19			DEEP																																											
276	45.897700	-89.828382	17		Rope	SAMPLED		0																																										
277	45.897214	-89.828384	18		Rope	SAMPLED		0																																										
278	45.896728	-89.828385	17		Rope	SAMPLED		0																																										
279	45.896241	-89.828387	12	Muck	Pole	SAMPLED		1															1		1																										
280	45.902073	-89.827672	3	Sand	Pole	SAMPLED		1				1																		1								1												
281	45.901587	-89.827674	15		Rope	SAMPLED		1				1																																						
282	45.901101	-89.827675	17		Rope	SAMPLED		0																																										
283	45.900615	-89.827677	17		Rope	SAMPLED		0																																										
284	45.900129	-89.827678	20			DEEP																																											
285	45.899643	-89.827680	20			DEEP																																											
286	45.899157	-89.827681	8	Sand	Pole	SAMPLED		2				1																										2												1
287	45.898671	-89.827683	8	Sand	Pole	SAMPLED		2															1														2													1
288	45.898185	-89.827684	4	Sand	Pole	SAMPLED		1				1																										1											1
289	45.897699	-89.827686	8	Rock	Pole	SAMPLED		2							1																							1			2			1						1
290	45.897213	-89.827687	4	Sand	Pole	SAMPLED		1								1																							1		1									
291	45.896726	-89.827689	2	Sand	Pole	SAMPLED		1				1															1		1																					
292	45.896240	-89.827691	2	Sand	Pole	SAMPLED		1		1	1																1	1																						
293	45.902072	-89.826976	4	Sand	Pole	SAMPLED		2	1							1													1							2				1									1
294	45.901586	-89.826978	17		Rope	SAMPLED		0																																										
295	45.901100	-89.826979	20			DEEP																																											
296	45.900614	-89.826981	23			DEEP																																											
297	45.900128	-89.826982	20			DEEP																																											
298	45.899642	-89.826984	20			DEEP																																											
299	45.899156	-89.826985	1	Sand	Pole	SAMPLED		0																																										
300	45.902071	-89.826280	6	Muck	Pole	SAMPLED		2																																	2			1						
301	45.901585	-89.826282	17		Rope	SAMPLED		0																																										
302	45.901099	-89.826283	23			DEEP																																											
303	45.900613	-89.826285	29			DEEP																																											
304	45.900127	-89.826286	25			DEEP																																											
305	45.899641	-89.826288	20			DEEP																																											
306	45.902070	-89.825584	1	Sand	Pole	SAMPLED		2	1			1				1							1		1														1						1				1	1	
307	45.901584	-89.825586	8	Muck	Pole	SAMPLED		3			3												1																1	1										
308	45.901098	-89.825587	22			DEEP																																											

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Eriocaulon aquaticum	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Isoetes spp.	Juncus pelocarpus	Lemna trisulca	Lemna turionifera	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton berchtoldii	Potamogeton epihydrus	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium fluctuans	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana
309	45.900611	-89.825589	28			DEEP																																															
310	45.900125	-89.825590	29			DEEP																																																
311	45.899639	-89.825592	22			DEEP																																																
312	45.901582	-89.824889	1	Sand	Pole	SAMPLED		1				1											1													1			1														1	
313	45.901096	-89.824891	16	Muck	Pole	SAMPLED		1				1																																										
314	45.900610	-89.824892	11	Muck	Pole	SAMPLED		1																																		1												
315	45.900124	-89.824894	23			DEEP																																																
316	45.899638	-89.824895	8	Sand	Pole	SAMPLED		1				1											1										1							1														
317	45.900123	-89.824198	5	Sand	Pole	SAMPLED		1															1	1																	1													
318	45.899637	-89.824199	24			DEEP																																																
319	45.899151	-89.824201	6	Sand	Pole	SAMPLED																	1				1											1	2													1
320	45.898665	-89.824202	3	Sand	Pole	SAMPLED		1				1											1	1													1															
321	45.898179	-89.824204	3	Sand	Pole	SAMPLED		1										1					1															1														
322	45.897693	-89.824206	3	Sand	Pole	SAMPLED		1				1											1															1														
323	45.897207	-89.824207	2	Sand	Pole	SAMPLED		1															1	1																												1
324	45.896721	-89.824209	0			NO INFORMATION																																															
325	45.900122	-89.823502	23			DEEP																																																
326	45.899636	-89.823503	0			DEEP																																																
327	45.899150	-89.823505	26			DEEP																																																
328	45.898664	-89.823506	23			DEEP																																																
329	45.898178	-89.823508	20			DEEP																																																
330	45.897692	-89.823509	17		Rope	SAMPLED		0																																														
331	45.897206	-89.823511	15	Muck	Pole	SAMPLED		0																																														
332	45.896720	-89.823512	2	Sand	Pole	SAMPLED		1			1				1						1					1																												
333	45.900607	-89.822804	3	Sand	Pole	SAMPLED		1				1											1		1																													
334	45.900121	-89.822806	23			DEEP																																																
335	45.899635	-89.822807	0			DEEP																																																
336	45.899149	-89.822809	0			DEEP																																																
337	45.898663	-89.822810	0			DEEP																																																
338	45.898177	-89.822812	22			DEEP																																																
339	45.897691	-89.822813	17		Rope	SAMPLED		0																																														
340	45.897205	-89.822815	16		Rope	SAMPLED		1														1																	1														
341	45.889915	-89.822838	2	Sand	Pole	SAMPLED		1															1				1	1																									
342	45.889429	-89.822840	3	Sand	Pole	SAMPLED		2			1				1								1				1	1											1						1	1					1	1
343	45.901092	-89.822106	2	Sand	Pole	SAMPLED		1				1																																										
344	45.900606	-89.822108	5	Sand	Pole	SAMPLED		1									1						1									1										1	1										
345	45.900120	-89.822109	23			DEEP																																																
346	45.899634	-89.822111	0			DEEP																																																
347	45.899148	-89.822113	0			DEEP																																																
348	45.898662	-89.822114	27			DEEP																																																
349	45.898176	-89.822116	17		Rope	SAMPLED		0																																														
350	45.897690	-89.822117	17		Rope	SAMPLED		0																																														
351	45.897204	-89.822119	3	Sand	Pole	SAMPLED		1															1								1							1													1
352	45.896718	-89.822120	3	Sand	Pole	SAMPLED		1				1													1											1													1		

Shishebogama Lake 2019

Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Eriocaulon aquaticum	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Isoetes spp.	Juncus pelocarpus	Lemna trisulca	Lemna turionifera	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton berchtoldii	Potamogeton epihydrus	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium fluctuans	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana
353	45.896232	-89.822122	1	Sand	Pole	SAMPLED		1																	1																								1				
354	45.894288	-89.822128	1	Sand	Pole	SAMPLED		1																	1																										1	
355	45.893802	-89.822130	0			NONNAVIGABLE (PLANTS)																																														
356	45.893316	-89.822131	2	Sand	Pole	SAMPLED		1																	1																											
357	45.892830	-89.822133	2	Sand	Pole	SAMPLED		1																	1																											
358	45.891372	-89.822137	12	Sand	Pole	SAMPLED		2																														2														
359	45.890886	-89.822139	14	Sand	Pole	SAMPLED		1							1												1																								
360	45.890400	-89.822140	15	Muck	Pole	SAMPLED		0																																											
361	45.889914	-89.822142	14	Muck	Pole	SAMPLED		0																																											
362	45.889428	-89.822144	2	Sand	Pole	SAMPLED		1																	1													1													1
363	45.901577	-89.821409	2	Sand	Pole	SAMPLED		1				1													1													1													
364	45.901091	-89.821410	4	Sand	Pole	SAMPLED		1				1										1																	1												
365	45.900605	-89.821412	19			DEEP																																													
366	45.900119	-89.821413	0			DEEP																																													
367	45.899633	-89.821415	0			DEEP																																													
368	45.899147	-89.821416	0			DEEP																																													
369	45.898661	-89.821418	0			DEEP																																													
370	45.898175	-89.821420	20			DEEP		0																																											
371	45.897689	-89.821421	16		Rope	SAMPLED		0																																											
372	45.897203	-89.821423	8	Muck	Pole	SAMPLED		3	1		2																				1							1	1			1	1									2
373	45.896717	-89.821424	17		Rope	SAMPLED		0																																											
374	45.896231	-89.821426	8	Muck	Pole	SAMPLED		3			2												1																3				1									
375	45.895745	-89.821427	3	Sand	Pole	SAMPLED		1				1																											1												
376	45.895259	-89.821429	6	Sand	Pole	SAMPLED		2										1							1													2	1													1
377	45.894773	-89.821430	15	Sand	Pole	SAMPLED		1														1																													
378	45.894287	-89.821432	19		Rope	SAMPLED		0																																											
379	45.893801	-89.821434	20			DEEP																																													
380	45.893315	-89.821435	11	Sand	Pole	SAMPLED		2			1																												2													
381	45.892829	-89.821437	15	Sand	Pole	SAMPLED		1														1																													
382	45.892343	-89.821438	17		Rope	SAMPLED		0																																											
383	45.891857	-89.821440	17		Rope	SAMPLED		0																																											
384	45.891371	-89.821441	16		Rope	SAMPLED		0																																											
385	45.890885	-89.821443	16		Rope	SAMPLED		0																																											
386	45.890399	-89.821444	15	Sand	Pole	SAMPLED		0																																											
387	45.889913	-89.821446	13	Muck	Pole	SAMPLED		1																														1													
388	45.902062	-89.820711	1	Sand	Pole	SAMPLED		1																				1										1													
389	45.901576	-89.820712	4	Sand	Pole	SAMPLED		1				1										1																1													1
390	45.901090	-89.820714	19			DEEP																																													
391	45.900604	-89.820716	0			DEEP																																													
392	45.900118	-89.820717	0			DEEP																																													
393	45.899632	-89.820719	0			DEEP																																													
394	45.899146	-89.820720	0			DEEP																																													
395	45.898660	-89.820722	0			DEEP																																													
396	45.898174	-89.820723	29			DEEP																																													

Shishebogama Lake 2019

Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Eriocaulon aquaticum	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Isoetes spp.	Juncus pelocarpus	Lemna trisulca	Lemna turionifera	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton berchtoldii	Potamogeton epihydrus	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium fluctuans	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana
397	45.897688	-89.820725	28			DEEP																																																	
398	45.897202	-89.820727	23			DEEP																																																	
399	45.896716	-89.820728	28			DEEP																																																	
400	45.896230	-89.820730	32			DEEP																																																	
401	45.895744	-89.820731	29			DEEP																																																	
402	45.895258	-89.820733	28			DEEP																																																	
403	45.894772	-89.820734	25			DEEP																																																	
404	45.894286	-89.820736	24			DEEP																																																	
405	45.893800	-89.820738	0			DEEP																																																	
406	45.893314	-89.820739	26			DEEP																																																	
407	45.892828	-89.820741	23			DEEP																																																	
408	45.892342	-89.820742	20			DEEP																																																	
409	45.891856	-89.820744	17		Rope	SAMPLED		0																																													
410	45.891369	-89.820745	16		Rope	SAMPLED		0																																													
411	45.890883	-89.820747	16		Rope	SAMPLED		0																																													
412	45.890397	-89.820748	15	Muck	Pole	SAMPLED		1																							1																					
413	45.889911	-89.820750	5	Muck	Pole	SAMPLED		2	1																					2										1													1
414	45.902061	-89.820015	3	Sand	Pole	SAMPLED		1				1																										1								1							
415	45.901575	-89.820016	16		Rope	SAMPLED		0																																													
416	45.901089	-89.820018	27			DEEP																																																	
417	45.900603	-89.820020	0			DEEP																																																	
418	45.900117	-89.820021	0			DEEP																																																	
419	45.899631	-89.820023	0			DEEP																																																	
420	45.899145	-89.820024	0			DEEP																																																	
421	45.898659	-89.820026	0			DEEP																																																	
422	45.898173	-89.820027	0			DEEP																																																	
423	45.897687	-89.820029	0			DEEP																																																	
424	45.897201	-89.820030	0			DEEP																																																	
425	45.896715	-89.820032	0			DEEP																																																	
426	45.896229	-89.820034	0			DEEP																																																	
427	45.895743	-89.820035	0			DEEP																																																	
428	45.895257	-89.820037	0			DEEP																																																	
429	45.894771	-89.820038	0			DEEP																																																	
430	45.894285	-89.820040	0			DEEP																																																	
431	45.893799	-89.820041	0			DEEP																																																	
432	45.893312	-89.820043	0			DEEP																																																	
433	45.892826	-89.820045	0			DEEP																																																	
434	45.892340	-89.820046	0			DEEP																																																	
435	45.891854	-89.820048	20			DEEP																																																	
436	45.891368	-89.820049	17		Rope	SAMPLED		0																																													
437	45.890882	-89.820051	16		Rope	SAMPLED		0																																													
438	45.890396	-89.820052	8	Muck	Pole	SAMPLED		2			2												1							1										1													1
439	45.889910	-89.820054	4	Sand	Pole	SAMPLED		1	1		1																			1											1													1
440	45.902546	-89.819317	2	Sand	Pole	SAMPLED		1				1													1													1																1

Shishebogama Lake 2019

Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Eriocaulon aquaticum	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Isoetes spp.	Juncus pelocarpus	Lemna trisulca	Lemna turionifera	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton berchtoldii	Potamogeton epihydrus	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium fluctuans	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana
441	45.902060	-89.819319	13	Sand	Pole	SAMPLED		0																																													
442	45.901574	-89.819320	28			DEEP																																															
443	45.901088	-89.819322	0			DEEP																																															
444	45.900602	-89.819323	0			DEEP																																															
445	45.900116	-89.819325	0			DEEP																																															
446	45.899630	-89.819327	0			DEEP																																															
447	45.899144	-89.819328	0			DEEP																																															
448	45.898658	-89.819330	0			DEEP																																															
449	45.898172	-89.819331	0			DEEP																																															
450	45.897686	-89.819333	0			DEEP																																															
451	45.897200	-89.819334	0			DEEP																																															
452	45.896714	-89.819336	0			DEEP																																															
453	45.896228	-89.819338	0			DEEP																																															
454	45.895742	-89.819339	0			DEEP																																															
455	45.895255	-89.819341	0			DEEP																																															
456	45.894769	-89.819342	0			DEEP																																															
457	45.894283	-89.819344	0			DEEP																																															
458	45.893797	-89.819345	0			DEEP																																															
459	45.893311	-89.819347	0			DEEP																																															
460	45.892825	-89.819349	0			DEEP																																															
461	45.892339	-89.819350	0			DEEP																																															
462	45.891853	-89.819352	20			DEEP																																															
463	45.891367	-89.819353	17		Rope	SAMPLED		0																																													
464	45.890881	-89.819355	16		Rope	SAMPLED		0																																													
465	45.890395	-89.819356	5	Sand	Pole	SAMPLED		2	1																															1			1		1									1
466	45.889909	-89.819358	2	Sand	Pole	SAMPLED		2				1			1									2																												1	1	
467	45.903031	-89.818619	1	Sand	Pole	SAMPLED		1				1																																										
468	45.902545	-89.818621	7	Sand	Pole	SAMPLED		2																1		1																		1	1									2
469	45.902059	-89.818622	22			DEEP																																															
470	45.901573	-89.818624	0			DEEP																																															
471	45.901087	-89.818626	0			DEEP																																															
472	45.900601	-89.818627	0			DEEP																																															
473	45.900115	-89.818629	0			DEEP																																															
474	45.899629	-89.818630	0			DEEP																																															
475	45.899143	-89.818632	0			DEEP																																															
476	45.898657	-89.818634	0			DEEP																																															
477	45.898171	-89.818635	0			DEEP																																															
478	45.897685	-89.818637	0			DEEP																																															
479	45.897198	-89.818638	0			DEEP																																															
480	45.896712	-89.818640	0			DEEP																																															
481	45.896226	-89.818641	0			DEEP																																															
482	45.895740	-89.818643	0			DEEP																																															
483	45.895254	-89.818645	0			DEEP																																															
484	45.894768	-89.818646	0			DEEP																																															

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Eriocaulon aquaticum	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Isoetes spp.	Juncus pelocarpus	Lemna trisulca	Lemna turionifera	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton berchtoldii	Potamogeton epihydrus	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium fluctuans	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana
485	45.894282	-89.818648	0			DEEP																																															
486	45.893796	-89.818649	0			DEEP																																															
487	45.893310	-89.818651	0			DEEP																																															
488	45.892824	-89.818653	0			DEEP																																															
489	45.892338	-89.818654	0			DEEP																																															
490	45.891852	-89.818656	21			DEEP																																															
491	45.891366	-89.818657	17		Rope	SAMPLED		0																																													
492	45.890880	-89.818659	15	Muck	Pole	SAMPLED		0																																													
493	45.890394	-89.818660	1	Muck	Pole	SAMPLED		1				1											1																													1
494	45.903030	-89.817923	3	Sand	Pole	SAMPLED		1					1		1								1													1																	1
495	45.902544	-89.817925	16		Rope	SAMPLED		0																																													
496	45.902058	-89.817926	0			DEEP																																															
497	45.901572	-89.817928	0			DEEP																																															
498	45.901086	-89.817930	0			DEEP																																															
499	45.900600	-89.817931	0			DEEP																																															
500	45.900114	-89.817933	0			DEEP																																															
501	45.899628	-89.817934	0			DEEP																																															
502	45.899141	-89.817936	0			DEEP																																															
503	45.898655	-89.817937	0			DEEP																																															
504	45.898169	-89.817939	0			DEEP																																															
505	45.897683	-89.817941	0			DEEP																																															
506	45.897197	-89.817942	0			DEEP																																															
507	45.896711	-89.817944	0			DEEP																																															
508	45.896225	-89.817945	0			DEEP																																															
509	45.895739	-89.817947	0			DEEP																																															
510	45.895253	-89.817949	0			DEEP																																															
511	45.894767	-89.817950	0			DEEP																																															
512	45.894281	-89.817952	0			DEEP																																															
513	45.893795	-89.817953	0			DEEP																																															
514	45.893309	-89.817955	0			DEEP																																															
515	45.892823	-89.817957	31			DEEP																																															
516	45.892337	-89.817958	25			DEEP																																															
517	45.891851	-89.817960	10	Muck	Pole	SAMPLED		2																2															1														
518	45.891365	-89.817961	5	Muck	Pole	SAMPLED		3		1					2																1								1														1
519	45.890879	-89.817963	3	Muck	Pole	SAMPLED		2				1											2																									1	1				
520	45.903515	-89.817225	2	Sand	Pole	SAMPLED		1															1																	1													
521	45.903029	-89.817227	9	Sand	Pole	SAMPLED		1																	1														1													1
522	45.902543	-89.817229	21			DEEP																																															
523	45.902057	-89.817230	0			DEEP																																															
524	45.901570	-89.817232	0			DEEP																																															
525	45.901084	-89.817233	0			DEEP																																															
526	45.900598	-89.817235	0			DEEP																																															
527	45.900112	-89.817237	0			DEEP																																															
528	45.899626	-89.817238	0			DEEP																																															

Shishebogama Lake 2019

Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Eriocaulon aquaticum	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Isoetes spp.	Juncus pelocarpus	Lemna trisulca	Lemna turionifera	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton berchtoldii	Potamogeton epihydrus	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium fluctuans	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana
529	45.899140	-89.817240	0			DEEP																																																
530	45.898654	-89.817241	0			DEEP																																																
531	45.898168	-89.817243	0			DEEP																																																
532	45.897682	-89.817245	0			DEEP																																																
533	45.897196	-89.817246	0			DEEP																																																
534	45.896710	-89.817248	0			DEEP																																																
535	45.896224	-89.817249	0			DEEP																																																
536	45.895738	-89.817251	0			DEEP																																																
537	45.895252	-89.817252	0			DEEP																																																
538	45.894766	-89.817254	29			DEEP																																																
539	45.894280	-89.817256	30			DEEP																																																
540	45.893794	-89.817257	34			DEEP																																																
541	45.893308	-89.817259	0			DEEP																																																
542	45.892822	-89.817260	26			DEEP																																																
543	45.892336	-89.817262	17		Rope	SAMPLED		1																		1																											
544	45.891850	-89.817264	5	Muck	Pole	SAMPLED		1							1			1												1									1	1													
545	45.891364	-89.817265	5	Muck	Pole	SAMPLED		1																							1																							
546	45.890878	-89.817267	1	Muck	Pole	SAMPLED		1																										1																				
547	45.903513	-89.816529	3	Sand	Pole	SAMPLED		1				1																						1				1																
548	45.903027	-89.816531	18		Rope	SAMPLED		0																																														
549	45.902541	-89.816532	28			DEEP																																																
550	45.902055	-89.816534	0			DEEP																																																
551	45.901569	-89.816536	0			DEEP																																																
552	45.901083	-89.816537	0			DEEP																																																
553	45.900597	-89.816539	0			DEEP																																																
554	45.900111	-89.816540	0			DEEP																																																
555	45.899625	-89.816542	0			DEEP																																																
556	45.899139	-89.816544	0			DEEP																																																
557	45.898653	-89.816545	0			DEEP																																																
558	45.898167	-89.816547	0			DEEP																																																
559	45.897681	-89.816548	0			DEEP																																																
560	45.897195	-89.816550	40			DEEP																																																
561	45.896709	-89.816552	31			DEEP																																																
562	45.896223	-89.816553	29			DEEP																																																
563	45.895737	-89.816555	21			DEEP																																																
564	45.895251	-89.816556	20			DEEP																																																
565	45.894765	-89.816558	27			DEEP																																																
566	45.894279	-89.816560	19		Rope	SAMPLED		0																																														
567	45.893793	-89.816561	25			DEEP																																																
568	45.893307	-89.816563	27			DEEP																																																
569	45.892821	-89.816564	22			DEEP																																																
570	45.892335	-89.816566	10	Muck	Pole	SAMPLED		2	1																						1						1		1	1													1
571	45.891849	-89.816568	5	Muck	Pole	SAMPLED		2							1								1															1			1												
572	45.891363	-89.816569	4	Muck	Pole	SAMPLED		1																							1											1	1											1

Shishebogama Lake 2019

Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Eriocaulon aquaticum	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Isoetes spp.	Juncus pelocarpus	Lemna trisulca	Lemna turionifera	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton berchtoldii	Potamogeton epihydrus	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium fluctuans	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana
573	45.903998	-89.815831	6	Sand	Pole	SAMPLED		1															1		1							1			1						1											
574	45.903512	-89.815833	26			DEEP																																													
575	45.903026	-89.815835	30			DEEP																																													
576	45.902540	-89.815836	0			DEEP																																													
577	45.902054	-89.815838	0			DEEP																																													
578	45.901568	-89.815839	0			DEEP																																													
579	45.901082	-89.815841	0			DEEP																																													
580	45.900596	-89.815843	0			DEEP																																													
581	45.900110	-89.815844	0			DEEP																																													
582	45.899624	-89.815846	0			DEEP																																													
583	45.899138	-89.815848	0			DEEP																																													
584	45.898652	-89.815849	0			DEEP																																													
585	45.898166	-89.815851	0			DEEP																																													
586	45.897680	-89.815852	0			DEEP																																													
587	45.897194	-89.815854	27			DEEP																																													
588	45.896708	-89.815856	7	Rock	Pole	SAMPLED		1																																										1
589	45.896222	-89.815857	15	Muck	Pole	SAMPLED		1																	1																									
590	45.895736	-89.815859	17		Rope	SAMPLED		0																																										
591	45.895250	-89.815860	22			DEEP																																													
592	45.894764	-89.815862	22			DEEP																																													
593	45.894278	-89.815864	16		Rope	SAMPLED		1																	1																									
594	45.893792	-89.815865	17		Rope	SAMPLED		0																																										
595	45.893306	-89.815867	22			DEEP																																													
596	45.892820	-89.815868	19		Rope	SAMPLED		0																																										
597	45.892334	-89.815870	6	Muck	Pole	SAMPLED		2																						1					1	1																1
598	45.891848	-89.815872	5	Muck	Pole	SAMPLED		2																						1					1				1			1										1
599	45.891362	-89.815873	2	Muck	Pole	SAMPLED		1																	1																										
600	45.904969	-89.815132	4	Muck	Pole	SAMPLED		2			1				1								1		1					1					1										1						1	
601	45.904483	-89.815134	20		Rope	SAMPLED		0																																										
602	45.903997	-89.815135	30			DEEP																																													
603	45.903511	-89.815137	34			DEEP																																													
604	45.903025	-89.815138	0			DEEP																																													
605	45.902539	-89.815140	0			DEEP																																													
606	45.902053	-89.815142	0			DEEP																																													
607	45.901567	-89.815143	0			DEEP																																													
608	45.901081	-89.815145	0			DEEP																																													
609	45.900595	-89.815147	0			DEEP																																													
610	45.900109	-89.815148	0			DEEP																																													
611	45.899623	-89.815150	26			DEEP																																													
612	45.899137	-89.815151	25			DEEP																																													
613	45.898651	-89.815153	20			DEEP																																													
614	45.898165	-89.815155	34			DEEP																																													
615	45.897679	-89.815156	0			DEEP																																													
616	45.897193	-89.815158	24			DEEP																																													

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Eriocaulon aquaticum	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Isoetes spp.	Juncus pelocarpus	Lemna trisulca	Lemna turionifera	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton berchtoldii	Potamogeton epihydrus	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium fluctuans	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana
617	45.896707	-89.815159	18		Rope	SAMPLED		0																																										
618	45.896221	-89.815161	14	Muck	Pole	SAMPLED	1				1												1																												
619	45.895735	-89.815163	19		Rope	SAMPLED		0																																										
620	45.895249	-89.815164	18		Rope	SAMPLED		0																																										
621	45.894763	-89.815166	16		Rope	SAMPLED		0																																										
622	45.894277	-89.815168	8	Muck	Pole	SAMPLED	3				1																				1									1	1			1									
623	45.893791	-89.815169	5	Rock	Pole	SAMPLED	1								1			1							1																		1							1
624	45.893305	-89.815171	18		Rope	SAMPLED		0																																										
625	45.892819	-89.815172	16		Rope	SAMPLED		0																																										
626	45.892333	-89.815174	4	Muck	Pole	SAMPLED	2				1															1											1														
627	45.891847	-89.815176	0			TEMPORARY OBSTACLE																																													
628	45.905940	-89.814433	5	Muck	Pole	SAMPLED	3				3																													2						1						1	
629	45.905454	-89.814434	6	Muck	Pole	SAMPLED	3				3																													2													
630	45.904968	-89.814436	5	Rock	Pole	SAMPLED	1												1																					1						1							1
631	45.904482	-89.814437	12	Rock	Pole	SAMPLED	0																																													
632	45.903996	-89.814439	32			DEEP																																													
633	45.903510	-89.814441	34			DEEP																																													
634	45.903024	-89.814442	0			DEEP																																													
635	45.902538	-89.814444	35			DEEP																																													
636	45.902052	-89.814446	0			DEEP																																													
637	45.901566	-89.814447	0			DEEP																																													
638	45.901080	-89.814449	0			DEEP																																													
639	45.900594	-89.814450	0			DEEP																																													
640	45.900108	-89.814452	26			DEEP																																													
641	45.899622	-89.814454	16		Rope	SAMPLED		0																																										
642	45.899136	-89.814455	13	Muck	Pole	SAMPLED	1															1																	1													
643	45.898650	-89.814457	11	Muck	Pole	SAMPLED	1																																											1
644	45.898164	-89.814459	32			DEEP																																													
645	45.897678	-89.814460	31			DEEP																																													
646	45.897192	-89.814462	17		Rope	SAMPLED		0																																										
647	45.896706	-89.814463	16		Rope	SAMPLED		0																																										
648	45.896220	-89.814465	19		Rope	SAMPLED		0																																										
649	45.895734	-89.814467	19		Rope	SAMPLED		0																																										
650	45.895248	-89.814468	19		Rope	SAMPLED		0																																										
651	45.894762	-89.814470	19		Rope	SAMPLED		0																																										
652	45.894276	-89.814471	16		Rope	SAMPLED		0																																										
653	45.893790	-89.814473	10	Muck	Pole	SAMPLED	3				2					1																								1					1							1
654	45.893304	-89.814475	2	Rock	Pole	SAMPLED	1					1																											1													
655	45.892818	-89.814476	2	Rock	Pole	SAMPLED	1					1																												1												
656	45.892332	-89.814478	1	Muck	Pole	SAMPLED	2				1												1																	1												1
657	45.904967	-89.813740	17		Rope	SAMPLED		0																																										
658	45.904481	-89.813741	17		Rope	SAMPLED		0																																										
659	45.903995	-89.813743	22			DEEP																																													
660	45.903509	-89.813745	29			DEEP																																													

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Eriocaulon aquaticum	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Isoetes spp.	Juncus pelocarpus	Lemna trisulca	Lemna turionifera	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton berchtoldii	Potamogeton epihydrus	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium fluctuans	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana
661	45.903023	-89.813746	0			DEEP																																														
662	45.902537	-89.813748	33			DEEP																																													
663	45.902051	-89.813749	31			DEEP																																													
664	45.901565	-89.813751	20			DEEP																																													
665	45.901079	-89.813753	22			DEEP																																													
666	45.900593	-89.813754	24			DEEP																																													
667	45.900107	-89.813756	16	Sand	Pole	SAMPLED		1																1																												
668	45.899621	-89.813758	22			DEEP																																													
669	45.899135	-89.813759	16		Rope	SAMPLED		0																																												
670	45.898649	-89.813761	22			DEEP																																													
671	45.898163	-89.813762	16		Rope	SAMPLED		0																																												
672	45.897677	-89.813764	20			DEEP																																													
673	45.897191	-89.813766	9	Rock	Pole	SAMPLED		0																																												
674	45.896705	-89.813767	4	Rock	Pole	SAMPLED		0																																												
675	45.896219	-89.813769	20			DEEP																																													
676	45.895733	-89.813771	20			DEEP																																													
677	45.895247	-89.813772	6	Muck	Pole	SAMPLED		2			1												1	1														1														1
678	45.894761	-89.813774	15	Muck	Pole	SAMPLED		1																1																												
679	45.894275	-89.813775	16		Rope	SAMPLED		1																1																												
680	45.893788	-89.813777	12	Muck	Pole	SAMPLED		1			1																											1														
681	45.893302	-89.813779	1	Muck	Pole	SAMPLED		1							1									1																											
682	45.905452	-89.813042	6	Muck	Pole	SAMPLED		3			1																											1	1				1									2
683	45.904966	-89.813043	19		Rope	SAMPLED		1			1																																							
684	45.904480	-89.813045	18		Rope	SAMPLED		0																																												
685	45.903994	-89.813047	16	Rock	Pole	SAMPLED		0																																												
686	45.903508	-89.813048	22			DEEP																																													
687	45.903022	-89.813050	23			DEEP																																													
688	45.902536	-89.813052	30			DEEP																																													
689	45.902050	-89.813053	21			DEEP																																													
690	45.901564	-89.813055	11	Sand	Pole	SAMPLED		1																																					1								
691	45.901078	-89.813057	6	Sand	Pole	SAMPLED		1																							1								1													1
692	45.900592	-89.813058	2	Sand	Pole	SAMPLED		1					1																																						
693	45.900106	-89.813060	3	Sand	Pole	SAMPLED		1				1																																						
694	45.899620	-89.813061	17		Rope	SAMPLED		0																																												
695	45.899134	-89.813063	14	Muck	Pole	SAMPLED		0																																												
696	45.898648	-89.813065	12	Muck	Pole	SAMPLED		1																																											1
697	45.898162	-89.813066	5	Rock	Pole	SAMPLED		1																	1																									
698	45.897676	-89.813068	16		Rope	SAMPLED		0																																												
699	45.897190	-89.813070	16		Rope	SAMPLED		0																																												
700	45.896704	-89.813071	8	Muck	Pole	SAMPLED		2			2													1															1	1	1											
701	45.896217	-89.813073	29			DEEP																																													
702	45.895731	-89.813074	19		Rope	SAMPLED		0																																												
703	45.895245	-89.813076	5	Muck	Pole	SAMPLED		1				1							1																														1
704	45.894759	-89.813078	5	Muck	Pole	SAMPLED		2	1														1	1									1										1	1	1							

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Eriocaulon aquaticum	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Isoetes spp.	Juncus pelocarpus	Lemna trisulca	Lemna turionifera	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton berchtoldii	Potamogeton epihydrus	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium fluctuans	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana
705	45.894273	-89.813079	3	Muck	Pole	SAMPLED		3				3																																								
706	45.893787	-89.813081	0			DOCK																																													
707	45.905937	-89.812344	7	Muck	Pole	SAMPLED		3																														3	1													
708	45.905451	-89.812346	17		Rope	SAMPLED		0																																											
709	45.904965	-89.812347	19		Rope	SAMPLED		0																																											
710	45.904479	-89.812349	17		Rope	SAMPLED		0																																											
711	45.903993	-89.812351	17	Muck	Pole	SAMPLED		0																																											
712	45.903507	-89.812352	18		Rope	SAMPLED		1				1																																							
713	45.903021	-89.812354	16	Rock	Pole	SAMPLED		0																																											
714	45.902535	-89.812355	9	Muck	Pole	SAMPLED		2																															2												
715	45.902049	-89.812357	2	Sand	Pole	SAMPLED		1				1													1																									
716	45.901563	-89.812359	1	Sand	Pole	SAMPLED		1				1																																					
717	45.901077	-89.812360	2	Sand	Pole	SAMPLED		1				1	1											1	1													1	1												
718	45.900591	-89.812362	2	Sand	Pole	SAMPLED		1			1	1												1														1	1										1	
719	45.900105	-89.812364	1	Sand	Pole	SAMPLED		1				1													1																								
720	45.899619	-89.812365	3	Muck	Pole	SAMPLED		1				1													1														1										
721	45.896702	-89.812375	1	Rock	Pole	SAMPLED		0																																											
722	45.896216	-89.812377	16		Rope	SAMPLED		0																																											
723	45.895730	-89.812378	10	Muck	Pole	SAMPLED		2			1																											1												1
724	45.895244	-89.812380	4	Muck	Pole	SAMPLED		1				1													1													1						1	1					
725	45.894758	-89.812382	3	Muck	Pole	SAMPLED		1				1																																					
726	45.894272	-89.812383	2	Muck	Pole	SAMPLED		1				1													1															1									1
727	45.906422	-89.811646	3	Rock	Pole	SAMPLED		3				2													3																								1
728	45.905936	-89.811648	17		Rope	SAMPLED		0																																											
729	45.905450	-89.811649	17		Rope	SAMPLED		0																																											
730	45.904964	-89.811651	18		Rope	SAMPLED		1																	1																								
731	45.904478	-89.811653	14	Rock	Pole	SAMPLED		1				1			1																																			
732	45.903992	-89.811654	6	Sand	Pole	SAMPLED		2														1	1		1					1								1	1											
733	45.903506	-89.811656	4	Sand	Pole	SAMPLED		1										1					1		1					1								1						1					1
734	45.903020	-89.811658	3	Sand	Pole	SAMPLED		3				3													1																								
735	45.902533	-89.811659	2	Sand	Pole	SAMPLED		2																	2													1	1											1
736	45.896215	-89.811681	12	Rock	Pole	SAMPLED		1															1	1																										
737	45.895729	-89.811682	14	Muck	Pole	SAMPLED		0																																											
738	45.895243	-89.811684	8	Muck	Pole	SAMPLED		2			1												1		1												1												1
739	45.894757	-89.811686	3	Muck	Pole	SAMPLED		1				1													1																								1
740	45.906421	-89.810950	5	Sand	Pole	SAMPLED		3										1							2					1								1												
741	45.905935	-89.810952	16		Rope	SAMPLED		0																																											
742	45.905448	-89.810953	19			DEEP																																													
743	45.904962	-89.810955	19		Rope	SAMPLED		0																																											
744	45.903990	-89.810958	2	Sand	Pole	SAMPLED		2																							2																	1	1	
745	45.903018	-89.810962	1	Muck	Pole	SAMPLED		1																							1																	1	2	
746	45.896700	-89.810983	4	Muck	Pole	SAMPLED		1																			1	1												1									
747	45.896214	-89.810985	12	Muck	Pole	SAMPLED		1																		1																								
748	45.895728	-89.810986	14	Muck	Pole	SAMPLED		1																		1												1												

Shishebogama Lake 2019

Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Eriocaulon aquaticum	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Isoetes spp.	Juncus pelocarpus	Lemna trisulca	Lemna turionifera	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton berchtoldii	Potamogeton epihydrus	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium fluctuans	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana
749	45.895242	-89.810988	13	Muck	Pole	SAMPLED		0																																																
750	45.894756	-89.810990	5	Muck	Pole	SAMPLED		1							1																																					1	1
751	45.906419	-89.810254	10	Muck	Pole	SAMPLED		1			1												1																													
752	45.905933	-89.810255	10	Muck	Pole	SAMPLED		2	1		2																																										1
753	45.905447	-89.810257	19			DEEP																																																
754	45.904961	-89.810259	17		Rope	SAMPLED		0																																												
755	45.904475	-89.810260	16		Rope	SAMPLED		0																																												
756	45.903989	-89.810262	15	Muck	Pole	SAMPLED		1													1																														
757	45.903503	-89.810264	14	Muck	Pole	SAMPLED		1																												1														
758	45.903017	-89.810265	4	Muck	Pole	SAMPLED		3			1				1				1						1		2	1													1											
759	45.897185	-89.810285	2	Muck	Pole	SAMPLED		1			1																																								
760	45.896699	-89.810287	10	Muck	Pole	SAMPLED		3			3																									1														1
761	45.896213	-89.810289	12	Muck	Pole	SAMPLED		1			1																								1				1									
762	45.895727	-89.810290	13	Muck	Pole	SAMPLED		0																																										
763	45.895241	-89.810292	13	Muck	Pole	SAMPLED		0																																										
764	45.894755	-89.810293	7	Muck	Pole	SAMPLED		1			1																													1		1							
765	45.906418	-89.809558	5	Sand	Pole	SAMPLED		2							1						1		1				1	1									1												
766	45.905932	-89.809559	7	Muck	Pole	SAMPLED		3			3																									1													1
767	45.905446	-89.809561	18		Rope	SAMPLED		0																																										
768	45.904960	-89.809563	19		Rope	SAMPLED		0																																										
769	45.904474	-89.809564	17		Rope	SAMPLED		0																																										
770	45.903988	-89.809566	15	Muck	Pole	SAMPLED		0																																										
771	45.902044	-89.809573	2	Muck	Pole	SAMPLED		2			1	1			1				1				1				1	1										1				1									1	
772	45.897184	-89.809589	11	Muck	Pole	SAMPLED		1			1																								1														
773	45.896698	-89.809591	12	Muck	Pole	SAMPLED		0																																										
774	45.896212	-89.809592	13	Muck	Pole	SAMPLED		1			1																																						
775	45.895726	-89.809594	13	Muck	Pole	SAMPLED		1			1																																						
776	45.895240	-89.809596	13	Muck	Pole	SAMPLED		1																											1														
777	45.894754	-89.809597	3	Muck	Pole	SAMPLED		0																																										
778	45.907389	-89.808858	5	Muck	Pole	SAMPLED		3			2	1			3				1								1														1		1						
779	45.906903	-89.808860	9	Muck	Pole	SAMPLED		1																			1													1										1
780	45.906417	-89.808861	15		Rope	SAMPLED		0																																										
781	45.905931	-89.808863	17		Rope	SAMPLED		0																																										
782	45.905445	-89.808865	16		Rope	SAMPLED		0																																										
783	45.904959	-89.808866	18		Rope	SAMPLED		0																																										
784	45.904473	-89.808868	19		Rope	SAMPLED		0																																										
785	45.903987	-89.808870	16		Rope	SAMPLED		0																																										
786	45.903501	-89.808871	4	Muck	Pole	SAMPLED		2		2					1												1																						
787	45.903015	-89.808873	5	Muck	Pole	SAMPLED		2	1		2				1																										1	1						1
788	45.902529	-89.808875	5	Muck	Pole	SAMPLED		3			1				2								1															1			1	3						
789	45.902043	-89.808876	5	Muck	Pole	SAMPLED		2			2				1																								1									
790	45.901557	-89.808878	4	Muck	Pole	SAMPLED		2			1															2	1															1	1	1					
791	45.901071	-89.808880	2	Muck	Pole	SAMPLED		2			1				1												2															1						1	
792	45.897183	-89.808893	0			NONNAVIGABLE (PLANTS)																																														

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Eriocaulon aquaticum	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Isoetes spp.	Juncus pelocarpus	Lemna trisulca	Lemna turionifera	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton berchtoldii	Potamogeton epihydrus	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium fluctuans	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana
793	45.896697	-89.808895	8	Muck	Pole	SAMPLED		2			1																												1															1
794	45.896211	-89.808896	13	Muck	Pole	SAMPLED		3			1																											3															
795	45.895725	-89.808898	13	Muck	Pole	SAMPLED		1																														1															
796	45.895239	-89.808900	13	Muck	Pole	SAMPLED		0																																													
797	45.894752	-89.808901	6	Muck	Pole	SAMPLED		2																																2												1
798	45.907874	-89.808160	2	Sand	Pole	SAMPLED		1		1		1				1											1																										
799	45.907388	-89.808162	9	Muck	Pole	SAMPLED		2			1																																									
800	45.906902	-89.808163	15	Muck	Pole	SAMPLED		1																														1															
801	45.906416	-89.808165	16		Rope	SAMPLED		0																																												
802	45.905930	-89.808167	17		Rope	SAMPLED		0																																												
803	45.905444	-89.808168	18		Rope	SAMPLED		0																																												
804	45.904958	-89.808170	18		Rope	SAMPLED		0																																												
805	45.904472	-89.808172	28			DEEP																																														
806	45.903986	-89.808173	13	Rock	Pole	SAMPLED		0																																												
807	45.903500	-89.808175	13	Sand	Pole	SAMPLED		0																																												
808	45.903014	-89.808177	10	Muck	Pole	SAMPLED		3				1																										1	1														2
809	45.902528	-89.808179	4	Muck	Pole	SAMPLED		3			1				1		2						1																1	1														2
810	45.902042	-89.808180	5	Muck	Pole	SAMPLED		3			2	1			2		1				1	1																2				1											
811	45.901556	-89.808182	4	Muck	Pole	SAMPLED		3			1				1																									3													
812	45.901070	-89.808184	2	Muck	Pole	SAMPLED		2		1	1	1			1								1																				1										
813	45.896695	-89.808199	0			TEMPORARY OBSTACLE																																														
814	45.896209	-89.808200	6	Muck	Pole	SAMPLED		1															1															1						1								1
815	45.895723	-89.808202	14	Muck	Pole	SAMPLED		0																																												
816	45.895237	-89.808204	13	Muck	Pole	SAMPLED		2				2																																									
817	45.894751	-89.808205	12	Muck	Pole	SAMPLED		0																																												
818	45.894265	-89.808207	0			DOCK																															1				2											1
819	45.907873	-89.807464	3	Sand	Pole	SAMPLED		2		1		1											1																1													1
820	45.907387	-89.807466	11	Muck	Pole	SAMPLED		2																																												2
821	45.906901	-89.807467	16		Rope	SAMPLED		0																																												
822	45.906415	-89.807469	16		Rope	SAMPLED		0																																												
823	45.905929	-89.807471	16		Rope	SAMPLED		0																																												
824	45.905443	-89.807472	16		Rope	SAMPLED		0																																												
825	45.904957	-89.807474	17		Rope	SAMPLED		0																																												
826	45.904471	-89.807476	16		Rope	SAMPLED		0																																												
827	45.903985	-89.807477	18		Rope	SAMPLED		0																																												
828	45.903499	-89.807479	15	Muck	Pole	SAMPLED		0																																												
829	45.903013	-89.807481	13	Muck	Pole	SAMPLED		1																														1															
830	45.902527	-89.807482	5	Muck	Pole	SAMPLED		3		1	1	2															1																	1							1
831	45.902041	-89.807484	0			SHALLOW																																														
832	45.901555	-89.807486	6	Muck	Pole	SAMPLED		3		1	3				1																									3												
833	45.901068	-89.807487	4	Sand	Pole	SAMPLED		2							1						1		1																													1
834	45.895722	-89.807506	12	Muck	Pole	SAMPLED		0																																												
835	45.895236	-89.807508	13	Muck	Pole	SAMPLED		1			1																																								
836	45.894750	-89.807509	12	Muck	Pole	SAMPLED		2			2																																								

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Eriocaulon aquaticum	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Isoetes spp.	Juncus pelocarpus	Lemna trisulca	Lemna turionifera	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton berchtoldii	Potamogeton epihydrus	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium fluctuans	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana
837	45.894264	-89.807511	8	Muck	Pole	SAMPLED		2																																													
838	45.893778	-89.807513	0			DOCK																																														
839	45.907872	-89.806768	3	Sand	Pole	SAMPLED		3				2	1												2																					1							
840	45.907386	-89.806769	16		Rope	SAMPLED		0																																											
841	45.906900	-89.806771	17		Rope	SAMPLED		0																																											
842	45.906414	-89.806773	17		Rope	SAMPLED		0																																											
843	45.905928	-89.806774	16		Rope	SAMPLED		0																																											
844	45.905442	-89.806776	16		Rope	SAMPLED		0																																											
845	45.904955	-89.806778	16		Rope	SAMPLED		0																																											
846	45.904469	-89.806779	16		Rope	SAMPLED		0																																											
847	45.903983	-89.806781	14	Muck	Pole	SAMPLED		1																		1																											
848	45.903497	-89.806783	17		Rope	SAMPLED		0																																											
849	45.903011	-89.806785	14	Muck	Pole	SAMPLED		0																																											
850	45.902525	-89.806786	15	Muck	Pole	SAMPLED		1																		1	1																									
851	45.902039	-89.806788	11	Muck	Pole	SAMPLED		1				1																																								1
852	45.901553	-89.806790	7	Muck	Pole	SAMPLED		3	1			1			1																								1	2				1								
853	45.901067	-89.806791	4	Muck	Pole	SAMPLED		3				3			1																								1	1				1								
854	45.900581	-89.806793	6	Muck	Pole	SAMPLED		3	1			1			1																									3													
855	45.895721	-89.806810	4	Muck	Pole	SAMPLED		2				1													2																											
856	45.895235	-89.806811	11	Muck	Pole	SAMPLED		3				3																										1														
857	45.894749	-89.806813	11	Muck	Pole	SAMPLED		2				2																																								
858	45.894263	-89.806815	8	Muck	Pole	SAMPLED		1				1																															1									
859	45.893777	-89.806817	6	Muck	Pole	SAMPLED		2				1			1																												1	1								
860	45.893291	-89.806818	0			NONNAVIGABLE (PLANTS)																																													
861	45.892805	-89.806820	0			TERRESTRIAL																																														
862	45.907870	-89.806071	4	Sand	Pole	SAMPLED		2	1						1									1																													
863	45.907384	-89.806073	15		Rope	SAMPLED		0																																												
864	45.906898	-89.806075	18		Rope	SAMPLED		0																																												
865	45.906412	-89.806077	16		Rope	SAMPLED		0																																												
866	45.905926	-89.806078	16		Rope	SAMPLED		0																																												
867	45.905440	-89.806080	16		Rope	SAMPLED		0																																												
868	45.904954	-89.806082	16		Rope	SAMPLED		0																																												
869	45.904468	-89.806083	14	Muck	Pole	SAMPLED		1																		1																										
870	45.903982	-89.806085	6	Muck	Pole	SAMPLED		3	1			1																										2					1									3
871	45.903496	-89.806087	15	Muck	Pole	SAMPLED		1																		1																										
872	45.903010	-89.806088	15	Muck	Pole	SAMPLED		0																																												
873	45.902524	-89.806090	13	Muck	Pole	SAMPLED		1								1										1																										
874	45.902038	-89.806092	13	Muck	Pole	SAMPLED		0																																												
875	45.901552	-89.806093	11	Muck	Pole	SAMPLED		1				1																										1														1
876	45.901066	-89.806095	9	Muck	Pole	SAMPLED		2																																2											
877	45.900580	-89.806097	6	Muck	Pole	SAMPLED		3				2																											1	2											
878	45.900094	-89.806099	3	Muck	Pole	SAMPLED		3				2	2		1			1									1											1													1	
879	45.895720	-89.806114	0			NONNAVIGABLE (PLANTS)																																													
880	45.895234	-89.806115	7	Muck	Pole	SAMPLED		1				1																										1					1				1				

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Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Eriocaulon aquaticum	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Isoetes spp.	Juncus pelocarpus	Lemna trisulca	Lemna turionifera	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton berchtoldii	Potamogeton epihydrus	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium fluctuans	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana
881	45.894748	-89.806117	3	Rock	Pole	SAMPLED		1							1																						1																		
882	45.894262	-89.806119	1	Rock	Pole	SAMPLED		0																																		2												
883	45.893776	-89.806121	6	Muck	Pole	SAMPLED		2							1																										2												
884	45.893290	-89.806122	4	Muck	Pole	SAMPLED		3			1							1							1														1													1	1
885	45.892804	-89.806124	4	Muck	Pole	SAMPLED		2		1	1				1										1	1		1											1														1
886	45.892318	-89.806126	4	Muck	Pole	SAMPLED		3							1			1							1																		3										
887	45.891832	-89.806127	3	Muck	Pole	SAMPLED		2			1	1			1										1								1										1										1
888	45.908841	-89.805372	2	Sand	Pole	SAMPLED		2		1	1				1							1	1	1	1									1					1														
889	45.908355	-89.805374	13	Muck	Pole	SAMPLED		1			1																																									
890	45.907869	-89.805375	16		Rope	SAMPLED		0																																												
891	45.907383	-89.805377	16		Rope	SAMPLED		1			1																																									
892	45.906897	-89.805379	17	Muck	Pole	SAMPLED		0																																												
893	45.906411	-89.805380	16		Rope	SAMPLED		0																																												
894	45.905925	-89.805382	16		Rope	SAMPLED		0																																												
895	45.905439	-89.805384	16		Rope	SAMPLED		0																																												
896	45.904953	-89.805385	7	Muck	Pole	SAMPLED		3	1		1																												1	1		3										2
897	45.904467	-89.805387	5	Muck	Pole	SAMPLED		3			3				2							1					1											1														
898	45.903981	-89.805389	14	Muck	Pole	SAMPLED		1			1												1														1														
899	45.903495	-89.805391	12	Muck	Pole	SAMPLED		2															1																	1										2
900	45.903009	-89.805392	14	Sand	Pole	SAMPLED		1															1																													
901	45.902523	-89.805394	7	Muck	Pole	SAMPLED		3	1																				2								1			1	1									
902	45.902037	-89.805396	4	Muck	Pole	SAMPLED		3							2										1											1			1	1									1
903	45.901551	-89.805397	2	Muck	Pole	SAMPLED		2				2	1								1				2														1										
904	45.895233	-89.805419	0			NONNAVIGABLE (PLANTS)																																													
905	45.893775	-89.805424	3	Muck	Pole	SAMPLED		3		2	1				1			1																				1													
906	45.893289	-89.805426	3	Muck	Pole	SAMPLED		3		1	1				1								1															1	1											
907	45.892803	-89.805428	0			NONNAVIGABLE (PLANTS)																																													
908	45.908840	-89.804676	6	Muck	Pole	SAMPLED		2			1																											2	1			1								
909	45.908354	-89.804677	14	Muck	Pole	SAMPLED		0																																										
910	45.907868	-89.804679	16		Rope	SAMPLED		0																																										
911	45.907382	-89.804681	16		Rope	SAMPLED		0																																										
912	45.906896	-89.804682	6	Muck	Pole	SAMPLED		0																																										
913	45.906410	-89.804684	7	Muck	Pole	SAMPLED		3			3																											1				1								1
914	45.905924	-89.804686	16	Muck	Pole	SAMPLED		0																																										
915	45.905438	-89.804688	6	Muck	Pole	SAMPLED		3	1		1												1														1			1							1		1
916	45.904952	-89.804689	8	Muck	Pole	SAMPLED		3			3																										1			1									1
917	45.904466	-89.804691	13	Muck	Pole	SAMPLED		1															1														1												
918	45.903980	-89.804693	14	Muck	Pole	SAMPLED		0																																										
919	45.903494	-89.804694	13	Muck	Pole	SAMPLED		1															1																										
920	45.903008	-89.804696	4	Muck	Pole	SAMPLED		3							2										1											1	1	1									1
921	45.908839	-89.803979	4	Muck	Pole	SAMPLED		3			3				1																							1	1									
922	45.908353	-89.803981	14	Muck	Pole	SAMPLED		0																																										
923	45.907867	-89.803983	17		Rope	SAMPLED		0																																										
924	45.907381	-89.803984	18		Rope	SAMPLED		0																																										

Shishebogama Lake 2019

Point Number	Latitude	Longitude	DEPTH	SEDIMENT	POLE_ROPE	COMMENTS	NOTES	TRF	Bidens beckii	Brasenia schreberi	Ceratophyllum demersum	Chara spp.	Eleocharis acicularis	Eleocharis palustris	Elodea canadensis	Eriocaulon aquaticum	Fissidens spp. & Fontinalis spp.	Heteranthera dubia	Isoetes spp.	Juncus pelocarpus	Lemna trisulca	Lemna turionifera	Myriophyllum sibiricum	Myriophyllum tenellum	Najas flexilis	Nitella spp.	Nuphar variegata	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton berchtoldii	Potamogeton epihydrus	Potamogeton foliosus	Potamogeton friesii	Potamogeton gramineus	Potamogeton hybrid	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton spirillus	Potamogeton vaseyi	Potamogeton zosteriformis	Ranunculus aquatilis	Sagittaria sp. (rosette)	Schoenoplectus acutus	Schoenoplectus subterminalis	Schoenoplectus tabernaemontani	Sparganium fluctuans	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana
925	45.906895	-89.803986	16		Rope	SAMPLED		0																																												
926	45.906409	-89.803988	16		Rope	SAMPLED		0																																												
927	45.905923	-89.803990	15	Muck	Pole	SAMPLED		0																																												
928	45.905437	-89.803991	13	Rock	Pole	SAMPLED		1			1																																								
929	45.904951	-89.803993	15	Muck	Pole	SAMPLED		0																																										
930	45.904465	-89.803995	16		Rope	SAMPLED		1																	1														1													
931	45.903979	-89.803996	14	Muck	Pole	SAMPLED		1																	1																											
932	45.903493	-89.803998	8	Muck	Pole	SAMPLED		2			1																												2													
933	45.908838	-89.803283	4	Sand	Pole	SAMPLED		3				1							1						1														1												
934	45.908352	-89.803285	15	Muck	Pole	SAMPLED		0																																										
935	45.907866	-89.803287	20			DEEP																																												
936	45.907380	-89.803288	17		Rope	SAMPLED		0																																										
937	45.906894	-89.803290	16		Rope	SAMPLED		0																																										
938	45.906408	-89.803292	16	Muck	Pole	SAMPLED		0																																										
939	45.905922	-89.803293	16		Rope	SAMPLED		0																																										
940	45.905436	-89.803295	16		Rope	SAMPLED		0																																										
941	45.904950	-89.803297	7	Muck	Pole	SAMPLED		2																																2												
942	45.904464	-89.803299	3	Muck	Pole	SAMPLED		2			1				1										1					1									1	1		1									
943	45.903978	-89.803300	4	Muck	Pole	SAMPLED		3							1			1					1																3												
944	45.903491	-89.803302	2	Sand	Pole	SAMPLED		1		1		1											1				1			1	1																	1			
945	45.908837	-89.802587	5	Muck	Pole	SAMPLED		3			2																												2	1		1	1								
946	45.908351	-89.802589	13	Muck	Pole	SAMPLED		0																																										
947	45.907864	-89.802590	12	Muck	Pole	SAMPLED		0																																										
948	45.907378	-89.802592	10	Muck	Pole	SAMPLED		2				2																									1													
949	45.906892	-89.802594	6	Muck	Pole	SAMPLED		3				2											1																2	1	1		1								1
950	45.906406	-89.802595	16	Muck	Pole	SAMPLED		0																																										
951	45.905920	-89.802597	15		Rope	SAMPLED		0																																										
952	45.905434	-89.802599	5	Muck	Pole	SAMPLED		3																																2	3											
953	45.904948	-89.802601	1	Sand	Pole	SAMPLED		1			1									1																															
954	45.908835	-89.801891	0			SHALLOW																																												
955	45.908349	-89.801892	6	Muck	Pole	SAMPLED		3																																			3							
956	45.907863	-89.801894	5	Sand	Pole	SAMPLED		1																							1				1															
957	45.907377	-89.801896	6	Muck	Pole	SAMPLED		2	1		1												1															1				1							1
958	45.906891	-89.801898	10	Muck	Pole	SAMPLED		2			2												1																		1							
959	45.906405	-89.801899	15	Muck	Pole	SAMPLED		1																		1																								
960	45.905919	-89.801901	9	Muck	Pole	SAMPLED		3																															3	1										
961	45.907862	-89.801198	3	Sand	Pole	SAMPLED		2			2																1	1											1				1						1		1
962	45.907376	-89.801200	4	Sand	Pole	SAMPLED		1							1												1											1				1								1
963	45.906890	-89.801201	14	Muck	Pole	SAMPLED		0																																										
964	45.906404	-89.801203	17	Muck	Pole	SAMPLED		0																																										
965	45.905918	-89.801205	0			NONNAVIGABLE (PLANTS)																																											
966	45.906889	-89.800505	4	Sand	Pole	SAMPLED		3			1				2								1																		1						1	
967	45.906403	-89.800507	2	Muck	Pole	SAMPLED		2							1											1																						1	1	

Shishebogama & Gunlock Lakes 2019 Shoreland Invasive Plant Locations

Lake	Date	Invasive	Lat	Long
Gunlock	8/13/2019	Purple Loosestrife	45.907619	-89.822657
Gunlock	8/13/2019	Purple Loosestrife	45.905650	-89.819055
Shishebogama	8/14/2019	Narrow-leaved Cattail	45.901947	-89.805091
Shishebogama	8/14/2019	Narrow-leaved Cattail	45.886830	-89.844086
Shishebogama	8/14/2019	Narrow-leaved Cattail	45.888862	-89.842814
Shishebogama	8/14/2019	Narrow-leaved Cattail	45.904461	-89.811034
Shishebogama	6/25/2019	Pale-yellow Iris	45.889492	-89.820994
Shishebogama	6/25/2019	Pale-yellow Iris	45.889489	-89.820802
Shishebogama	6/25/2019	Pale-yellow Iris	45.889505	-89.820651
Shishebogama	6/25/2019	Pale-yellow Iris	45.889515	-89.820564
Shishebogama	6/25/2019	Pale-yellow Iris	45.889612	-89.819648
Shishebogama	6/25/2019	Pale-yellow Iris	45.889919	-89.818880
Shishebogama	6/25/2019	Pale-yellow Iris	45.890151	-89.818655
Shishebogama	6/25/2019	Pale-yellow Iris	45.890313	-89.818596
Shishebogama	6/25/2019	Pale-yellow Iris	45.890565	-89.818276
Shishebogama	6/25/2019	Pale-yellow Iris	45.895123	-89.805281
Shishebogama	6/25/2019	Pale-yellow Iris	45.896534	-89.808037
Shishebogama	6/25/2019	Pale-yellow Iris	45.896976	-89.808493

E

APPENDIX E

Fisheries Reports and Data Summaries

SUMMARY FISHING RECORD   Department of Natural Resources
Form 3600-63

County	Waters
Oneida	Shishebogama Lake MWBC: 1539600

Sampling Objective	Number and Locations of Stations (Habitat)	
Bass & panfish assessment		Source
	Miles Actually Shocked = 6.0	GPS
Period Fished (Dates)	Acres = 716	LM
05/15/12	Total Miles of Shoreline = 10.2	LM
	Total Miles of Shockable Shoreline = 10.2	LM

GEAR

Boomshocker (Hours)		Time	
gamefish (entire shoreline)	3.4	X Night	Day
all species (2 half-mile reaches)	1.0		

Visual Hours	Time of Day	Haul Seine (Length)	Mesh Size	Area Covered

Angling (Hours)	Time of Day	Mini fyke (No. of Net Lifts)	Mesh Size	Depth

Minnow Seine (No. of Hauls)	Area Covered	Gill Net (No. of Feet x No.of Lifts)	Mesh Size	Depth

Other (Hours or Lifts)		Characteristics
Boomshocker(s): 1	Mini-boomshocker(s):	
Dip Netter(s): 2	Dip Netter(s):	Water Temp: 61

FISHING RESULTS

Species	No.	Modal Size(s)	Size Range	Catch/Unit	
Walleye	6	-	11.4 - 24.4	1.77 /hour	1.00 / mile
Largemouth Bass	320	11.7	5.0 - 19.5	94.58 /hour	53.33 / mile
Smallmouth Bass	22	12.2	8.5 - 16.9	6.50 /hour	3.67 / mile
Muskellunge	8	-	12.0 - 38.0	2.36 /hour	1.33 / mile
Northern Pike	4	-	18.0 - 19.4	1.18 /hour	0.67 / mile
Bluegill	301	2.2, 5.7, 6.7	1.5 - 8.4	301 /hour	200.67 / mile
Rock Bass	29	5.7, 8.2	2.5 - 8.9	29 /hour	19.33 / mile
Yellow Perch	20	2.7	2.0 - 9.9	20 /hour	13.33 / mile
Pumpkinseed	19	6.7	4.5 - 7.9	19 /hour	12.67 / mile
Black Crappie	17	9.7	2.5 - 10.9	17 /hour	11.33 / mile
White Sucker	15	-	7.0 - 20.1	15 /hour	10.00 / mile
Yellow Bullhead	3	-	9.5 - 11.0	3 /hour	2.00 / mile
Grass Pickerel	2	-	7.0 - 10.4	2 /hour	1.33 / mile
Bluntnose Minnow	1	-	1.5 - 1.9	1 /hour	0.67 / mile
Common Shiner	1	-	5.0 - 5.4	1 /hour	0.67 / mile
Golden Shiner	1	-	4.5 - 4.9	1 /hour	0.67 / mile

OBSERVATIONS

1) Mortality: None.	2) Weather: Partly cloudy, cool.	3) Reliabilty: High
4) Stocking: 1.5 million walleye fry, spring 2011 (LDF). 358 lg. fgl. muskellunge, 08/30/2011 (WDNR).		5) Adverse Conditions: Docks & steam.

6) Comments: collected all gamefish along 3 two-mile reaches. Collected all species during 3 half-mile index stations.

	Signed (Compiler) John Kubisiak	Date 10/26/12

LAKE: Shishebogama Lake   **COUNTY:** Oneida   **YEAR:** 2012

The Department of Natural Resources surveyed Shishebogama Lake, Oneida County with a boomshocker on May 15, 2012. Shishebogama Lake is a soft water drainage lake with a surface area of 716 acres, 10.2 miles of shoreline and a maximum depth of 42 feet. Due to the long shoreline, we surveyed 3 two-mile reaches for a total of 6 miles. The timing of this survey targeted bass and bluegill, and they dominated our catch.
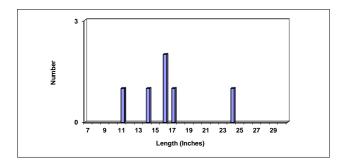
Figure 1. Length frequency distribution of 6 walleye captured during a survey of Shishebogama Lake, Oneida County, May 15 2012.

Walleye

Walleye were finished spawning and were a secondary target of this survey. We captured 6 walleye. The largest walleye was 24.4 inches in length.

Largemouth bass

Largemouth bass were the most abundant game species in our catch. We captured 320 largemouth bass in Shishebogama Lake, ranging from 5.0 to 19.5 inches in length. Most largemouth were less than 14 inches in length. Growth rates are slow, with length-at-age running 1-2 years behind the regional average.
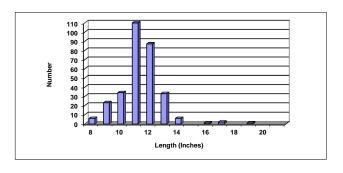
Figure 2. Length frequency distribution of 308 largemouth bass captured during a survey of Shishebogama Lake, Oneida County, May 15 2012. Twelve additional largemouth were less than 7 nches in length.

Smallmouth bass

We captured 22 smallmouth bass with lengths scattered from 8.5 to 16.9 inches. Similar to largemouth, we found smallmouth growth rates to be slow.

Figure 3. Length frequency distribution of 22 smallmouth bass captured during a survey of Shishebogama Lake, Oneida County, May 15 2012.

Black Crappie

Panfish and nongame fishes were only collected along three half-mile reaches of shoreline. We captured 17 black crappie, ranging from 2.5 to 10.9 inches. Peak abundance was at 9.7 inches.
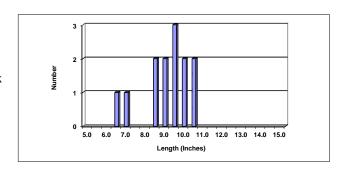
Figure 4. Length frequency distribution of 17 black crappie captured during a survey of Shishebogama Lake, Oneida County, May 15 2012.
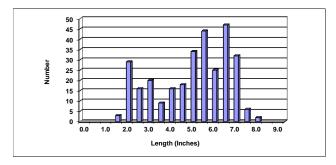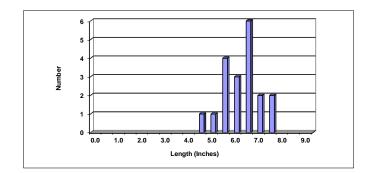
Figure 5. Length frequency distribution of 301 bluegill captured during a survey of Shshebogama Lake, Oneida County, May 15 2012.

Bluegill

We captured 301 bluegill, with good numbers of fish up to 7.5 inches and a few fish as large as 8.4 inches in length. The truncated size at 7.5 inches likely reflects angler harvest of larger fish.

Pumpkinseed

We captured 19 pumpkinseed ranging from 4.5 to 7.9 inches in length, with peak abundance at 6.7 inches.
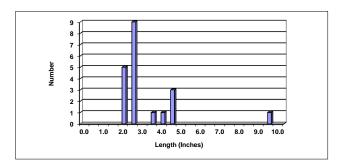
Figure 6. Length frequency distribution of 20yellow perch captured during a survey of Shishebogama Lake, Oneida County, May 15 2012.

Yellow perch

The survey timing was late to find perch inshore. We captured 20 yellow perch ranging from 2.0 to 9.9 inches in length. Good numbers of perch approximately 2.5 inches in length suggest a strong yearclass in 2011.

Other Species

We captured 16 species of fish in our electrofishing sample of Shishebogama Lake. In addition to the species listed above, we caught 4 northern pike, 8 muskellunge, 29 rock bass, 15 white sucker, 3 yellow bullhead, 2 grass pickerel, and 1 each of bluntnose minnow, common shiner and golden shiner. Two of the muskellunge were 12 to 12.9 inches in length, likely part of 358 large fingerlings stocked in fall of 2011.

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MWBCODE: 1539600   Crew: Timler
YEAR: 2012   Kubisiak
LAKE: Shishebogama Lake   Esker
COUNTY: Oneida

Walleye		Smallmouth Bass		Largemouth Bass		Northern Pike		Muskellunge	
Length Interval	Number	Length Interval	Number	Length Interval	Number	Length Interval	Number	Length Interval	Number
7		<6		<6	12			9	
8		7		7	5			10	
9		8	1	8	6	9		11	
10		9	3	9	23	10		12	2
11	1	10	3	10	34	11		13	
12		11	3	11	110	12		14	
13		12	6	12	87	13		15	
14	1	13	1	13	33	14		16	
15		14		14	6	15		17	
16	2	15	3	15		16		18	
17	1	16	2	16	1	17		19	
18		17		17	2	18	1	20	
19		18		18		19	2	21	
20		19		19	1	20		22	
21		20		20		21		23	
22		21		21		22		24	
23		22		22		23	1	25	1
24	1	23		23		24		26	
25		24		24		25		27	
26		25+		25+		26		28	
27						27		29	
28						28		30	1
29						29		31	1
30+						30		32	
						31		33	1
						32		34	
						33		35	
						34		36	
						35+		37	1
								38	1
								39	
								40	
								41	
								42	
Total	**6**	**Total**	**22**	**Total**	**320**	**Total**	**4**	43	
								44	
								45	
								46	
								47	
								48	
								49	
								50	
								Total	**8**

MWBCODE: 1539600   Crew: Timler
YEAR: 2012   Kubisiak
LAKE: Shishebogama Lake   Esker
COUNTY: Oneida

Black Crappie		Yellow Perch		Bluegill		Pumpkinseed		Rock Bass	
Length Interval	Number	Length Interval	Number	Length Interval	Number	Length Interval	Number	Length Interval	Number
0.0		0.0		0.0		0.0		0.0	
0.5		0.5		0.5		0.5		0.5	
1.0		1.0		1.0		1.0		1.0	
1.5		1.5		1.5	3	1.5		1.5	
2.0		2.0	5	2.0	29	2.0		2.0	
2.5	2	2.5	9	2.5	16	2.5		2.5	1
3.0		3.0		3.0	20	3.0		3.0	
3.5	1	3.5	1	3.5	9	3.5		3.5	
4.0		4.0	1	4.0	16	4.0		4.0	
4.5	1	4.5	3	4.5	18	4.5	1	4.5	
5.0		5.0		5.0	34	5.0	1	5.0	
5.5		5.5		5.5	44	5.5	4	5.5	7
6.0		6.0		6.0	25	6.0	3	6.0	2
6.5	1	6.5		6.5	47	6.5	6	6.5	4
7.0	1	7.0		7.0	32	7.0	2	7.0	3
7.5		7.5		7.5	6	7.5	2	7.5	4
8.0		8.0		8.0	2	8.0		8.0	6
8.5	2	8.5		8.5		8.5		8.5	2
9.0	2	9.0		9.0		9.0		9.0	
9.5	3	9.5	1	9.5		9.5		9.5	
10.0	2	10.0		10.0		10.0		10.0	
10.5	2	10.5		10.5		10.5		10.5	
11.0		11.0		11.0		11.0		11.0	
11.5		11.5		11.5		11.5		11.5	
12.0		12.0		12.0		12.0		12.0	
12.5		12.5		12.5		12.5		12.5	
13.0		13.0		13.0		13.0		13.0	
13.5		13.5		13.5		13.5		13.5	
14.0		14.0		14.0		14.0		14.0	
14.5		14.5		14.5		14.5		14.5	
15.0		15.0		15.0		15.0		15.0	
Total	**17**	**Total**	**20**	**Total**	**301**	**Total**	**19**	**Total**	**29**

Other species Observed	count	lengths
Bluntnose Minnow	1	1.5-1.9
Common Shiner	1	5.0-5.4
Golden Shiner	1	4.5-4.9
Grass Pickerel	2	7.0-10.4
White Sucker	15	7.0-20.1
Yellow Bullhead	3	9.5-11.0

F

APPENDIX F

Watershed Analysis WiLMS Results

Date: 8/3/2020   Scenario: Shishebogama Watershed Current
Lake Id: Shish_Current
Watershed Id: 0
Hydrologic and Morphometric Data
Tributary Drainage Area: 2548.8 acre
Total Unit Runoff: 14.00 in.
Annual Runoff Volume: 2973.6 acre-ft
Lake Surface Area <As>: 700.0 acre
Lake Volume <V>: 11287.0 acre-ft
Lake Mean Depth <z>: 16.1 ft
Precipitation - Evaporation: 5.5 in.
Hydraulic Loading: 4275.4 acre-ft/year
Areal Water Load <qs>: 6.1 ft/year
Lake Flushing Rate <p>: 0.38 1/year
 Water Residence Time: 2.64 year
Observed spring overturn total phosphorus (SPO): 15.4 mg/m^3
Observed growing season mean phosphorus (GSM): 17.6 mg/m^3
% NPS Change: 0%
% PS Change: 0%

NON-POINT SOURCE DATA

Land Use	Acre (ac)	Low	Most Likely	High	Loading %	Low	Most Likely	High
		---- 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	258.7	0.10	0.30	0.50	12.7	10	31	52
HD Urban (1/8 Ac)	0.0	1.00	1.50	2.00	0.0	0	0	0
MD Urban (1/4 Ac)	0.0	0.30	0.50	0.80	0.0	0	0	0
Rural Res (>1 Ac)	92.9	0.05	0.10	0.25	1.5	2	4	9
Wetlands	1270.8	0.10	0.10	0.10	20.8	51	51	51
Forest	926.4	0.05	0.09	0.18	13.6	19	34	67
Lake Surface	700.0	0.10	0.30	1.00	34.4	28	85	283

POINT SOURCE DATA

Point Sources	Water Load (m^3/year)	Low (kg/year)	Most Likely (kg/year)	High (kg/year)	Loading %
Gunlock Lake	1210000.0	0.0	29.0	0.0	11.7

SEPTIC TANK DATA

Description		Low	Most Likely	High	Loading %
Septic Tank Output (kg/capita-year)		0.30	0.50	0.80	
# capita-years	259.0				
% Phosphorus Retained by Soil		98.0	90.0	80.0	
Septic Tank Loading (kg/year)		1.55	12.95	41.44	5.2

TOTALS DATA

Description	Low	Most Likely	High	Loading %
Total Loading (lb)	247.8	545.1	1114.2	100.0
Total Loading (kg)	112.4	247.3	505.4	100.0
Areal Loading (lb/ac-year)	0.35	0.78	1.59	
Areal Loading (mg/m^2-year)	39.68	87.29	178.41	
Total PS Loading (lb)	0.0	63.9	0.0	11.7
Total PS Loading (kg)	0.0	29.0	0.0	11.7
Total NPS Loading (lb)	181.9	265.3	398.3	83.0
Total NPS Loading (kg)	82.5	120.3	180.7	83.0

Phosphorus Prediction and Uncertainty Analysis Module
Date: 8/3/2020   Scenario: Shishebogama Watershed Current
Observed spring overturn total phosphorus (SPO): 15.4 mg/m^3
Observed growing season mean phosphorus (GSM): 17.6 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	21	44	3	17
Canfield-Bachmann, 1981 Natural Lake	10	18	30	0	0
Canfield-Bachmann, 1981 Artificial Lake	11	18	27	0	0
Rechow, 1979 General	3	6	13	-12	-68
Rechow, 1977 Anoxic	14	30	61	12	68
Rechow, 1977 water load<50m/year	5	11	22	-7	-40
Rechow, 1977 water load>50m/year	N/A	N/A	N/A	N/A	N/A
Walker, 1977 General	9	21	42	6	39
Vollenweider, 1982 Combined OECD	9	16	30	-1	-6
Dillon-Rigler-Kirchner	5	12	24	-3	-19
Vollenweider, 1982 Shallow Lake/Res.	6	13	24	-4	-24
Larsen-Mercier, 1976	8	18	37	3	19
Nurnberg, 1984 Oxic	5	11	23	-7	-40

Lake Phosphorus Model	Confidence Lower Bound	Confidence Upper Bound	Parameter Fit?	Back Calculation (kg/year)	Model Type
Walker, 1987 Reservoir	12	37	Tw	0	GSM
Canfield-Bachmann, 1981 Natural Lake	6	52	FIT	1	GSM
Canfield-Bachmann, 1981 Artificial Lake	6	52	FIT	1	GSM
Rechow, 1979 General	3	11	FIT	0	GSM
Rechow, 1977 Anoxic	17	51	FIT	0	GSM
Rechow, 1977 water load<50m/year	6	19	FIT	0	GSM
Rechow, 1977 water load>50m/year	N/A	N/A	N/A	N/A	N/A
Walker, 1977 General	10	39	FIT	0	SPO
Vollenweider, 1982 Combined OECD	8	30	FIT	0	ANN
Dillon-Rigler-Kirchner	7	20	L	0	SPO
Vollenweider, 1982 Shallow Lake/Res.	6	24	FIT	0	ANN
Larsen-Mercier, 1976	11	31	P Pin	0	SPO
Nurnberg, 1984 Oxic	6	20	FIT	0	ANN

Date: 6/30/2020   Scenario: Gunlock Lake Watershed Current
Lake Id: Gunlock_Current
Watershed Id: 0
Hydrologic and Morphometric Data
Tributary Drainage Area: 738.3 acre
Total Unit Runoff: 14.00 in.
Annual Runoff Volume: 861.4 acre-ft
Lake Surface Area <As>: 267.0 acre
Lake Volume <V>: 3199.0 acre-ft
Lake Mean Depth <z>: 12.0 ft
Precipitation - Evaporation: 5.5 in.
Hydraulic Loading: 983.7 acre-ft/year
Areal Water Load <qs>: 3.7 ft/year
Lake Flushing Rate <p>: 0.31 1/year
 Water Residence Time: 3.25 year
Observed spring overturn total phosphorus (SPO): 27.4 mg/m^3
Observed growing season mean phosphorus (GSM): 24.7 mg/m^3
% NPS Change: 0%
% PS Change: 0%

NON-POINT SOURCE DATA

Land Use	Acre (ac)	Low	Most Likely	High	Loading %	Low	Most Likely	High
		---- 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	79.2	0.10	0.30	0.50	13.9	3	10	16
HD Urban (1/8 Ac)	0.0	1.00	1.50	2.00	0.0	0	0	0
MD Urban (1/4 Ac)	0.0	0.30	0.50	0.80	0.0	0	0	0
Rural Res (>1 Ac)	27.0	0.05	0.10	0.25	1.6	1	1	3
Wetlands	293.8	0.10	0.10	0.10	17.2	12	12	12
Forest	338.3	0.05	0.09	0.18	17.8	7	12	25
Lake Surface	267.0	0.10	0.30	1.00	46.9	11	32	108

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)		0.30	0.50	0.80	
# capita-years	36				
% Phosphorus Retained by Soil		98.0	90.0	80.0	
Septic Tank Loading (kg/year)		0.22	1.80	5.76	2.6

TOTALS DATA

Description	Low	Most Likely	High	Loading %
Total Loading (lb)	73.9	152.4	372.8	100.0
Total Loading (kg)	33.5	69.1	169.1	100.0
Areal Loading (lb/ac-year)	0.28	0.57	1.40	
Areal Loading (mg/m^2-year)	31.01	63.99	156.51	
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)	49.6	77.0	121.9	97.4
Total NPS Loading (kg)	22.5	34.9	55.3	97.4

Phosphorus Prediction and Uncertainty Analysis Module

Date: 6/30/2020   Scenario: Gunlock Lake Watershed Current
Observed spring overturn total phosphorus (SPO): 27.4 mg/m^3
Observed growing season mean phosphorus (GSM): 24.7 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	13	27	65	2	8
Canfield-Bachmann, 1981 Natural Lake	11	19	35	-6	-24
Canfield-Bachmann, 1981 Artificial Lake	12	19	32	-6	-24
Rechow, 1979 General	2	5	12	-20	-81
Rechow, 1977 Anoxic	16	34	83	9	36
Rechow, 1977 water load<50m/year	5	11	26	-14	-57
Rechow, 1977 water load>50m/year	N/A	N/A	N/A	N/A	N/A
Walker, 1977 General	11	24	58	-3	-11
Vollenweider, 1982 Combined OECD	10	18	38	-8	-31
Dillon-Rigler-Kirchner	7	14	34	-13	-47
Vollenweider, 1982 Shallow Lake/Res.	8	14	32	-12	-46
Larsen-Mercier, 1976	10	20	50	-7	-26
Nurnberg, 1984 Oxic	6	12	30	-13	-53

Lake Phosphorus Model	Confidence Lower Bound	Confidence Upper Bound	Parameter Fit?	Back Calculation (kg/year)	Model Type
Walker, 1987 Reservoir	16	52	Tw	0	GSM
Canfield-Bachmann, 1981 Natural Lake	6	55	FIT	1	GSM
Canfield-Bachmann, 1981 Artificial Lake	6	55	FIT	1	GSM
Rechow, 1979 General	3	10	L	0	GSM
Rechow, 1977 Anoxic	20	66	FIT	0	GSM
Rechow, 1977 water load<50m/year	6	21	FIT	0	GSM
Rechow, 1977 water load>50m/year	N/A	N/A	N/A	N/A	N/A
Walker, 1977 General	12	49	FIT	0	SPO
Vollenweider, 1982 Combined OECD	9	35	FIT	0	ANN
Dillon-Rigler-Kirchner	8	27	L qs	0	SPO
Vollenweider, 1982 Shallow Lake/Res.	7	28	FIT	0	ANN
Larsen-Mercier, 1976	12	39	P Pin	0	SPO
Nurnberg, 1984 Oxic	6	25	FIT	0	ANN

Water and Nutrient Outflow Module

Date: 6/30/2020   Scenario: 8
Average Annual Surface Total Phosphorus: 24.7mg/m^3
Annual Discharge: 9.84E+002 AF => 1.21E+006 m^3
Annual Outflow Loading: 63.1 LB =>   28.6 kg

G

APPENDIX G

Lac du Flambeau Band of Lake Superior Chippewa Indians & Lac du Flambeau Town Board AIS Rapid Response Plan

RAPID RESPONSE PLAN

Lac du Flambeau Band of Lake Superior
Chippewa Indians
&
Lac du Flambeau Town Board

Approved by

Lac du Flambeau Town Lakes Committee,
September 17, 2008
Lac du Flambeau Town Board,
October 1, 2008
Lac du Flambeau Band of Lake Superior Chippewa Indians,
October 2, 2008

AIS RAPID RESPONSE PLAN

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MANAGEMENT SUMMARY
Introduction

The waters of Lac du Flambeau are clearly at risk. Several lakes have infestations of Smelt, Purple Loosestrife, or Rusty Crayfish, while other Aquatic Invasive Species (AIS) like Eurasian Water Milfoil and Curly-Leaf Pondweed move closer each year.

There is apprehension that the rapid growth and spread of some aquatic invasive species may significantly harm the local economy, property values, ecosystems and native species, while also threatening human health.

As a result, the Lac du Flambeau Band of Lake Superior Chippewa Indians and the Lac du Flambeau Town Board have been working together to address the threats of AIS. The Town Board created the Town Lakes Committee (TLC) in 2005, empowering volunteers to protect the lakes from AIS, and with help from the Tribal DNR and Wisconsin DNR, dozens of volunteers have participated annually in a variety of prevention and detection activities.

Statement of the Problem

Given the high probability that more AIS will infest a body of water in Lac du Flambeau, it is critical for the Tribe and Town to respond quickly to reports of potential AIS infestations, particularly when most volunteers, local citizens, and lake associations and other water-oriented organizations have had minimal training on identifying AIS and even less on how to respond to infestations.

Recognizing the need to respond quickly to reports of AIS, the Tribe and Town have prepared this *Rapid Response Plan*.

Purpose of the Rapid Response Plan

The *Rapid Response Plan* guides the Tribe and Town on how to respond to new reports of Aquatic Invasive Species in a timely manner.

Area Covered by the Rapid Response Plan

The *Rapid Response Plan* pertains to all waters within Reservation and Town boundaries, including all lakes, rivers, streams, wetlands and other water conveyances. The Tribe's focus is on **all waters within the Reservation boundaries,** while the TLC's focus is on **all lakes within the Town's boundaries**.

Participants

The *Rapid Response Plan* requires the interaction and cooperation of several individuals and organizations. The lead participants include the Lac du Flambeau Band of Lake Superior Chippewa Indians Water Resource Program (Tribe) and the Town of Lac du Flambeau Town Lakes Committee (TLC).

Other participants include the Wisconsin Department of Natural Resources (WDNR), the United States Environmental Protection Agency (EPA), and the United States Natural Resource Conservation Service (NRCS).

Depending on the water body and circumstances, the Invasive Species Coordinators for Vilas County and Oneida County and representatives from the Great Lakes Indian Fish and Wildlife Commission (GLIFWC), local lake associations and other organizations may participate in the process.

Aquatic Invasive Species Covered by the Plan

The *Rapid Response Plan* pertains to new detections of Aquatic Invasive Species that may cause the greatest damage to the local economy and environment or that threaten human health.

Examples of plant invasive species of primary concern include Curly Leaf Pond Weed, Eurasian Water Milfoil, Purple Loosestrife, European Frogbit, Hydrilla, Water Chestnut, and Flowering Rush.

AIS RAPID RESPONSE PLAN

Examples of animal invasive species of primary concern include the Zebra Mussel, Spiny Water Flea, Rusty Crayfish, Ruffie, Round Goby, Asian Carp, White Perch, and Rainbow Smelt.

Evaluation of the Rapid Response Plan

The TLC and Tribe will review and evaluate the *Rapid Response Plan* annually.

THE PROCESS

Phase #1 – Detection & Verification

1) Anyone who finds an aquatic plant or animal that seems out of the ordinary or that resembles an Aquatic Invasive Species should record the location of the find and report the finding immediately to the Tribal DNR (715-588-3303), the Town Hall (715-588-3358), or any of the Lake Stewards (See attached list). If possible, a sample should be submitted.

2) When a report is received, representatives of the Tribal DNR, TLC, or a Lake Steward determine whether the report is of a plant/animal of concern and whether a known population already exists in the area of the find.

> The process ends at this point, **IF**
> a)   the suspect plant/animal already exists in the area of the find, **OR,**
> b)   the suspect plant/animal is not an Aquatic Invasive Species of concern.
>
> The report is shared with both the Tribe and TLC and the process continues to step 3, **IF**
> c)   the suspect plant/animal is an Aquatic Invasive Species of concern, **AND**
> d)   this is the first report of the AIS in that area.

3) Representatives of the Tribal DNR and TLC

> a)   invite appropriate agencies and individuals to a meeting to learn about the situation and establish a Management Team,
> b)   authorize a survey of the location to confirm the presence of the AIS and to determine the extent of the infestation, and
> c)   initiate Phase #2 of the process.

Phase #2 – Conduct Rapid Assessment

When new AIS of concern are verified, the Management Team conducts a rapid assessment to determine potential threats to the economy, environment, and human health. The assessment includes a review of the biology of the plant/animal, the location of the find, and other relevant research, literature, and local factors.

If the AIS is about to produce a new generation, such as a weed in flower, or if it is in one of the navigable chains of lakes or water bodies upstream, the Tribe and Town may act immediately and then complete the remaining phases of the process later.

Phase #3 – Develop Management Plans

Decisions are made whether to write *Level I and Level II Management Plans*. A Level I Management Plan focuses on the short term, detailing everything to be done as soon as practicable in response to the new infestation: who will do what, when, how, affects, and with what resources and limitations. A Level II Management Plan addresses similar issues, but projects goals, affects, activities and costs over the next several years. Management Plans must be consistent with available resources, the Law, including Tribal Law, and Tribal and Town Policy.

Phase #4 – Implement Management Plans

Management Plans are implemented after being endorsed by the Tribe and Town Board.

AIS RAPID RESPONSE PLAN

COMPLETE TEXT

Introduction

There has been a growing awareness that introduced invasive species are having significant and increasing impacts on the economy, ecosystems, native species, and pose increasing threats to human health. Increased trade and travel have created many new pathways for the spread of exotic species and have significantly increased the threat of new and recurring biological invasions. Also the changing landscape has given these invaders a chance to get a foothold in the disturbed environment where native plants once thrived. While the majority of introduced species are not harmful to the economy or the environment, a small percentage of them are very damaging and need to be detected as soon as possible.

Even the best prevention efforts cannot stop all introductions of AIS. Early detection and quick coordinated responses are needed to manage or contain invasive species before they become too widespread and control becomes technically and/or financially impossible. Populations that are not addressed early may require costly ongoing control efforts. Without a coordinated system for early detection and rapid response which are integrated with general vegetation surveys, free living exotic plants and animals will continue to incubate, take over and cause problems.

There are actually hundreds of nonnative species in our region. New invasive species are constantly arriving, so it is important to stay informed and educated about what new invasive species are currently moving in. The ones of greatest concern are the ones we consider the most aggressive and invasive, the same ones that have the biggest effects on native ecosystems.

Each invasive species has its own destructive effects on our ecosystems. Some can affect recreational and substance-gathering opportunities like boating, swimming, hunting, fishing, or riceing. Aquatic Invasive Species can clog pipes and contaminate water supplies, making it difficult for some industries and agriculture. Invasive species can destroy habitat for fish, waterfowl or other wildlife by changing the food source or shelter that these creatures have learned to depend on. Aquatic invasive species threaten to severely alter the Northwoods ecosystems we are accustomed to.

Approach

The objective of the Rapid Response Plan is to guide the Tribe and Town on how to respond to new reports of Aquatic Invasive Species in a timely manner, develop and agree upon a coordinated rapid response to aquatic invasive species to minimize impacts to the economy and ecology of the area. Identifying partnerships, contacts, species of concern, management and funding responsibilities, and avenues for information distribution is the first step in organizing an effective response. Development of a response procedure that includes detection, verified identification, assessment of

management options, funding requirements, treatment procedure, treatment, post management, post monitoring, re-treatment, and notification is critical to accurate fast response and control of the species.

Overview

This rapid response plan will cover all waters within Reservation and Town boundaries, including all lakes, rivers, streams, wetlands and other water conveyances. The Tribe's focus is on all waters within the Reservation boundaries while the TLC's focus is on all lakes within the Town's boundaries. Lakes, Rivers, Streams, Wetlands and other water conveyances are areas of concern. Identification of aquatic invasive species in water bodies connected by navigable channels, and up stream water bodies connected by surface water are priority areas for rapid response. Aquatic invasive species known to cause significant ecological or economical impacts will be priority species for rapid response.

The lakes connected by navigable channels include Pokegama, Long Interlaken, Moss, To To Tom, Crawling Stone, Little Crawling Stone, Flambeau, Fence, North Placid, and South Placid Lakes. These lakes are commonly referred to as the Flambeau Chain of Lakes (covering approximately 8000 acres). They flow out the Bear River. To the north, up stream from the Flambeau Chain, but not navigable, in order of occurrence are White Sand, Sunfish, Big Crooked, and Ike Walton Lakes. Other navigable chains on the reservation are Upper, Lower, and Middle Sugarbush Lakes and Gunlock and Shishebogama Lakes. The Trout River flows north into Wild Rice Lake, which is a headwater lake to the Manitowish Chain (off reservation). The Tomahawk River flows south though a small portion of the southeast corner of the Reservation into the Willow Flowage (off reservation).

The priority species are aquatic species that cause the greatest damage to the economy or environment and the species that can be effectively managed or removed with control methods. Plant invasive species like Curly Leaf Pond Weed, Eurasian Water Milfoil, or Purple Loosestrife are rapidly growing and will out compete native vegetation, and interfere with water recreational activities and wildlife. These plant species are the most important to identify early because with quick action the plants can be controlled. If the plants are not identified early they can become well established and almost impossible to control in a cost effective manner. Animal and fish invasive species like the Zebra Mussel, Spiny Water Flea, Ruffie, Goby, Asian Carp, and Rainbow Smelt are harder to control even after early identification. Animal species are harder to control due to their mobility and dispersion. New developments in electric and other barriers have helped to reduce the spread of some fish species into connected waters.

A rapid response procedure will improve the ability of a coordinated effective control of aquatic invasive species. Once identification of a species is verified, a clear path is laid out to understand the best method of control. This path starts with an assessment of the species location, type, and ability and speed of spread. This information will be synthesized into a report along with information on funding requirements, treatment

procedure, post management, post monitoring, re-treatment, and notification to be used in the implementation phase.

Partnerships

Partnerships and a coordinated response are critical for effective response and control. This section will describe partners and contacts with information on who should be contacted and when. The Lac du Flambeau Band of Lake Superior Chippewa Indians Water Resource Program (Tribe) and the Town of Lac du Flambeau Town Lakes Committee will be the lead partners in protecting waters from AIS within the intersection between the Town and the Reservation. Other partners will include Vilas County, Great Lake Indian Fish and Wildlife Commission (GLIFWC), Wisconsin Department of Natural Resources (WDNR), US Environmental Protection Agency (EPA), and The US Natural Resource Conservation Service (NRCS).

The Tribe and the Town will work together for monitoring/early detection, specimen identification/vouchering, specimen verification, recording information, developing the action plan, seeking funding for action plan, applying for permits, approving the plan, carrying out the plan, and future monitoring and assessment. The Tribe and Town will utilize Vilas County, GLIFWC, WDNR, EPA, and NRCS for technical and funding assistance.

Depending on the water body and the circumstances, the Invasive Species Coordinators for Vilas County and Oneida County, local lake associations and other organizations may participate in the process.

Contacts	Activity
Tribal Water Resource Program Gretchen Watkins Water Resource Specialist/Hydrologist (715) 588-3303 ex: 5316 John Brown Water Resource Technician (715) 588-4238 Terry "Fred" Allen Water Resource Technician (715) 588- 5258 Located at the Tribal Fish Hatchery on Long Point Lane off of Hwy 47 north of the Casino. Hours of operation Monday – Friday 7am-3:30pm.	Monitoring Specimen verification Data recording Development of the action plan Seek funding for rapid response Permits Plan carryout Informing the public

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Lac du Flambeau Town Hall (715) 588-3358 Title: Chair, Town Lakes Committee	Monitoring Data recording Development of the rapid response plan Seek funding for rapid response Permits Plan carryout Informing the public
Vilas County Ted Ritter Invasive Species Coordinator (715) 479-3738 330 Court Street Eagle River, WI 54521 **Oneida County** Jennifer Holman Aquatic Invasive Species Coordinator 715-369-7836 PO Box 400 Rhinelander, WI 54501	Development of the rapid response plan Funding for rapid response
GLIFWC Dara Olson Aquatic Invasive Species Project Coordinator 715 682-6619 ex 129 100 Maple St. Odanah, WI 54861	Data recording
WDNR Kevin Gauthier Sr. Lake Coordinator (715) 365-8937 107 Sutliff Avenue Rhinelander, WI 54501	Monitoring Specimen verification Data recording Funding for rapid response
EPA http://www.epa.gov/owow/invasive_species/	Funding for rapid response
NRCS Julie Malvitz District Conservationist Phone: (715) 362-5941 ex:111 Service Center 2187 North Stevens Street, Suite A Rhinelander, WI 54501-3879	Funding for rapid response

AIS RAPID RESPONSE PLAN

THE PROCESS

Phase 1 - Early Detection, Specimen Identification and Vouchering

Early detection and proper identification of species is critical when responding to new invasions of species of concern. It is important to know who to contact when a suspect species is found to verify the species and determine if it is a new population. Lakefront homeowners, lake monitors, boat inspectors, recreationists, and many other lake users might find a suspect species in a variety of locations and should contact an amateur identifier. Amateur identifiers like lake association appointees, Town Lakes Committee members, Tribal Water Technicians, and boat inspectors should be able to make a determination if verification is needed by a professional identifier (see communication network)

The Town Lakes Committee and the Tribal Natural Resource Department program will be conducting regular monitoring activities of Lac du Flambeau waters. Boat inspectors should also be monitoring boat landings and the organisms attached to the boat as they are removed from the water. Any suspect species should be placed in a zip lock bag and labeled with the collector's name and phone number, water body, location found (preferably marked on a map), time, and date and then delivered to amateur or professional for identification. A list of amateur people to make the initial identification will be developed by the Town Lakes Committee. The identifier should check the map of known populations of AIS to determine if the species was found in a location populated with AIS. If the initial identification by an amateur is questionable or positive for a species of concern the Tribal Water Resource Program or the WDNR should be contacted for professional identification and voucher the species for final verification. If there is a positive identification for an AIS, then the location were the species was found should be surveyed to confirm and map the location and extent of the infestation.

The Tribe and Town Lakes Committee will develop brochures, fact sheets, and maps needed to assist local agencies in communicating with the public about the early detection procedure.

Phase 2 - Rapid Assessment

Once an organism has been identified and then verified as a species of concern, a rapid assessment will be undertaken to determine its potential threat to different habitats and its ability to spread. The goal is to quickly determine the level of risk the invasion poses for Lac du Flambeau. Information useful for making this determination includes: biology of the organism, its distribution, its concern status, mitigation options, and the window of opportunity for action. If the organism is about to produce a new generation, e.g. a weed in flower, it may be necessary to act without complete information.

The first step will be to conduct ecological assessments to determine the potential spread and harm of the verified species in Lac du Flambeau. If the species is known to be one of the listed species of concern (Eurasian Watermilfoil, Curly Leaf Pondweed, European

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Frogbit, Hydrilla, Water Chestnut, Purple Loosestrife, Flowering Rush, Zebra Mussels, Spiny Water Flea, Rusty Crayfish, Ruff, Round Goby, Asian Carp, White Perch and Rainbow Smelt) and could have a significant ecological effect in Lac du Flambeau then the next step is to determine how likely it is to spread and to what extent. If the species is found in one of the navigable chains of lakes or water body upstream and connected by surface water, as mentioned above, a rapid control treatment is a priority. If the species is found in an isolated lake, notification is the priority and control treatment is secondary. Upon identification of an invasive aquatic plant a plant survey of the whole community will be completed.

Phase #3 - Rapid Response Plan Development

When the new biological invasion is discovered it will trigger an orderly process to determine whether or not action should be taken to manage the population. Details of the process will vary depending on the type of organism, its distribution, population size, biology, concern status, available mitigation options, etc. This plan should incorporate funding, who will be taking the action, permits required and who will be responsible for monitoring after the action has taken place. The management plan will recommend short-term and long-term management actions.

Phase #4 - Management Plan Implementation

Once an assessment has been completed, and action is recommended, impacted landowners and appropriate public officials will be organized to mount an on-the-ground campaign against the invader. Early Warning and Rapid Response communication networks need to be developed with the Town, Tribe, lakes associations, guides, and boat landing monitors. Rapid response is where action is taken quickly to contain and deny reproduction. There are three different types of management/control of AIS, they are Chemical, Mechanical/Physical, and Biological.

Chemical methods involve the application of chemicals to manage and/or control AIS. Mechanical and physical methods involve the management and/or control of AIS by hand or machine or the alteration of the physical environment. Examples of mechanical and physical rapid response and control actions for invasive plants include manual cutting or picking, mowing, dredging, and shading to prevent photosynthesis. Examples of mechanical and physical rapid response and control actions for invasive animals include netting or trapping, smothering and changing ambient water temperature. Biological methods involve the introduction of parasites, predators or pathogens to the environment to control AIS. Biological methods are not generally considered rapid response methods because they typically take considerable time to develop and achieve results and they generally reduce, rather than manage, target populations. The three types of manage and control methods are not mutually exclusive because sometimes they can be used in combination and because some actions might belong to multiple categories. For example, the application of a saline solution to water bodies to management or control AIS could be considered both a chemical and a physical action.

AIS RAPID RESPONSE PLAN

Each species has a specific response that will work best for management of the species. The least invasive method should be chosen so that native species are not disturbed. If disturbance is kept to a minimum the better the chance the control method is successful. Plants are normally fixed to the ground or a substrate and localized control methods can be implemented to remove the species. On the other hand animals are quite mobile so control is much more difficult.

By checking for AIS regularly, small populations, when found, may be controlled by using the least invasive method available before the spread is extensive. Small populations of verified invasive plants can be hand pulled or vacuumed. It is imperative that all fragments be removed from the water and the shore. Other more invasive methods of control like screening and chemical treatment require a WI DNR permit and Tribal approval.
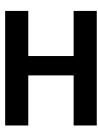
Federal permits required for chemical and physical/mechanized treatment
Under the Clean Water Act Section 404 Federal permits might be required for mechanical/physical control methods, such as the mechanized clearing of riparian areas to remove AIS or dumping of fill material to smother AIS. The US EPA and USACE have issued a rule stating that they regard the use of mechanized earth-moving equipment to conduct activities in waters of the United States (e.g. land clearing, ditching, canalization, and in-stream mining) as regulated discharge of dredged or fill material under Section 404 unless project-specific evidence shows otherwise.

USACE regulatory program management and administration is focused at the District office level, with policy oversight at higher levels. District Engineers are authorized to issue permits, including standard permits, letters of permission, and regional general permits. Division Engineers may also issue permits under certain circumstances. USACE also issues nationwide permits that authorize certain activities that result in minimal adverse environmental effects. Therefore, the appropriate USACE District office will be consulted when planning AIS rapid response or control actions to determine if these actions require a Federal Section 404 permit.

EPA in January 2005 stated that the application of a pesticide to waters of the United States consistent with all relevant requirements under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) does not constitute the discharge of a pollutant (and consequently does not require a Federal NPDES permit) in the following circumstances: the application of pesticides directly to waters of the United States to control pests.

EPA notes that the application of a pesticide in violation of FIFRA is not covered by the interpretive statement, and the applicator is subject to enforcement actions under any and all appropriate authorities including, but not limited to, FIFRA and CWA. EPA has proposed incorporating the 2005 interpretive statement into regulations. Further information can be found at 70 Fed. Reg. 5093 (February 1, 2005) *www.epa.gov/fedrgstr EPA-PEST/2005/February/Day-01/p1868.htm.*

H

APPENDIX H

Comments on Draft Documents

Comments on Draft Shishebogama & Gunlock Lakes Comprehensive Management Plan Update

Comments by Scott Van Egeren (WI Dept. of Natural Resources)
Responses by Brenton Butterfield (Onterra)

Editorial Comments

According to the data on Gunlock Lake (264 acres and 26 feet max depth) it should be listed as a deep drainage lake, not shallow. We will follow up with our database managers to ask about this.

I also want to let you know that I received some feedback from other DNR staff about the lake classification. While the plan can continue to refer to and discuss Gunlock Lake as a shallow lake, DNR currently considers the lake a deep lake for assessment purposes. No matter which acreage is used Gunlock still comes back as deep per the guidelines in the DNR assessment methodology (WisCALM). It's not that this couldn't change with additional data in the future, but just a recognition that DNR currently classifies the lake as deep for lake assessment purposes. Using those numbers generates a Lathrop/Lillie value of 3.9, classifying it as a deep (stratified) lake. However, using the more accurate 267 acres (which we generated from re-digitizing the lake boundary from recent aerial imagery) creates a Lathrop/Lillie value of 3.8, placing it in the shallow category. Also, the Osgood Index value is 3.5, indicating a polymictic system, and the temperature and dissolved oxygen indicate this lake is polymictic and does not always remain stratified over the course of the summer. We feel the shallow lake classification is more appropriate here.

I'm not sure where the acreage of 267 acres in the management plan comes from. It might be fine, but you should explain how this acreage was determined. The DNR database lists Gunlock as 264 acres. The following has been added to the Introduction: *"The Wisconsin Department of Natural Resources (WDNR) uses the Wisconsin Lakes publication (2009) as their official measurement for the surface area of Wisconsin's lakes, and Gunlock Lake is listed at 264 acres, obtained from a historical contour map. During this project, based on 2017 aerial imagery from the National Agriculture Imagery Program and the lake's water levels at that time, the lake's surface area was digitized in ArcGIS and was estimated to be 267 acres. The acreage of 267 is utilized for water quality and watershed modeling throughout this report."*

Page 17 – It does not appear in Fig 3.1-4 that the average TP value in Shishebogama is in the excellent range for LDF water quality criteria. Maybe this is an optical illusion. It may be best to list the threshold values (Excellent to Good) in the narrative or draw lines on the graph. That is correct. The report states that the average TP for Shishebogama is in the excellent category for WisCALM thresholds but in the good category for LDF criteria. I've updated the total phosphorus and the chl-a charts for both lakes with lines. Please see the updated phosphorus chart for Shishebogama Lake at the end of this document. Hopefully that makes it more readable.

Page 31 - There is no record in SWIMS of veliger samples collected on Shishebagama and Gunlock in 2019. We need to make sure that the WSLH data makes it to SWIMS and will look into this. Sounds good, thanks.

Page 31 - Samples were collected during two dates in the summer of 2009 on Gunlock and Shishebagama and two sample dates in 2010 on Shishebagama for zebra mussel veligers. All came back negative. This information could be included in this section. The following has been added to page 31, *"Samples were*

also collected from Gunlock Lake in 2009 and Shishebogama Lake in 2010 for zebra mussel veligers, and samples from both lakes were negative."

Page 38 – Why is Gunlock Lake's watershed included as a subcategory of land cover in Shishebagama's watershed? It seems that you would just add the land cover categories in this subwatershed to the similar land cover categories in the rest of the watershed. I would recommend redoing it this way. Gunlock Lake water would be an open water land cover type within the Shishebagama Lake watershed, but the WilMs model doesn't account for internal loading in Gunlock Lake as part of the open water land cover load coefficient. Therefore the WiLMS model will likely underestimate the nutrient load from Gunlock to Shishebagama Lake and the overall amount of nutrients in Shishebagama. It would be worth noting this in this section of the plan. This was discussed via email with Scott, and the following text has been added to the narrative within the Watershed Section: *"For Shishebogama Lake, Gunlock Lake was loaded in the WiLMS model as a point-source given that actual phosphorus measurements were collected from the lake. The "Water and Nutrient Outflow" feature in WiLMS was used to estimate how much phosphorus was exported from Gunlock Lake to Shishebogama Lake on an annual basis (based on measured phosphorus and predicted outflow). Modeling Gunlock Lake in this way would account for phosphorus that was internally loaded in Gunlock Lake and delivered to Shishebogama Lake."* In addition, the label for "Gunlock Lake Subwatershed" in Figure 3.2-4 was changed to "Gunlock Lake Subwatershed & Internal Load"

I recommend that the Healthy Lakes and Rivers Program explanation (similar to the Lake Mohawksin and other plans) be included in the shoreline section of the plan for reference. Thanks, this section has been updated to include this reference.

Temperature and oxygen profile data from 5/7/19, 7/17/19, 10/23/19, and 2/12/20 for both lakes should be entered into SWIMS database or submitted on DNR formatted Excel files. My colleague Heather has submitted these data. Thanks.

Do you know the date(s) of the Gunlock Lake aquatic plant point-intercept survey? We notice that this has been flagged by our database manager. The date was not included in the data they sent us. However, we know they were out there at least one of the days we were completing the PI survey on Shishebogama which was 7/24/19. However, I believe they were out there for more than one day. Michaela (WDNR) was going to reach out to Celeste for the survey dates.

Also please include the date of the surveys on each of the survey maps (PI, shoreline, CWH, etc). Survey dates have been added to these maps.

Implementation Plan Recommendations

Plan updates must, at minimum, describe the management actions taken since the last plan update, evaluate management outcomes, and provide updated recommendations. I would recommend that next time the management plan is updated there is a section evaluating the status of previous management goals and recommendations. A part of the social survey could also be asking stakeholders whether they were aware of the previous implementation plan and how they felt about the status of the goals/actions. Thanks Scott, we'll take this into account moving forward with management plan updates.

Management Action 2b, page 114 – The DNR grant program has been updated recently and to keep with the current terminology the grants available for larger shoreline restoration projects are now called Surface Water Restoration grants (not Lake Protection grants). You may just want to refer to Surface

Water Restoration grants within the WDNR Surface Water Grant Program. I just want to make sure if someone searches the web for information about the program they use the right terms. Thank you for the clarification. This has been updated.

Management Action 3b – I would recommend that the Watercraft Safety Committee reach out to DNR Recreational Safety Warden Justin Bender (715-293-3363) for feedback on proposed activities or signage. Good suggestion. The following has been added as action step 5 under this management action: *"The Watercraft Safety Education Committee contacts WDNR Recreational Safety Warden Justin Bender (715.293.3363) for feedback on proposed activities and signage."*

Management Action 4b - Nick Miofsky is the warden for southeast Wisconsin. This should be changed to Audrey Royce – 715-614-3288. Audrey is the conservation warden for Vilas/Oneida Counties. Change has been made, thank you.

Management Action 4b - Jeanne Scherer is spelled incorrectly. Her email address is jeannes.scherer@wisconsin.gov Change has been made, thank you.

Management Action 5a (and potentially 5b and 5c) – If yellow iris (or other shoreline invasive species) is removed from developed shorelines I recommend a replacement planting with native plants. This will prevent erosion issues that could be created by removing plants from shorelines and provide habitat and pollinator benefits. Plantings could be covered as part of an AIS or other Surface Water grant and we would be happy to discuss this with you. Good suggestion. The following has been added as action step 5 under management action 5a: *"Discuss with WDNR and LDF consideration of replacing removed pale-yellow iris plants (and other subsequently discussed shoreline invasive plants) with native plants to decrease erosion and improve habitat (e.g., pollinator benefits). Plantings could be covered as part of an AIS or other Surface Water grant."*

Comments by Shishebogama & Gunlock Lake Planning Committee
Responses by Brenton Butterfield (Onterra)

Pdf pg 6: Third paragraph under the map, Sentence: In an effort to continue the conservation
of these lakes for future generations, the SGLA was awarded two WDNR lake planning grants in
2018 to reassess the health of these lakes and develop an (drop the 'd') updated comprehensive
management plan. Correction has been made.

Pdf pg 8: (two issues)
Under Committee Level Meetings (4 th sub heading):
-The objective of the meeting was to fortify a solid understanding of their lake((s) add an s) among
the committee members and to review and update the management goals and management actions
as necessary. Correction has been made.
-You may want to affirm that the planning meeting occurred on September 11. Correction has been
made.
Under Stakeholder Survey (5th sub heading):
-Correct 1872 Shishebogama and Gunlock lakes to 1892 (per Appendix B) Correction has been
made.
Pdf pg. 9: (4th full paragraph, 1st sentence)
The result section 3.0 (Water Quality, Watershed, Paleoecology, Aquatic Plants, and Fisheries Data
Integration) discusses the stakeholder survey data with respect these (Add the word 'to') particular topics.
Correction has been made.

Pdf pg 11(bottom of page)
Management Plan Review and Adoption Process heading
-Update this status? I have included some text on the process to date, but have left a placeholder
where the discussion surrounding the WDNR's review will be.

Pdf pg 27:(2nd paragraph, 3 sentence)
- The effects of internal nutrient loading appear to be primarily realized in late summer, and
in some years, surface TP concentrations are elevated enough to fuel agal (should be algal) growth that is
likely visible to lake users. Correction has been made.
(2nd paragraph, 5 sentence)
However, continued monitoring will indicate if the impact of internal nutrient loading on the lake's
water quality increases, especially since the duration (add either in or of) thermal stratification is
expected to increase in the future with climate change (Kraemer et al. 2015). Correction has been
made.

Pdf pg 49: (1st paragraph and 1st sentence)
The diatom inferred phosphorus concentration in the top sections of the core samples collected
from Shishebogama and Gunlock lake of both lakes (redundant phrase) is similar to the average
summer phosphorus concentration for the last few years of 19 μg/L in Shishebogama Lake and 26
μg/L in Gunlock Lake. Correction has been made.

Pdf pg 71 (mid page header)
Header **Primer on Data Analysis & Data Interpretation**
-Species List
The species list is simply a list of all of the aquatic plant species, both native and non-native, that were located during the surveys completed in Shishebogama and Gunlock lakes in **2016.** (Was some work done in 2016 or was this done in 2019?) Should be 2019, thanks. Correction has been made.

Pdf pg 82 (paragraph 3, 2ⁿᵈ sentence)
(Radmoski & Goeman, 2001) (Sentence begins with parens around Radmoski & Goeman and spell out and) found a 66% reduction in vegetation coverage on developed shorelands when compared to the undeveloped shorelands in Minnesota lakes. Should be 2019, thanks. Correction has been made.

Pdf pg 89 (1ˢᵗ full paragraph, 3ʳᵈ sentence)
The reduction in the number of species recorded on the rake between 2009 and 2019 is may be (redundant: pick is or may be) the result of overall aquatic plant occurrence declining between these two surveys, as discussed earlier. These species did not disappear from Gunlock Lake as most of them were recorded as incidentals in 2019, rather they were likely present in lower abundance when compared in 2009. Correction has been made.

Pdf pg 91 (paragraph 2, 2ⁿᵈ sentence)
(Radmoski & Goeman, 2001) (Start a sentence with parens around (Radmoski & Goeman and spell out and) found a 66% reduction in vegetation coverage on developed shorelands when compared to the undeveloped shorelands in Minnesota lakes. Correction has been made.

Comments by Shishebogama & Gunlock Lakes Planning Committee
Responses by Brenton Butterfield (Onterra)

Proposed Edits, Additions and Deletions to the Shish & Gunlock Implementation Plan (2021)

NB: Throughout the document, the Lac du Flambeau Tribe has been referenced under several names. Celeste Hoskings has requested that the reference be standardized throughout this document. Lac du Flambeau Tribal Natural Resource Department should be called LdF NRD after the initial explanation in the Implementation Plan overview. (Source CH & PH) – **Correction has been made throughout the document**

The following names participating in the SGLA Lake Study Review Team to create the changes to the Implementation Plan: Chris Denniston, Jason DeVress, Dave Egli, Pat Hayes, Celeste Hoskings, Barb Pringle Note: sources of recommended changes are included with each suggested change.
Per our Team meeting, all changes proposed by Celeste Hoskings on the behalf of the LdF NRD were accepted and amended into these goals. (Source: PH and SGLA Lake Study Review Team)

Page 106 **5.0 Implementation Plan**, 1st sentence – add after **Lac du Flambeau Tribal** the phrase "Natural Resource Department (LdF NRD)" and utilize the abbreviation for future reference in the whole document. (Source: CH) - **Correction has been made**

Page 106 Management Goal 1, **Protect Current Water Quality Conditions** – Goal 1a: **Continue monitoring of Shishebogama and Gunlock Lakes' water quality through the WDNR Citizens Lake Monitoring Network (CLMN) program** and add: "and develop a water quality sampling plan with LdF NRD to address water quality sampling needs and available resources." (Source: CH) **Modification has been made. Some supplemental text was also added to the description along with an additional management action.**

Page 106 Management Action Goal 1a, **Timeframe**: **Continuation of current effort** and add: "with collaboration with LdF NRD." (Source: CH) **Modification has been made**

Page 106 Management Action 1a, **Description**, 2nd paragraph, 2nd sentence - Change "These data" to "The data" (Source: CH) **Correction has been made**

Page 107 Management Action 1a, **Action Steps** : 1st step add that "LdF NRD Celeste Hoskings should be notified." (Source CH) **Modification has been made**

Page 107 Management Action 1b, **Work with other management entities…… Timeframe:** changed to "As needed" from Initiate in 2021 (Source: PH & the SGLA Lake Study Review Team: the goal is too broad and beyond our scope. CH agreed) **Per the discussion with Pat and Chris, the management action has been removed. The watershed map showing land ownership was moved to the watershed section.**

Page 107 Management Action 1b, **Description,** 3rd paragraph, 1st sentence - Abbreviate Lac du Flambeau Band of Lake Superior Chippewa Indians as LdF Tribe…continue to do so in rest of document when the Tribe is mentioned. Note that when the water resources team is mentioned, the LdF NRD is appropriate. (Source: CH) **Correction has been made throughout the document**

Page 107 Management Action 1b, **Description**, 3rd paragraph, 2nd sentence - Capitalize Natural Resources (Source: CH) **This action has been removed – please see comment above**

Page 108 Management Action 1b, **Description** continues top of page: strike all verbiage in the 1st sentence after "Gunlock lakes' watershed". Remove verbiage through the bullet point Northwoods Land Trust website. (Source: PH & the SGLA Lake Study Review Team: the goal is too broad and beyond our scope. CH agreed) **Management action removed – please see comment above**

Page 108 Goal 1b, **Figure 5.0-1** Add to the figure the LdF Tribal Reservation boundary to indicate Tribal jurisdiction for any projects below the ordinary high-water mark (OHWM) (Source: CH) – **Reservation boundary has been added**

Page 108 Management Action 1b, (beneath figure) **Action Steps**: -Change the step from: "See the description above." to "Monitor only at present, no active steps are in place at this time." (Source: PH & the SGLA Lake Study Review Team: the goal is too broad and beyond our scope so no action steps appropriate beyond general awareness. CH agreed) **This management action has been removed – see previous comments**

Page 109 Management Goal 2a, **Conserve underdeveloped and restore highly developed….. Timeframe:** Change from "Continuation of current effort" to "Establish Healthy Shoreline (or Conservation) Committee reporting to SGLA Board." (Source PH & the SGLA Lake Study Review Team with recognition that to date no efforts or projects have been pursued or are currently underway. *?Should we add the committee?*)
Facilitator: Add to **"**Property owner" the following: "and SGLA's Healthy Shoreline Committee**."** (Source the SGLA Lake Study Review Team) – **Action 2a was modified to include the creation of the Shoreland Protection Committee**
Description: Strike the *first* paragraph starting with "To date…." and replace it with "The new Healthy Shoreline Committee will explore project opportunities and make recommendations to the SGLA Board. Projects approved by the SGLA Board through recommendation from the Healthy Shoreline Committee will receive assistance from the Committee as property owners apply for Grant Applications from the Healthy Lakes Grants and Lake Protection Grants." (Source: PH & the SGLA Lake Study Review Team) **Modification has been made**

Page 109 Management Goal 2a, **Description**, 3rd paragraph, 2nd sentence- delete sentence starting with "It is important that the owners…." Add new sentence there: "SGLA with the LdF Tribe will give the private owners with little to no development information about how important the benefits their shoreland is providing to these lakes in terms of habitat, stabilizing, shoreland soils, protecting water quality, and maintaining the lakes' aesthetic appeal." (Source: CH) **Modification has been made**

Page 110 Management Goal 2a, **Description** section continues**:** 1st paragraph 1st sentence strike "will continue" and replace with "will begin." In that sentence also add after: "property owners to pursue" the phrase "projects that would qualify for" Healthy Lakes grants…. (Source: PH & the SGLA Lake Study Review Team) **Modification has been made**

Page 110 Management Goal 2a, **Description**, 1st paragraph (end) Add a sentence at the end of the paragraph stating: "Educational materials for healthy shorelines and watercraft safety will be created to inform and educate our property owners." (Source: the SGLA Lake Study Review Team) **Modification has been made**

Page 110 Management Goal 2a, **Description** 3rd paragraph 1st line- Add after the words "The SGLA" the phrase "Healthy Lakes Committee will" work with the WDNR….."   (Source: the SGLA Lake Study Review Team)
Modification has been made

Page 110 Management Goal 2a, **Description** 3rd paragraph Add at the end of the paragraph the following sentence: "It should be noted that the LdF Tribe has a Land Use Application (LUA) that the LdF Water Resource Program is utilizing for any work below the OHWM on all lakes as some activities will require a permit from the Program." (Source: CH) **Modification has been made**

Page 110 Management Goal 2a, **Description:** 4th paragraph Strike the entire paragraph starting with "Because property owners"- "associated with these projects." through the end the paragraph because we have no project examples.   (Source: PH & the SGLA Lake Study Review Team) **Modification has been made**

Page 111 Management Goal 2a, **Description** continuing on this page and starting at the end of the 1st line**:** Add "designated by the town of Lac du Flambeau and the LdF Tribe and within" (Source: CH) – very top line of page 111 **Modification has been made**

Page 111 Management Goal 2a, **Action Steps**: Add new step: "1. Establish the Healthy Shoreline Committee who will work with Homeowners to identify projects." Steps (now 2 & 3) replace SGLA Board and SGLA with "SGLA Healthy Shoreline Committee." (Source: the SGLA Lake Study Review Team) **This was created as a separate management action (now 2a)**

Page 112 Management Action 3b, **Description**: Change 2nd paragraph 1st sentence with this sentence to read: "The WSEC will investigate signage and other materials available at the Boat Landings that may include maps, QR codes, handouts, placards, twitter messages and more as multiple means of providing lake users with the watercraft regulation and hazards maps." (Source: PH & SGLA Lake Study Review Team; gives the WSEC wide berth to investigate all tools of communications) **Modification has been made**

Page 112 Management Action 3b, **Description**, 3rd paragraph, add this sentence after the last line – "SGLA should also provide information on AIS to renters of watercraft." (Source: CH) **Modification has been made**

Page 113 Management Action 3b, **Action Steps** : Add: 1st Step to be "Establish Water Safety & Education Committee." Other steps remain. (Source: SGLA Lake Study Review Team- Balance of steps appear fine and give WSEC leeway to provide information.) **Modification has been made**

Page 114 & 115 no comments.

Page 116 Partners table, LdF Tribe, Contact Person – **Correct** my email should be chockings@ldftribe.com (note typo on grid) (Source: CH) **Correction has been made**

Page 116 Partners table, LdF Tribe, Role - **Remove** Indigenous Arts & Science Coordinator (Source: CH) **Correction has been made**

Page 116 Partners table, LdF Tribe, Contact Basis - **Add** Tribal Regulatory concerns/questions (Source: CH)
Modification has been made

Page 116 Partners Table **Add** Town of Lac du Flambeau with the appropriate contacts below the Town of Minocqua to grid. (Source: PH email to Brenton on 2/1/2021.) **Modification has been made**

Page 119 Management Action 5a, **Monitor and Control pale-yellow iris**…**Description**, 2nd paragraph, Add after the 2nd sentence: "The LdF Tribe does not allow any chemical control methods within exterior boundaries of the reservation. Applicant has to seek Tribal consultation along with WDNR." (Source: CH).
Modification has been made

Page 119 Management Action 5a, **Monitor and Control pale-yellow iris**…**Description**, 2nd paragraph, 4th sentence Add to exiting language: "the SGLA should work with (add here) "the LdF NRD for any approvals along with" their local WDNR staff…"   (Source: CH). **Modification has been made**

Page 120 Management Action 5c, **Monitor and Control narrow-leaved cattail… Add**: "hybrid cattail" (Source: CH concern during the discussions. She asked if we were Only concerned with narrow-leaved cattail or hybrid cattail included as well? No clear conclusion in my notes.) T**hanks for mentioning this. It was unclear if the plants were pure narrow-leaved cattail, hybrid, or a combination of both. I've added this verbiage to the plant section and here in the Implementation Plan.**

Page 121 Management Goal 6a, **Continue volunteer-based monitoring for aquatic species.. Description:** 1st paragraph Add: to 3rd sentence the reference of cattail as another invasive: "These volunteers use GPS to mark invasive species such as narrow-leave and hybrid cattail…" (Source: SGLA Lake Study Review Team) **Modification has been made**

Page 121 Management Goal 6b, **Continue Clean Boat Clean Waters watercraft Inspections – Description**: Multiple references to LDF. All LDF references in these paragraphs should be to the LdF NRD (Source: CH) **Modification has been made**

Page 122 Management Goal 6c, **Initiate Aquatic invasive species rapid response plan upon discovery of a new infestation** Replace *Initiate* with "*Activate or Review or Update"* **(or other action verb that describes the state of the rapid response plan and team)** Aquatic invasive species rapid response plan upon discovery of a new infestation" (Source: SGLA Lake Study Review Team: Note: a rapid response plan is already in place with details and a budget) **Modification has been made**

Page 122 Management Goal 6c. **Initiate** *(word to be changed***) Aquatic invasive species rapid response plan**
Timeframe: Remove the word initiate and replace with: "Review current Rapid Response Plan as new potential threats are uncovered" (Source: SGLA Lake Study Review Team: Probably need to review with team all threats and thoroughly understand budget) **Modification has been made**

Page 122 Management Goal 6c, **Action Steps;** Add another step**: " 4.** Advice property owners and stakeholders immediately with any new invasive species discoveries". (Source: CAD) **Modification has been made**

Page 122 Management Goal 7a, **Coordinate periodic, quantitative aquatic plant monitoring on Shishebogama and Gunlock Lakes. Facilitator**:   SGLA Board of Directors Add: "with

collaboration/partnership with the LdF NRD" (Source: SGLA Lake Study Review Team) **Modification has been made**

Page 123 Management Goal 7a, **Coordinate periodic, quantitative aquatic plant monitoring on Shishebogama and Gunlock Lakes Action Steps**: Step 1, add "Collaborate with LdF NRD to retain qualified professional… (Source; SGLA Lake Study Review Team as we discussed more closely partnering with the LdF Tribe on future Point intercept studies) **Modification has been made**

Page 123 Management Goal 8, **Conserve and Enhance Shishebogama and Gunlock Lakes as a Fishery Resource**   General Comment: This Goal needs more attention and definition. (Source: SGLA Lake Study Review Team)

Page 124 Management Goal 8, **Conserve and Enhance Shishebogama and Gunlock Lakes as a Fishery Resource Description:**1st paragraph, 3rd add line at end of top paragraph- ADD: "SGLA will consult with LdF NRD in regards to fish sticks and other projects as Tribal approval is required for projects affecting lake beds within the boundary of Reservation." (Source: CH) **Modification has been made**

Page 124 Management Goal 8**, Action Steps:** Add a 4th step: "SGLA will file the appropriate Tribal Permits for installation of cribs, fish sticks and more when these items are placed on a lakebed within the boundary of the Reservation. The LdF Water Resource staff will assist with these permit submissions." (Source: CH) **Modification has been made**

GLA supports environment that will promote the development of sportfishing in the lakes, includes stocking, surveys, habitat improvements, etc. List how $$ was spent for fisheries.

Hi Pat & Brenton,
Thanks to Pat for this information on stocking practices and levels from past years. As I reviewed Goal 8 in the context of our conversations yesterday and the stocking data, I had some questions (red) and ideas (blue) for Goal 8 enhancement.

Goal 8 currently title says the following: "Work with LDF and WDNR fisheries managers to conserve and enhance the fisheries on Shishebogama and Gunlock lakes."
The current goal components include the following:
Timeframe: Continuation of current efforts - **Pat- Are you satisfied with that statement**? **(Pat: That works for me) (Then no change here.)**

Facilitator: SLGA Board of Directors - **Pat- Does the Board need a Fisheries Committee or a fishery board member beyond you to coordinate these efforts? There seem to be many components to this complex system. (Pat: There is and has been for the years I have been on the Board. We are currently in reorganization with the passing of Ron Becher, our last committee chair. The committee will be all new. I do have two or three that have been communicating with me to day that are interested in participating) (The Fisheries Committee should then be referenced as a Facilitator with the Board, right?) (Pat: Yes)** Change has been made

Description: The description attests to the importance of fishing on our lakes for our homeowners and references shoreline habitat issues that threaten the fish population. Educating our members on these shoreline risks is emphasized. Adding fish sticks, etc., is suggested. Pat - **No stocking description or**

guidelines are included the description. **Is this an area where we need to place more attention? You also mentioned a need to better measure of stocking successes. What steps should we take to do so? (Pat: Being specific here might limit options. Overall, our main intent was to stock until the population met a minimum criteria set by the DNR. The second goal was to improve habitat. This idea of putting emphasis on downed trees was not a direction I would take, as I can't see homeowners wanting to go along with it. It might work for panfish, but not sure it will take hold. As for walleye, the idea was to support efforts to improve their breeding grounds with reefs. We did get so far as to have the DNR and our people go out to map our lakes for good reef locations. When we went to the Midwest Glacial Lakes Consortium for a grant, they denied our request as not having sufficient evidence of the project being successful. We then decided to wait and see what was happening with the Minocqua Chains attempt to do the same. To date there is no published evidence of any success and thus, we are still in a hold on habitat improvement.) (Not sure what to do here yet.) (Sorry. So our goals were to improve fisheries. We are doing this first off by going from a starting point of a shocking report from 2015 as a base of where our population was. From there, we started stocking to bring the levels up. Next, we need to measure our success/failures by doing another shocking/survey. On top of that, we wanted to see if we could improve habitat to allow for natural reproduction, by improvement of spawning habitat. That however, is proving difficult to prove its success, as it appears that water temperature is beginning to be a suspect in the limitation of natural reproduction. That said, we stock until we can find a way to improve natural reproduction. Pat)**

Action Steps:
Should we add any of the following?
1. **Should an action step be added that calls for a Fishery Committee or a standing Board position be a fishery expert who is a committed fishing sportsperson with significant knowledge to guide the board? (Pat: If we want to add something to the effect that the current Fisheries Committee has and will continue to support a strong fisheries program, or something to that effect.) (I like that idea with perhaps more detail). (Please refer to my last comment added in the above section. I think this should state the detail of what needs t**
2. **o be done, a bit better? Pat)**
3. **If a Fisheries committee is established, it would coordinate with the Shoreline Protection Committee to identify shoreline areas/projects that should be protected to enhance fishing habitats. (Pat: I think that might work, but still think that point would not be on the top of the list for goals.) (Then let's not include this goal.)**
4. **Should specific annual stocking targets be added to the Goal 8? (Pat: Those numbers are set by either the state, or if tribal waters, by their Fisheries department. We have no say in the quantity, but live by established guidelines. The only choice we have is to go for a permit, if the Tribe doesn't stock. So, I wouldn't mention anything about goals.) (We might consider including these points in the description if we have no stocking action steps. This is important reference in my opinion. I raise this point to call attention to an issue which I see as an area of Liability for the Board. We have significant dollars (both in the budget and as gifts) and we don't have clear guidelines in the Management Plans about how the money is deployed by the Board. An tightening on language here would make me feel better.)** (I would have to go back and check for an exact statement on purpose of donations to fisheries, but have gone with the assumption that "improvement of fisheries" was sufficient. We can't limit our spending to stocking, or habitat improvement if climate change is having a new effect. There might be more or something else we need to do and if we limit ourselves we may be creating more problems down the road. Pat)
5. **Should an action step of ordering/funding/ coordinating with the DNR a count of our lakes's fish population or some other measurement of success be added to this Goal? (Pat: Trying to**

get either the DNR or Tribe to do a shocking survey is difficult. They both have limited budgets, and an over abundance of lakes to work on. We continue to push to have someone give us evidence of what species/quantity we have. As for mentioning this as a necessity, I think that would be worthwhile. (Perhaps the Action Step is: The SGLA Fisheries Committee will continue to pursue a WDNR grant or a Tribal Grant to perform an updated count of our Lakes' fish population to measure the success of our stocking programs.) (I am not aware of any grant funding to cover what governing bodies are unable to do because of time or funding restraints. We can say that we will make every effort to find means to prove our ongoing progress in fisheries development. Pat)

These are the current Action Steps and should remain:

6. SGLA contact LDF Fisheries Biologist (715.588.4203) and WDNR Fisheries Biologists (Eric Wegleitner, Vilas County, Eric.Wegleitner@wiwiscons.gov, Zach Woiak, Oneida County, Zach.Woiak@wisconsni.gov) once per year to inquire about ongoing fisheries management in Shishebogama and Gunlock lakes. **(Pat: I believe Larry Wawronowicz is Tribal Fisheries Biologist, if you want to include his name. I say I think, because I know he heads up Fisheries, but not sure if his degree calls him "Biologist". It would make sense that he is.) (We will add Larry's name)**

7. SGLA works with LDF and WDNR fisheries biologists to determine if fish habitat (coarse woody habitat) improvement projects would be beneficial for the lakes' fishery.
(Pat: Again, I think there is too much emphasis put on these woody habitat's. I don't think it is bad to have it be a part of fisheries discussions, but definitely not a lead goal here. Again, I just don't see it working with shoreland owners. I can site numerous occasions, one next to the landing where a tree fell down and we talked with the owners about the benefits of leaving it, to find that within three days, they had it removed) (Sounds like this current action step should be removed. Brenton are you okay with this?)

7. SGLA continues to educate and communicate with stakeholders about the lake's fishery, regulations, catch-and-release fishing, habitat, **(volunteer creel surveys)** and other fisheries-related topics. (**Will add volunteer creel surveys to verbiage)**

As I indicated yesterday, I think the Board would benefit from a better defined roadmap on this Goal since we have significant budgeted monies for fisheries. Let me know if these ideas have merit in tightening Goal 8?

(Pat: Conclusion is that if you haven't been aware of what Fisheries has been doing, we (the committee AND Board members involved in Fisheries directly) need to do a better job of informing everyone of what is taking place. (I worry that I am mis-understood about Goal 8. I know there are newsletter articles on the stocking topic and more. I personally view this Implementation Plan as a roadmap for the Board and a communication tool to our members about what the Board is doing. With lots of money in the Fisheries pot I'd like to be as clear as possible about what guidelines the Board is using as we spend out lake association's treasures, ergo my focus on tightening up Goal 8.)

(Pat: Great comments again Chris. You always stimulate thought.) (I think we are closer on strengthening Goal 8. Hopefully, with this round of recommended updates and my new discussion points we can get to a stronger Goal 8 that everyone is comfortable with. Thanks, Pat for sharing your knowledge on this topic and your ideas. Please remember that I can spell fish and eat fish. Pretty limited on the topic beyond that (lol).

(Pat: P. S. After I reread what I sent you on fisheries stocking, I got to thinking about costs. $17K just didn't seem right. And it wasn't. It is close to $40K including a last contribution to the tribe either the end of 2019 or 2020)

Shish-Gun Implementation Plan Draft Comments by Matthew Gaulke
Responses by Brenton Butterfield (Onterra)

Thanks so much for the information provided. I have gone over it once, and will definitely give it a more detailed read this week, but did want to comment on Action Item 4b. You have misinformation on the jurisdiction of the two lakes. The southern portion of Shishebogama is in Oneida County and Minocqua Township, while the Northern part of Shish and all of Gunlock are in Vilas County, Lac du Flambeau Township, AND Lac du Flambeau Tribal Territory.   The LdF Town Clerk is Nancy Edwards. I am not sure who the current Secretary is, but Matt and Nancy are my go-to people.

Also, on pages 106 and 107, Bob Schulz's name is misspelled. You have it "Shulz", and it is "Schulz". I might have created the error, sorry.

Thanks for the correction. I'll get that corrected for the next draft.