A

APPENDIX A

Public Participation Materials

Rolling Stone Lake
Management Planning Project
Kick-Off Meeting
June 13, 2009 - 9:00 AM
P & R District Building

Aquatic ecologist, Tim Hoyman, speaks to a lake group in Waushara County about their lake management plan. Public participation will be integral part of the Rolling Stone Lake project.

The Rolling Stone Lake P & R District has received two grants totaling nearly $16,000 from the Wisconsin Department of Natural Resources to partially fund the completion of a comprehensive management plan for Rolling Stone Lake. The design for the planning project has been finalized and approved by the WDNR and includes two primary objectives: 1) the completion of in-depth studies including multiple plant surveys, water quality sampling, and watershed investigations; and 2) the completion of a realistic management plan for the lake and its watershed. Most of the studies will be completed during this spring, summer and fall. The tasks associated with the analysis of the data will be completed during the fall and winter. The project will also incorporate opportunities for stakeholder education and input, which are both very important components of all lake management planning efforts. The first opportunity for your participation in the process will be at the Project Kick-off Meeting to be held on Saturday, June 13th at 9:00 am at the P & R District Building.

Onterra, LLC, a lake management planning firm out of De Pere, has been hired to lead the project. During the meeting Tim Hoyman, an Aquatic Ecologist with Onterra, will describe the project and its importance. His presentation will include a description of the project's components, a quick course on general lake ecology, and a breakdown of how the District's Planning Committee will be involved in the plan's completion. So, please plan on attending the meeting and do not hesitate to ask questions or make comments.

Rollingstone Lake Management Planning Project

Update – April 2010

Submitted by:
Eddie Heath
Aquatic Ecologist
Onterra, LLC

The past few months have been very busy for us as we have been compiling and analyzing the data we collected on Rollingstone Lake during last year's field season. We enjoyed the numerous times we were on your lake last year. Our first trip to the lake was on February 12, 2009, when we drilled through the ice and collected water quality samples. We collected additional samples during the spring and fall turnover periods and also coordinated with volunteers from your lake to collect three samples during the summer months. Additionally, we performed an extra visit to Rollingstone Lake during early March 2010, sampling the lake in a few locations to better understand winter dissolved oxygen levels. We shared the data we collected with Dave Seibel, WDNR Fish Biologist and he responded by stating, "The DO levels you found are very good and Rolling Stone should sustain no significant fish kill this winter."

Numerous aquatic plant surveys were completed on the lake, identifying 21 native species and no exotic invasive species. Many nearby lakes contain Eurasian water milfoil, so there is a good chance that Rollingstone Lake has been exposed to fragments of this exotic species carried unintentionally into the lake by transient boaters. Undisturbed, healthy plant communities provide the best resistance to the establishment of aquatic invasive species. Rollingstone Lake's lush plant population is the best defense against exotic plant establishment.

We have also accurately mapped the floating-leaf and emergent plant communities in the lake, creating a snap-shot in which future data can compare and determine whether these communities are expanding or receding.

In late-May 2010, a stakeholder survey was distributed to district members to solicit information from lake users regarding Rollingstone Lake. Once returned, these data will be complied by district volunteers and will subsequently be analyzed by Onterra. These data will be very useful during the planning process, as they provide insight to the stakeholder's ideas and thoughts pertaining to Rollingstone Lake.

The planning process will soon be underway, as Planning Committee members will meet with Onterra ecologists to develop realistic and implementable management actions. The management actions will be a collaborative effort to help stakeholders meet their realistic goals while doing what is best ecologically for the lake. Likely one of the largest management actions that will be discussed is related to the creation of a mechanical harvesting plan for Rollingstone Lake.

Once the plan is developed, a public meeting called a "Project Wrap-up Meeting" will be held to present the study results and the management plan to all interested folks.

Presentation Outline

- Onterra, LLC
- Why Create a Management Plan?
- Elements of a Lake Management Planning Project
  - Data & Information
  - Planning Process

Onterra, LLC

- Founded in 2005
- Staff
  - Three full-time ecologists
  - Two part-time ecologists
  - Two interns
- Services
  - Science and planning
- Philosophy
  - Promote realistic planning
  - Assist, not direct

Why create a lake management plan?

A goal without a plan is just a wish!

Elements of an Effective Lake Management Planning Project

Data and Information Gathering

Environmental & Sociological

Planning Process

Brings it all together

Data and information gathering

- Study Components
  - Water Quality Analysis
  - Watershed Assessment
  - Aquatic Plant Surveys
  - Fisheries Data Integration
  - Stakeholder Survey

Watershed Assessment

- Delineation of drainage basin
- Modeling
  - Land cover
  - Phosphorus loading
  - Scenario development

Aquatic Plant Surveys

- Concerned with both native and non-native plants

Non-native Aquatic Plants

Curly-leaf Pondweed

Non-native Aquatic Plants

Eurasian Water Milfoil

Aquatic Plant Surveys

- Concerned with both native and non-native plants
- Multiple surveys used in assessment
  - Curly-leaf pondweed survey
  - Point-intercept survey

Aquatic Plant Surveys

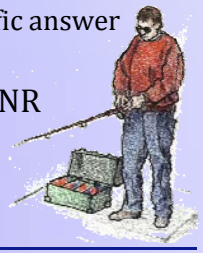
- Concerned with both native and non-native plants
- Multiple surveys used in assessment
  - Curly-leaf pondweed survey
  - Point-intercept survey
  - Plant community mapping
  - Volunteer survey findings

Fisheries Data Integration

- No fish sampling completed
- Assemble data from WDNR, USGS, USFWS, & GLIFWC
- Fish survey results summaries (if available)
- Use information in planning as applicable

Stakeholder Survey

- Standard survey used as base
  - Planning committee develops additional questions and options
  - Must not lead respondent to specific answer through a “loaded” question
- Survey must be approved by WDNR



Planning Process

Planning Committee Meetings

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

↓

Implementation Plan

Thank You

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

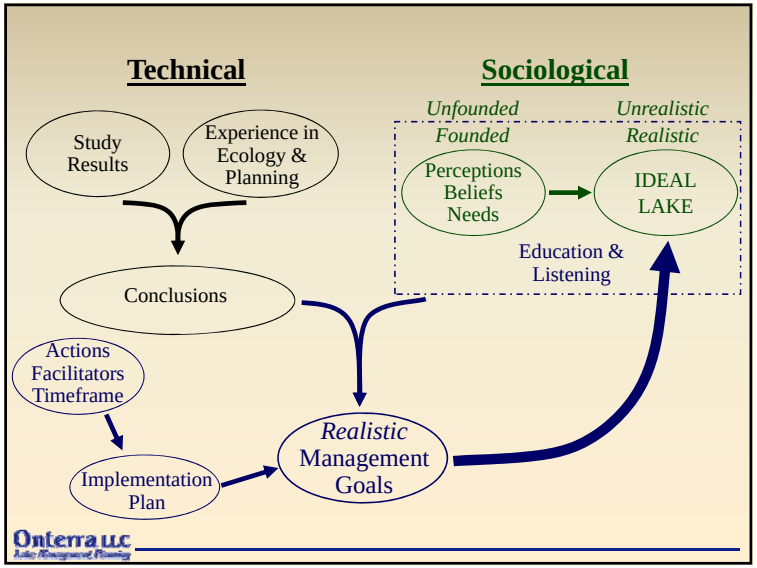
Wisconsin Lakes Partnership

UWEX Extension

Wisconsin Dept. of Natural Resources

The Planning Process

…it's not as easy as you may think.



Presentation Outline

- Lake Management Planning Project Overview
- Study Results
  - Water Quality
  - Watershed
  - Aquatic Plants
  - Miscellaneous Findings
- "Big Picture"
- Goals and Actions Discussion

Onterra LLC
Lake Management Planning

Study and Plan Goals

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

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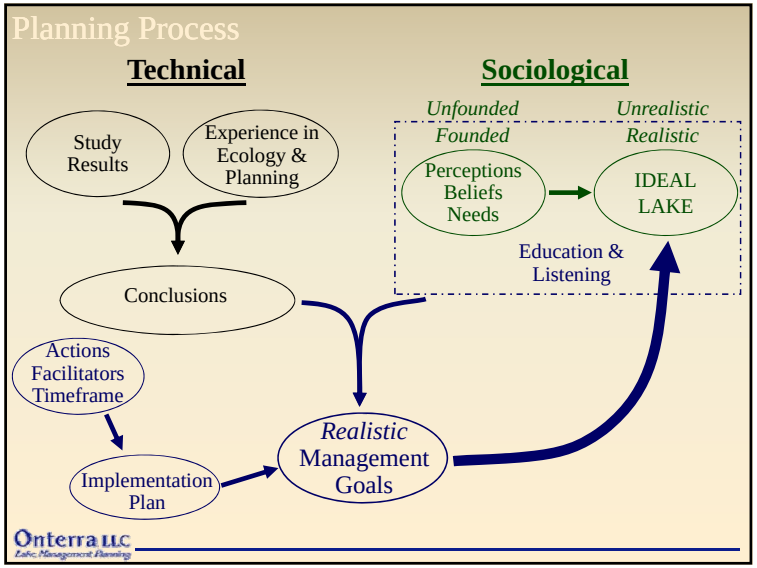
Lake Management Planning



Lillie Mason Regions

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Lake Management Planning

Water Quality

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

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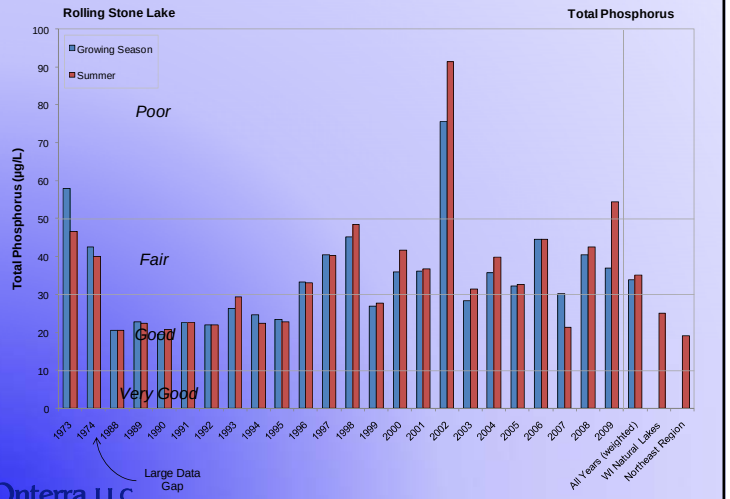
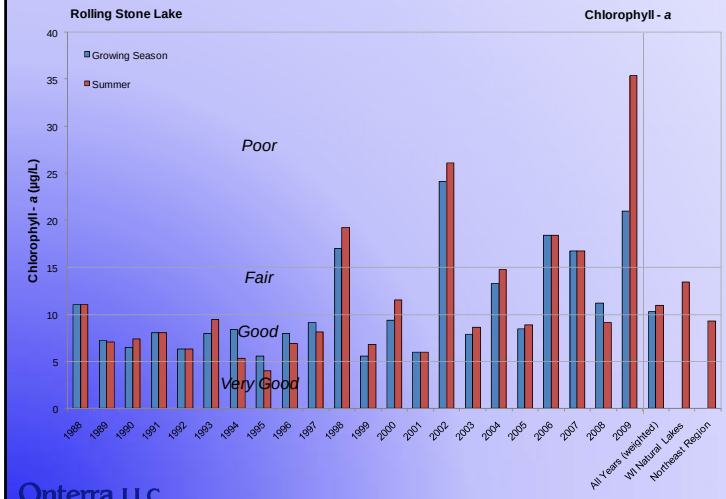
Lake Management Planning



Onterra LLC
Lake Management Planning



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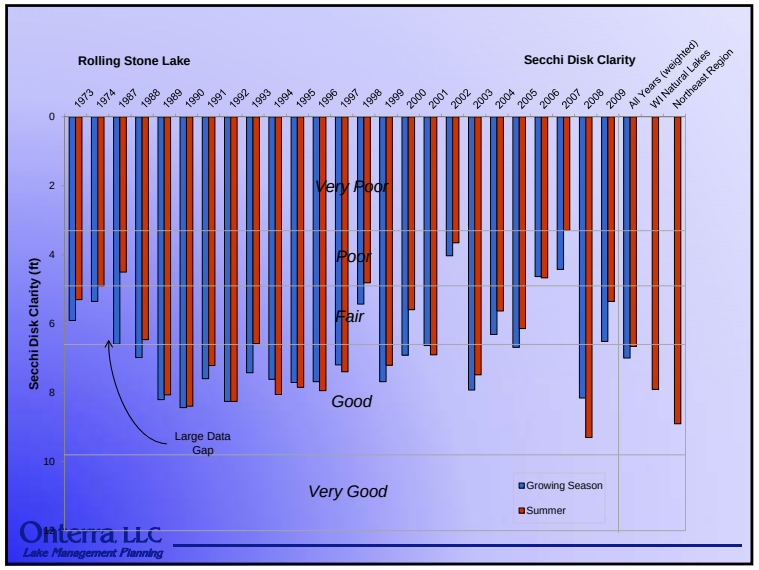
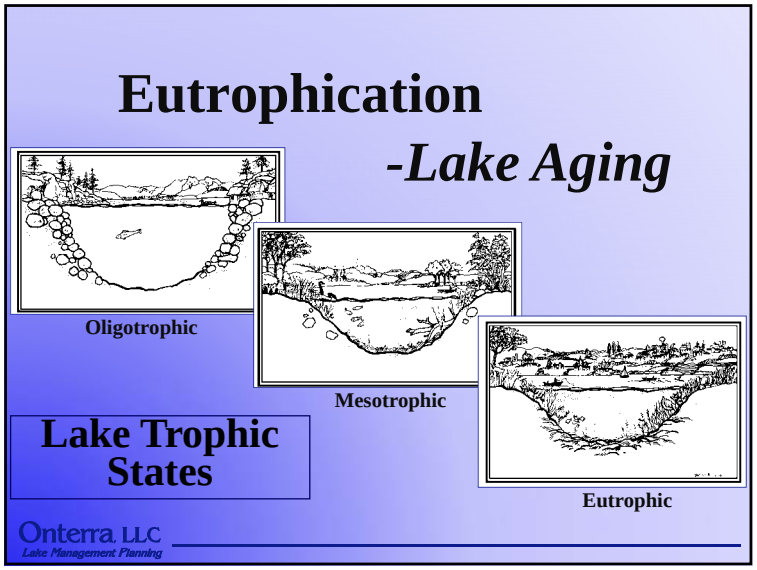
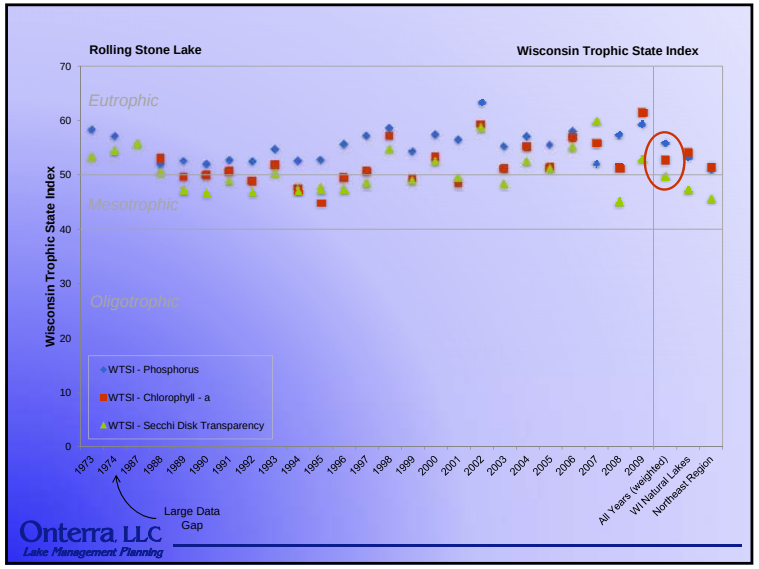
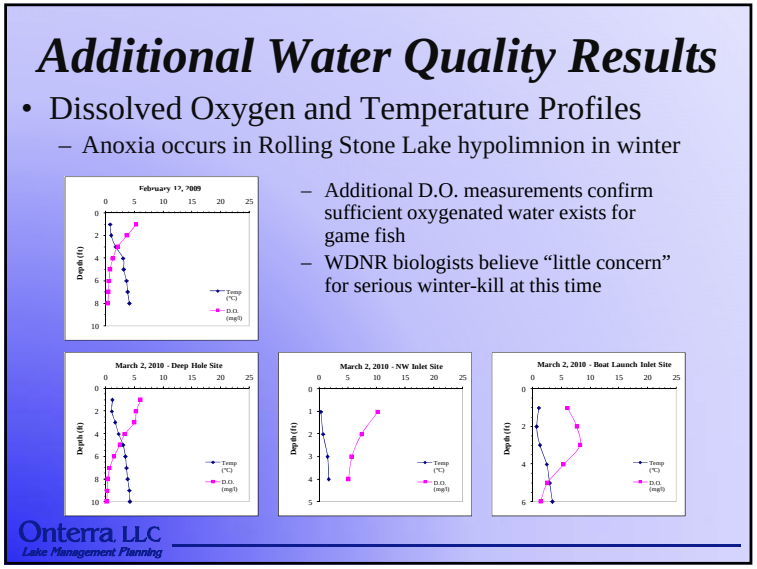
Lake Management Planning


Rolling Stone Lake
Secchi Disk Clarity
Secchi Disk Clarity (ft)
Very Poor
Poor
Fair
Good
Very Good
Large Data Gap
Growing Season
Summer
All Years (weighted)
WI Natural Lakes
Northeast Region
Onterra LLC
Lake Management Planning


Eutrophication
-Lake Aging
Oligotrophic
Mesotrophic
Eutrophic
Lake Trophic States
Onterra LLC
Lake Management Planning


Rolling Stone Lake
Wisconsin Trophic State Index
Wisconsin Trophic State Index
Eutrophic
Mesotrophic
Oligotrophic
WTSI - Phosphorus
WTSI - Chlorophyll - a
WTSI - Secchi Disk Transparency
Large Data Gap
All Years (weighted)
WI Natural Lakes
Northeast Region
Onterra LLC
Lake Management Planning


Additional Water Quality Results
• Dissolved Oxygen and Temperature Profiles
– Anoxia occurs in Rolling Stone Lake hypolimnion in winter
– Additional D.O. measurements confirm sufficient oxygenated water exists for game fish
– WDNR biologists believe "little concern" for serious winter-kill at this time
March 2, 2010 - Deep Hole Site
March 2, 2010 - NW Inlet Site
March 2, 2010 - Boat Launch Inlet Site
Depth (ft)
Temp (°C)
D.O. (mg/l)
Onterra LLC
Lake Management Planning

Additional Water Quality Results

- Limiting Nutrient
  - Lake is phosphorus limited (25:1)
- Alkalinity (buffer capacity)
  - High values found lake
  - Low sensitivity to acid rain
- Calcium values 22.7ppm
  - Suitable for zebra mussel infestation

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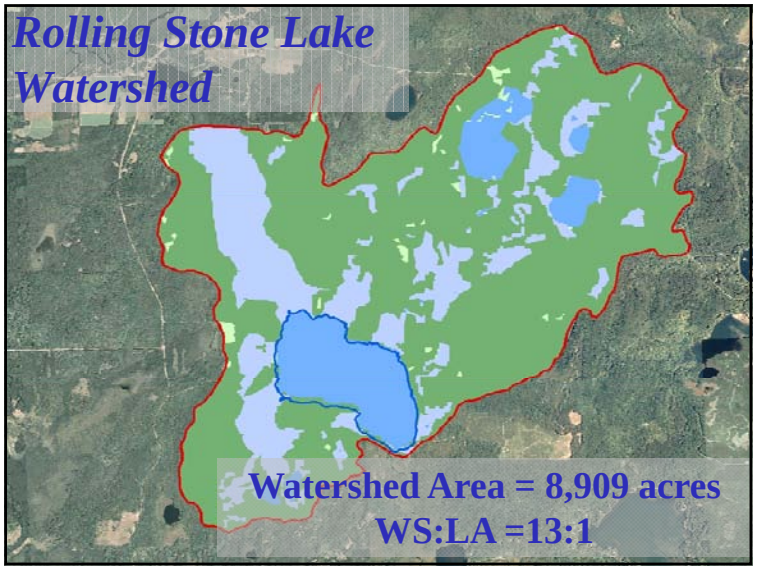
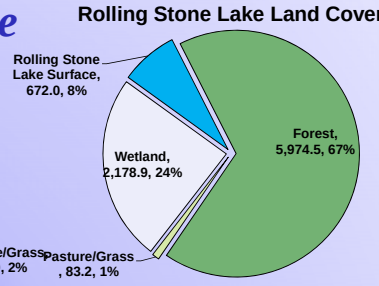
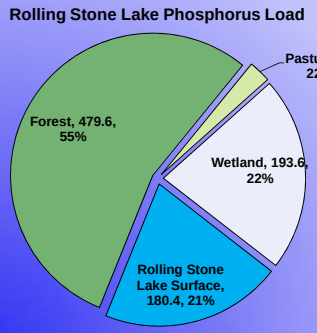
Rolling Stone Lake Watershed



Rolling Stone Lake Watershed





Watershed Modeling
Phosphorus export coefficients
General overview of phosphorus load

Annual Load: 876 lbs

Point-Intercept Surveys

Rolling Stone Lake
82-meters
409 points

Survey Completed
2007 by Sokaogon Chippewa Community

Species List (2007)

- 21 Total Species
- 5 additional species identified during community mapping
  - Common arrowhead
  - Northern wild rice
  - Short-stemmed bur-reed
  - Spatterdock
  - Water arum
- **Curly-leaf pondweed confirmed in 2010**

Life Form	Scientific Name	Common Name	Coefficient of Conservatism (c)
E	*Schoenoplectus acutus*	Hardstem bulrush	5
	Typha latifolia	Broad-leaved cattail	1
FL	*Nuphar variegata*	Spatterdock	6
	Nuphar advena	Yellow water lily	8
	Nymphaea odorata	White water lily	6
FL/E	*Sparganium fluctuans*	Floating-leaf bur-reed	10
Submergent	*Chara sp.*	Muskgrasses	7
	Ceratophyllum demersum	Coontail	3
	Elodea canadensis	Common waterweed	3
	Heteranthera dubia	Water stargrass	6
	Myriophyllum sibiricum	Northern water milfoil	7
	Potamogeton illinoensis	Illinois pondweed	6
	Potamogeton pusillus	Small pondweed	7
	Potamogeton richardsonii	Clasping-leaf pondweed	5
	Potamogeton amplifolius	Large-leaf pondweed	7
	Potamogeton praelongus	White-stem pondweed	8
	Potamogeton zosteriformis	Flat-stem pondweed	6
	Potamogeton robbinsii	Fern pondweed	8
	*Ranunculus aquatilis**	White water-crowfoot*	8
	Vallisneria americana	Wild celery	6
FF	*Lemna trisulca*	Forked duckweed	6

E = Emergent
FL = Floating Leaf
FL/E = Floating Leaf and Emergent
FF = Free Floating
* = Incidental

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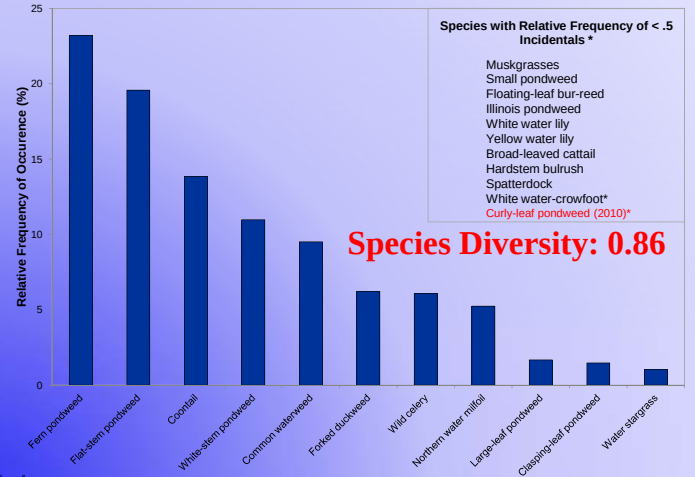
Rolling Stone Lake Occurrence Analysis (2007)



Onterra LLC
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Aquatic Plants

Wisconsin Ecoregions

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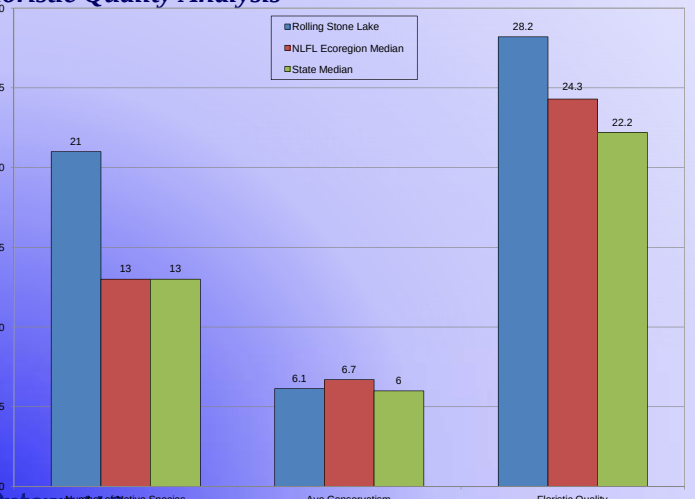
Floristic Quality Analysis



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Aquatic Plant Community Mapping

- Mapped Communities
  - Floating-leaf
  - Emergent
- Important Indicators
  - Vulnerable to ecosystem changes
    - Loss of species
    - Expansion or recession

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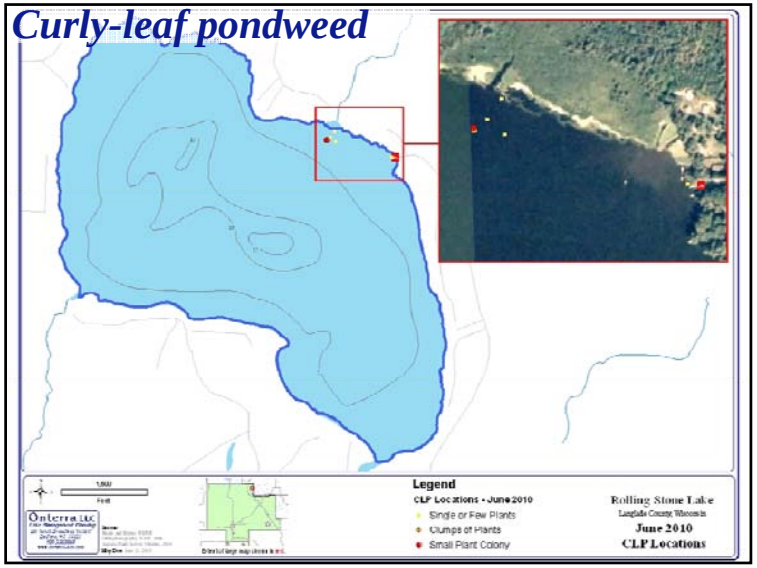
Lake Management Planning

Curly-leaf pondweed



Conclusions

- Water quality in Rolling Stone is *fair to good*
  - Lake is productive and healthy.
- Overall watershed is in great condition.
  - Land cover exports minimal phosphorus, but lake has a large watershed that is able to drive productivity rate.
  - Largest, *controllable* contributor is likely shoreland properties.

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Conclusions

- Aquatic plant community
  - Based upon standard analysis, native community is of moderate quality indicative of a disturbed system.
  - Curly-leaf pondweed infestation is very recent, but grants are available for immediate response.
  - Harvesting plan must be completed as a part of lake management plan.

Onterra LLC
Lake Management Planning

B

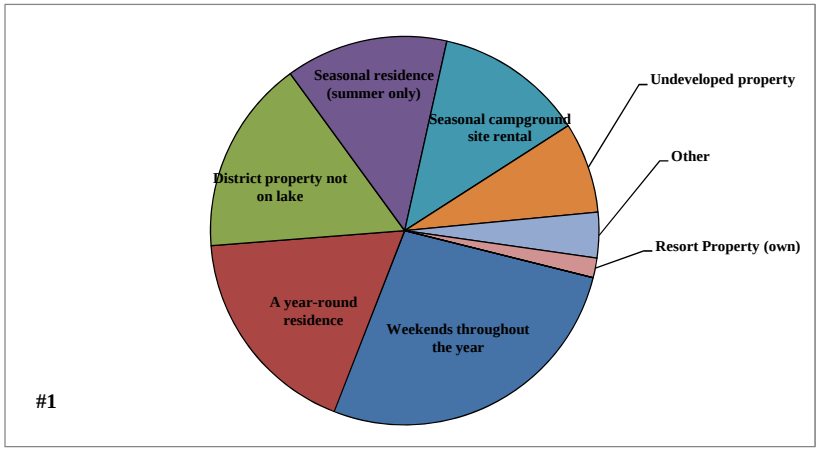
APPENDIX B

Stakeholder Survey Response Charts and Comments

Returned Surveys	193
Sent Surveys	393
Response Rate (%)	49.1

#1 What type of property do you own/rent on Rollingstone Lake?

	Total	%
Weekends throughout the year	50	*27.0*
A year-round residence	33	*17.8*
District property not on lake	30	*16.2*
Seasonal residence (summer only)	25	*13.5*
Seasonal campground site rental	23	*12.4*
Undeveloped property	14	*7.6*
Other	7	*3.8*
Resort Property (own)	3	*1.6*
Rental Property (own)	0	*0.0*
	185	*100.0*

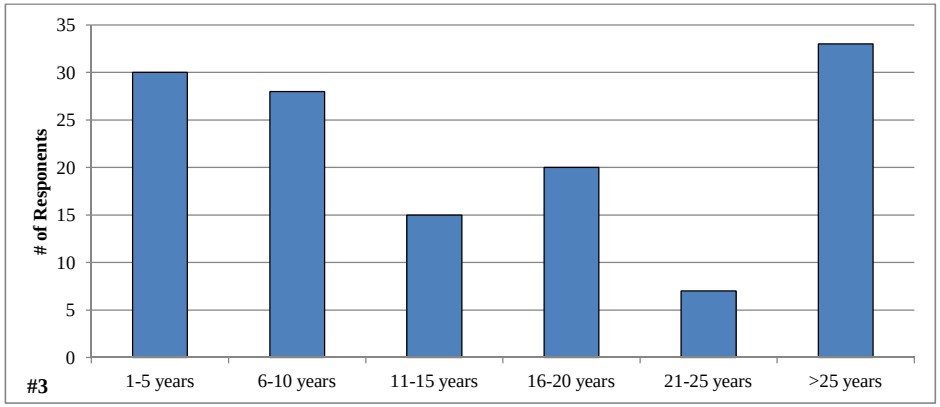


#2 If you are not a year-round resident, how many days each year is your property used by you or others?

Answered Question	103
Average	75.7
Standard deviation	68.9

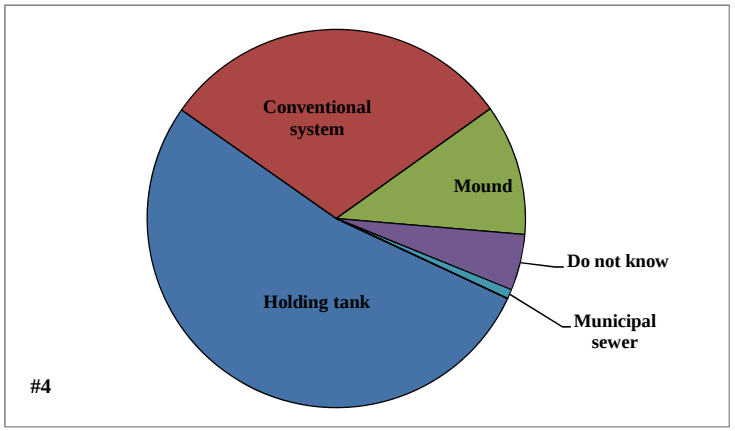
#3 How many years have you owned property on Rollingstone Lake?

	Total	%
1-5 years	30	*22.6*
6-10 years	28	*21.1*
11-15 years	15	*11.3*
16-20 years	20	*15.0*
21-25 years	7	*5.3*
>25 years	33	*24.8*
	133	*100.0*



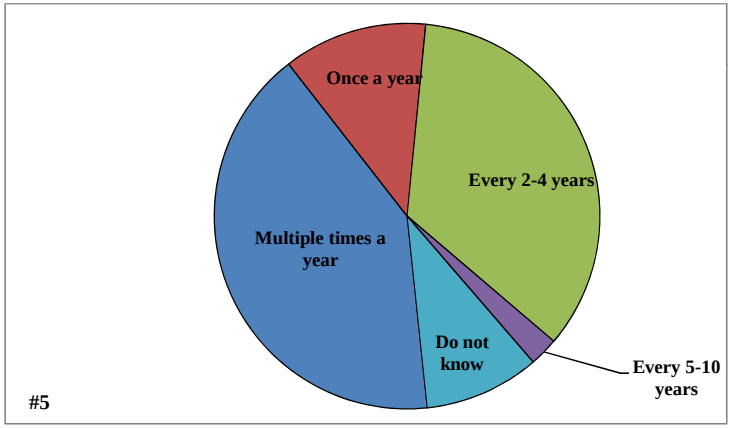
#4 What type of septic system does your property utilize?

	Total	%
Holding tank	66	*52.8*
Conventional system	38	*30.4*
Mound	14	*11.2*
Do not know	6	*4.8*
Municipal sewer	1	*0.8*
Advanced treatment system	0	*0.0*
	125	*100.0*



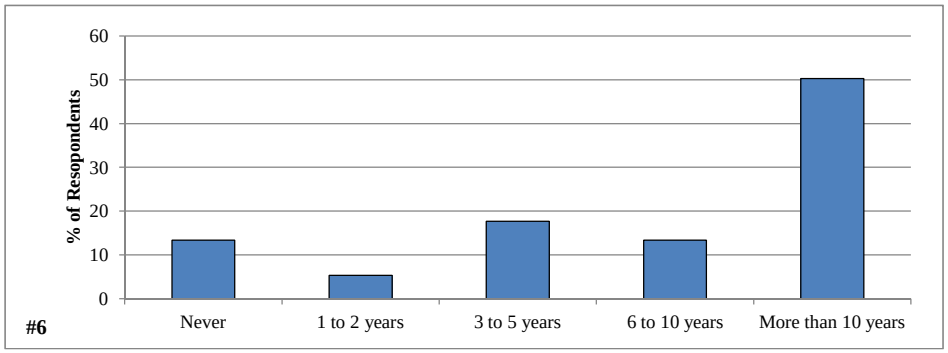
#5 How often is the septic system on your property pumped?

	Total	%
Multiple times a year	51	*41.1*
Once a year	15	*12.1*
Every 2-4 years	43	*34.7*
Every 5-10 years	3	*2.4*
Do not know	12	*9.7*
	124	*100.0*



#6 For how many years have you fished Rollingstone Lake?

	Total	%
Never	25	*13.4*
1 to 2 years	10	*5.3*
3 to 5 years	33	*17.6*
6 to 10 years	25	*13.4*
More than 10 years	94	*50.3*
	187	*100.0*

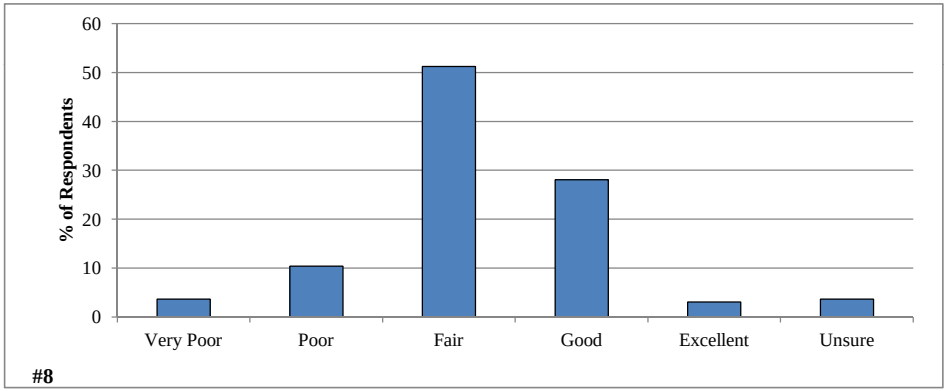


#7 Have you personally fished on Rollingstone Lake in the past 3 years?

	Total
Yes	155
No	12

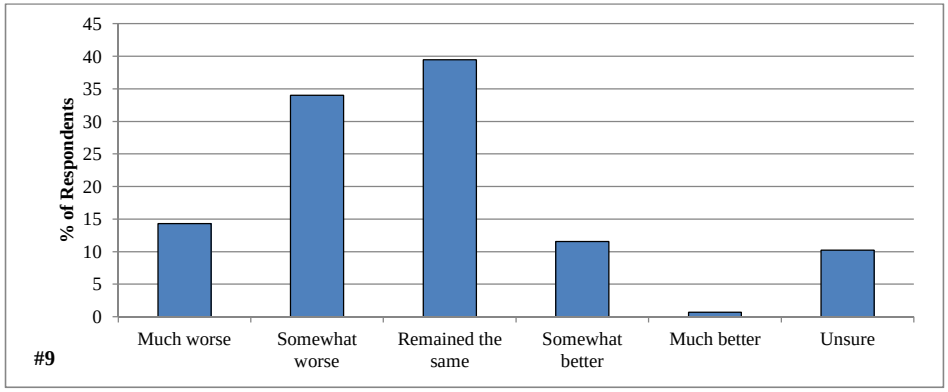
#8 How would you describe the current quality of fishing on Rollingstone Lake?

	Total	%
Very Poor	6	*3.7*
Poor	17	*10.4*
Fair	84	*51.2*
Good	46	*28.0*
Excellent	5	*3.0*
Unsure	6	*3.7*
	164	*100.0*



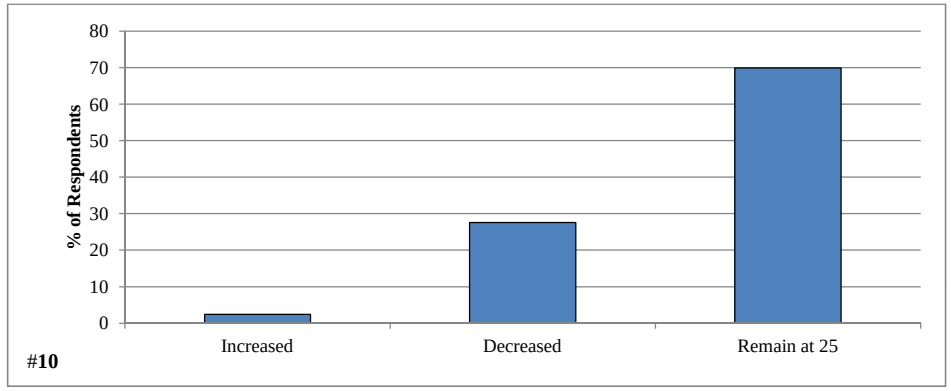
#9 How has the quality of fishing changed on Rollingstone Lake since you have started fishing the lake?

	Total	%
Much worse	21	*14.3*
Somewhat worse	50	*34.0*
Remained the same	58	*39.5*
Somewhat better	17	*11.6*
Much better	1	*0.7*
Unsure	15	*10.2*
	147	*100.0*



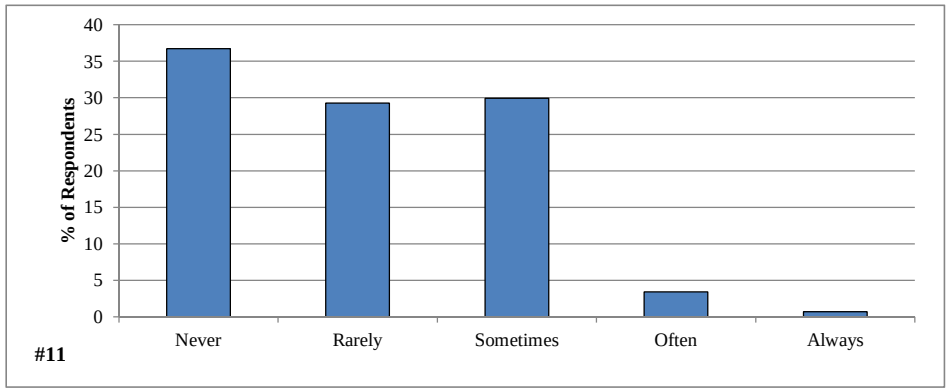
#10 Currently the daily bag limit for panfish is 25. Do you think the daily bag limit for Rollingstone Lake should be:

	Total	%
Increased	4	*2.5*
Decreased	45	*27.6*
Remain at 25	114	*69.9*
	163	*100.0*



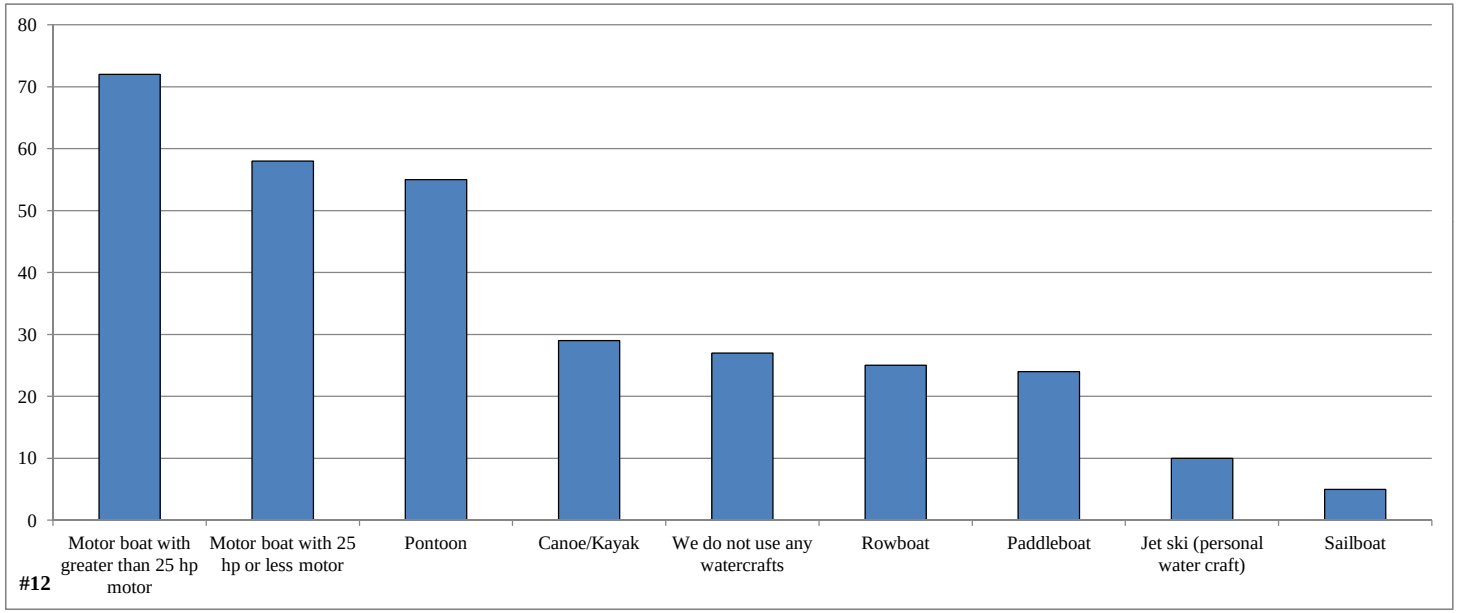
#11 How often, if at all, do you "limit out" on panfish, that is, keep the daily bag limit?

	Total	%
Never	54	*36.7*
Rarely	43	*29.3*
Sometimes	44	*29.9*
Often	5	*3.4*
Always	1	*0.7*
	147	*100.0*



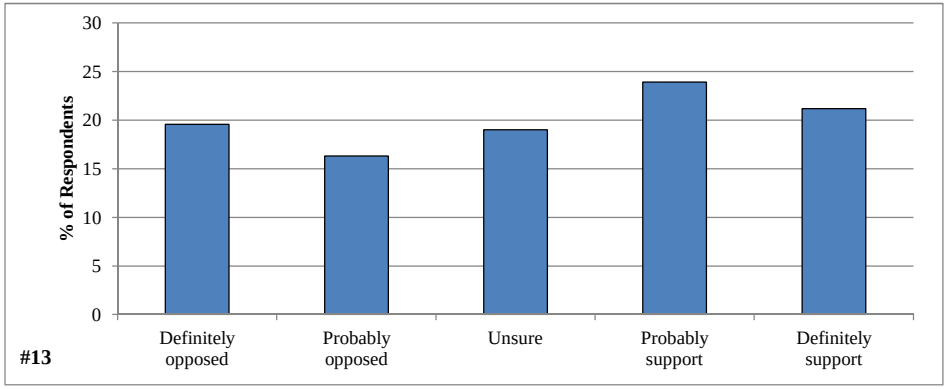
#12 What types of watercraft do you use on the lake?

	Total
Motor boat with greater than 25 hp motor	72
Motor boat with 25 hp or less motor	58
Pontoon	55
Canoe/Kayak	29
We do not use any watercrafts	27
Rowboat	25
Paddleboat	24
Jet ski (personal water craft)	10
Sailboat	5
	305



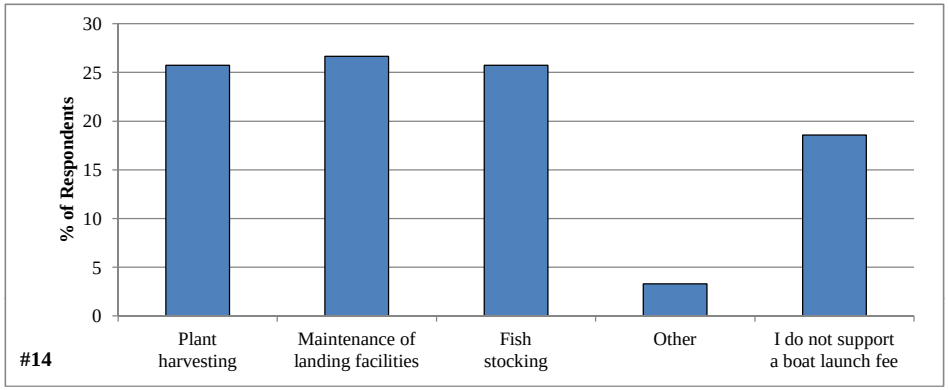
#13 Would you support or oppose the enforcement of daily no-wake hours during specified (posted) time periods?

	Total	%
Definitely opposed	36	*19.6*
Probably opposed	30	*16.3*
Unsure	35	*19.0*
Probably support	44	*23.9*
Definitely support	39	*21.2*
	184	*100.0*



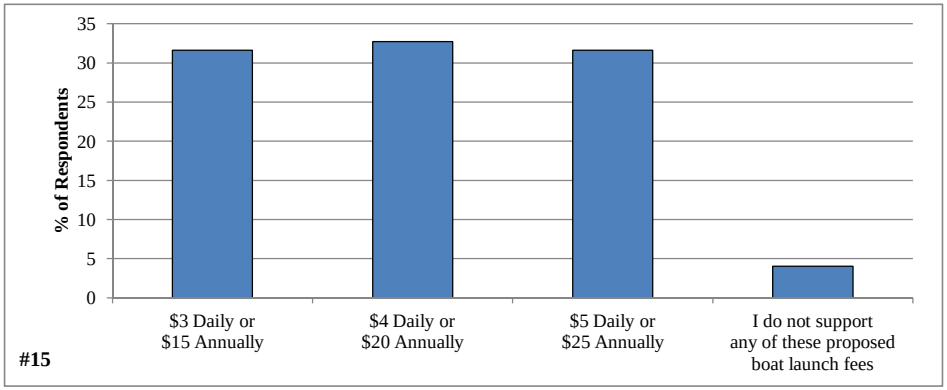
#14 Would you support a daily or annual boat launch fee to help pay for any of the following?

	Total	%
Plant harvesting	86	*25.7*
Maintenance of landing facilities	89	*26.6*
Fish stocking	86	*25.7*
Other	11	*3.3*
I do not support a boat launch fee	62	*18.6*
	334	*100.0*



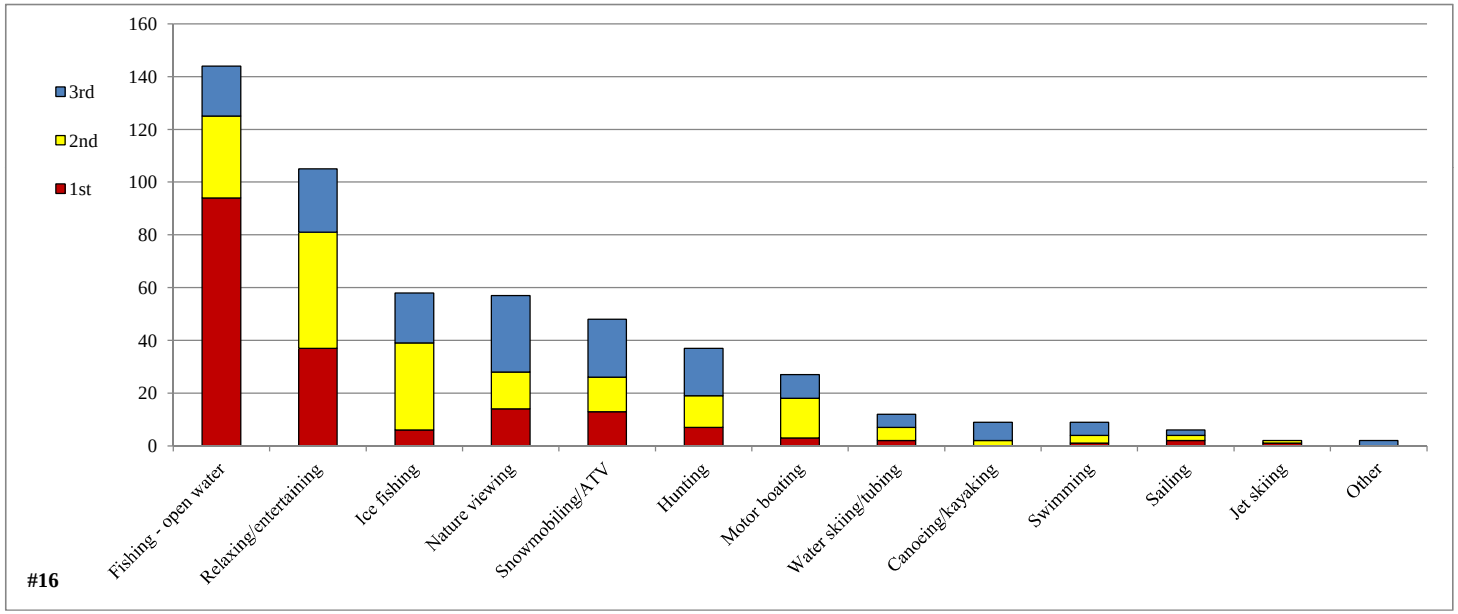
#15 Which of the following boat launch fees do you support?

	Total	%
$3 Daily or $15 Annually	86	*31.6*
$4 Daily or $20 Annually	89	*32.7*
$5 Daily or $25 Annually	86	*31.6*
I do not support any of these proposed boat launch fees	11	*4.0*
	272	*100.0*



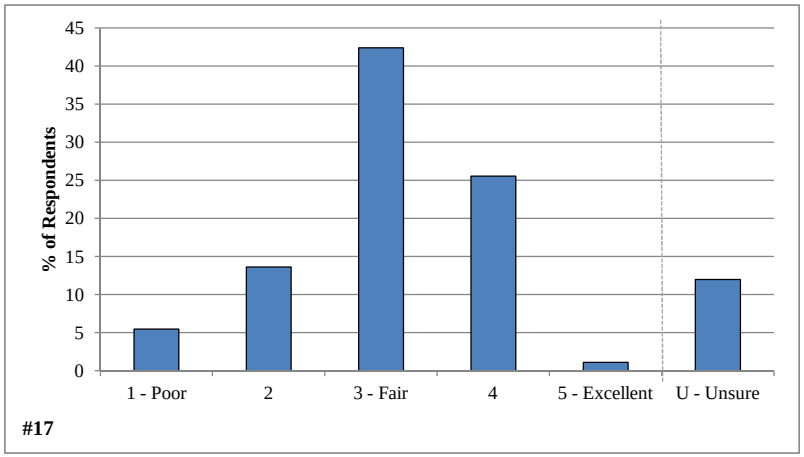
#16 Please rank up to three activities that are important reasons for owning, renting, or camping on or near Rollingstone Lake.

	1st	2nd	3rd	*% ranked*
Fishing - open water	94	31	19	*27.9*
Relaxing/entertaining	37	44	24	*20.3*
Ice fishing	6	33	19	*11.2*
Nature viewing	14	14	29	*11.0*
Snowmobiling/ATV	13	13	22	*9.3*
Hunting	7	12	18	*7.2*
Motor boating	3	15	9	*5.2*
Water skiing/tubing	2	5	5	*2.3*
Canoeing/kayaking	0	2	7	*1.7*
Swimming	1	3	5	*1.7*
Sailing	2	2	2	*1.2*
Jet skiing	1	1	0	*0.4*
Other	0	0	2	*0.4*
	180	175	161	*100.0*



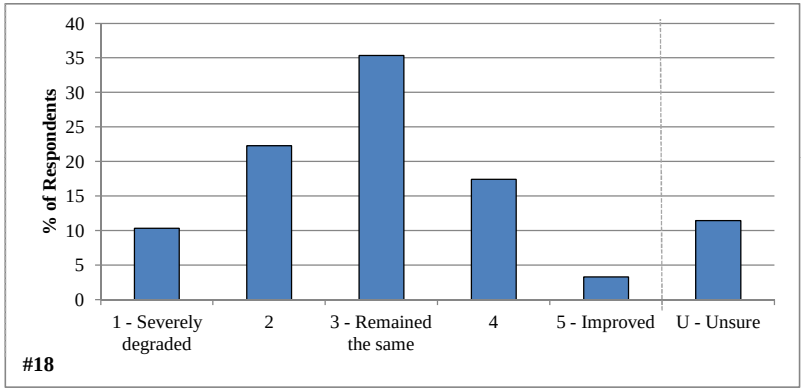
#17 How would you describe the current water quality of Rollingstone Lake?

	Total	%
1 - Poor	10	*5.4*
2	25	*13.6*
3 - Fair	78	*42.4*
4	47	*25.5*
5 - Excellent	2	*1.1*
U - Unsure	22	*12.0*
	184	*100.0*



#18 How has the water quality changed in Rollingstone Lake since you started using the lake?

	Total	%
1 - Severely degraded	19	*10.3*
2	41	*22.3*
3 - Remained the same	65	*35.3*
4	32	*17.4*
5 - Improved	6	*3.3*
U - Unsure	21	*11.4*
	184	*100.0*



#19 Have you ever heard of aquatic invasive species?

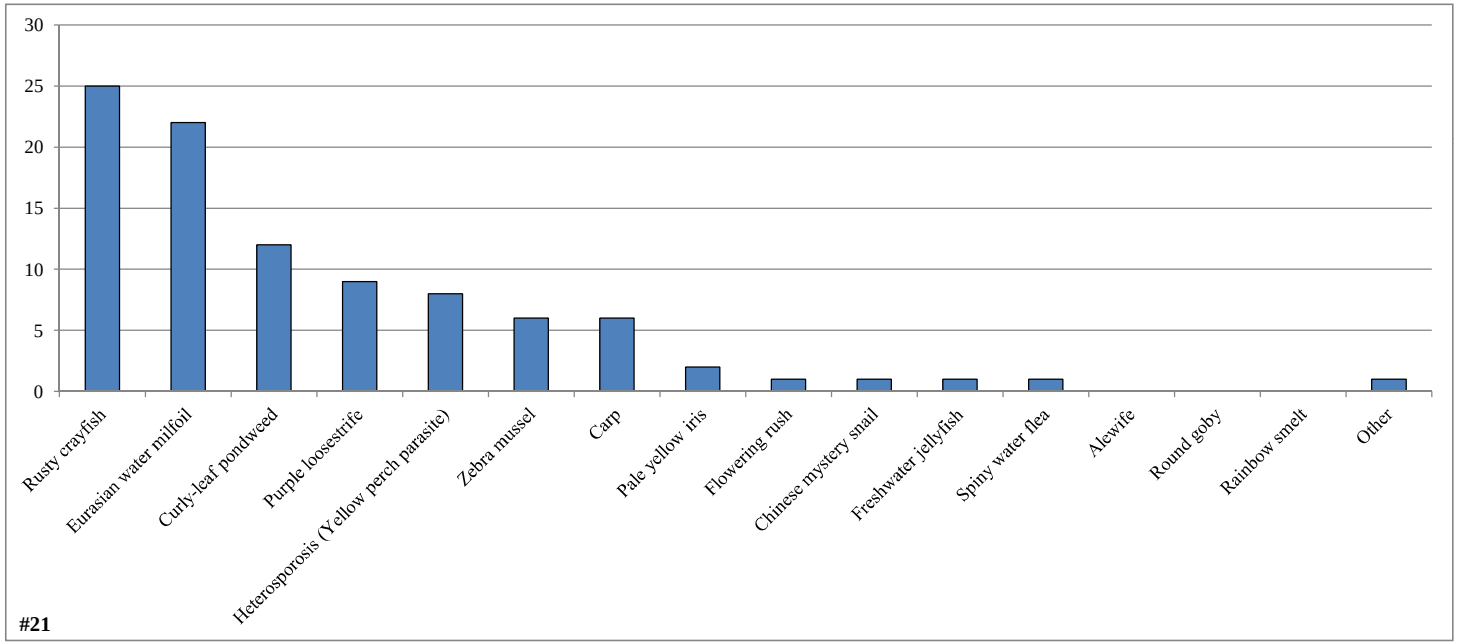
	Total	%
Yes	172	*93.0*
No	13	*7.0*
	185	*100.0*

#20 Are you aware of aquatic invasive species in Rollingstone Lake?

	Total	%
Yes	55	*30.6*
No	125	*69.4*
	180	*100.0*

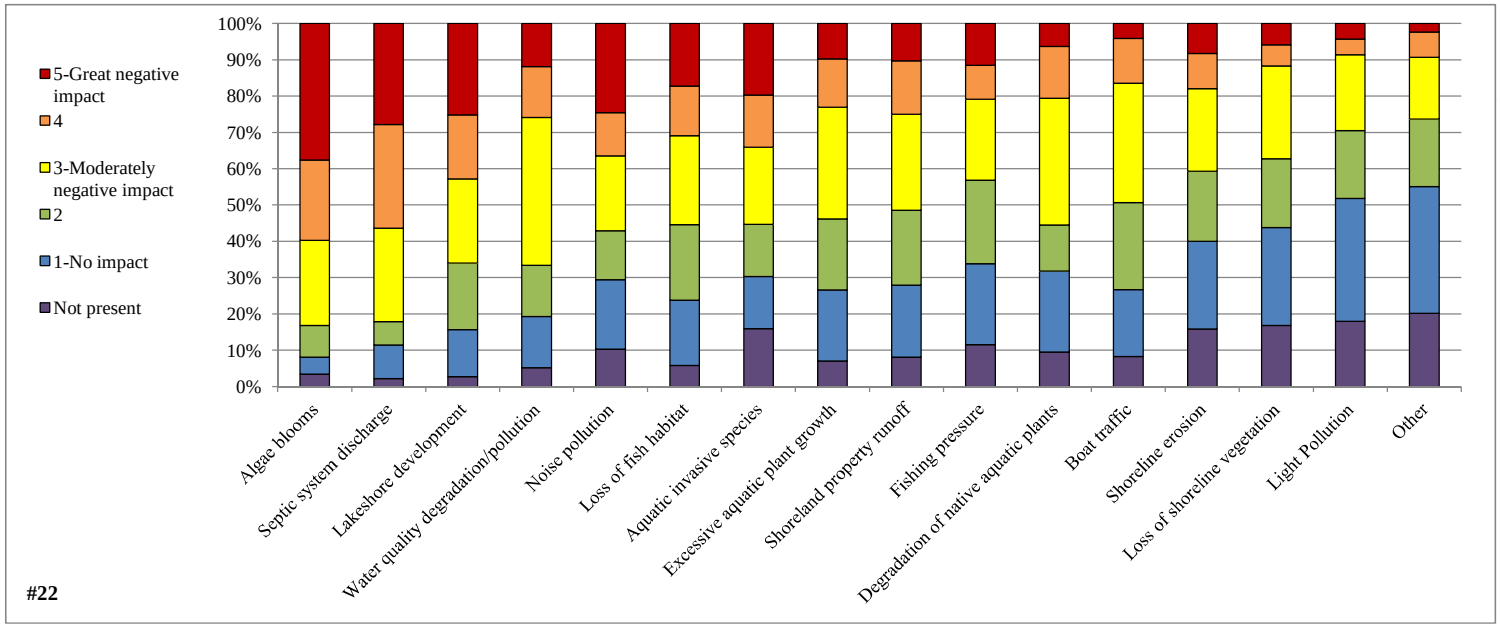
#21 If you answered yes to Question 20, which aquatic invasive species are you aware of in Rollingstone Lake?

	Total
Rusty crayfish	25
Eurasian water milfoil	22
Curly-leaf pondweed	12
Purple loosestrife	9
Heterosporosis (Yellow perch parasite)	8
Zebra mussel	6
Carp	6
Pale yellow iris	2
Flowering rush	1
Chinese mystery snail	1
Freshwater jellyfish	1
Spiny water flea	1
Alewife	0
Round goby	0
Rainbow smelt	0
Other	1



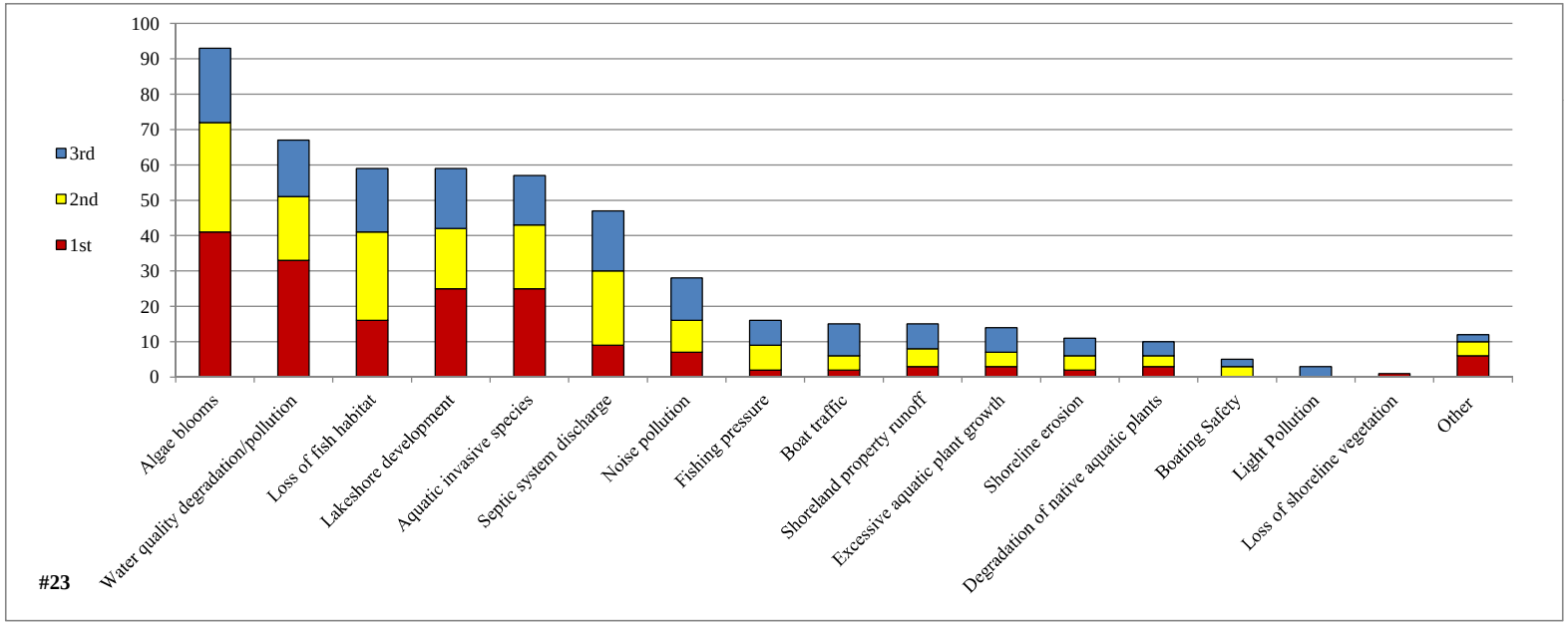
#22 To what level do you believe each the following factors are negatively impacting Rollingstone Lake?

	Not present	1-No impact	2	3-Moderately negative impact	4	5-Great negative impact	Unsure	*Total*	*Average*
Algae blooms	5	7	13	35	33	56	25	*144*	*3.7*
Septic system discharge	3	13	9	36	40	39	31	*137*	*3.5*
Lakeshore development	4	19	27	34	26	37	25	*143*	*3.2*
Water quality degradation/pollution	7	19	19	55	19	16	36	*128*	*2.8*
Noise pollution	13	24	17	26	15	31	46	*113*	*2.8*
Loss of fish habitat	8	25	29	34	19	24	32	*131*	*2.7*
Aquatic invasive species	21	19	19	28	19	26	39	*111*	*2.6*
Excessive aquatic plant growth	10	28	28	44	19	14	29	*133*	*2.5*
Shoreland property runoff	11	27	28	36	20	14	36	*125*	*2.5*
Fishing pressure	16	31	32	31	13	16	30	*123*	*2.5*
Degradation of native aquatic plants	12	28	16	44	18	8	46	*114*	*2.4*
Boat traffic	12	27	35	48	18	6	26	*134*	*2.3*
Shoreline erosion	23	35	28	33	14	12	28	*122*	*2.1*
Loss of shoreline vegetation	23	37	26	35	8	8	33	*114*	*1.9*
Light Pollution	25	47	26	29	6	6	33	*114*	*1.7*
Other	26	45	24	22	9	3	41	*103*	*1.6*



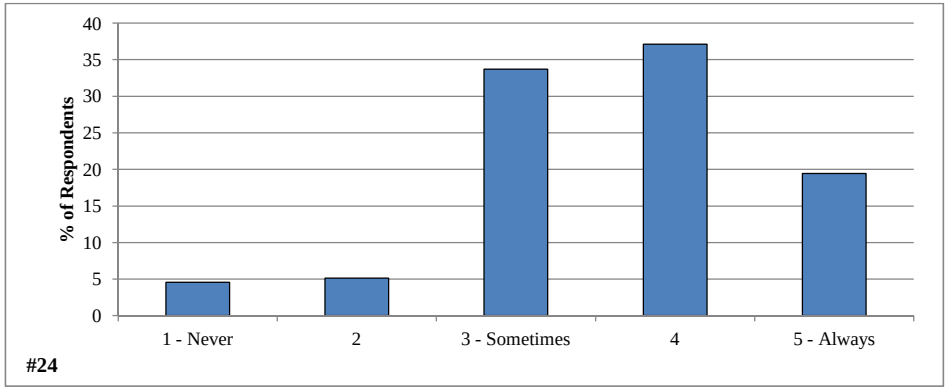
#23 From the list below, please rank your top three concerns regarding Rollingstone Lake?

	1st	2nd	3rd	*% Ranked*
Algae blooms	41	31	21	*18.2*
Water quality degradation/pollution	33	18	16	*13.1*
Loss of fish habitat	16	25	18	*11.5*
Lakeshore development	25	17	17	*11.5*
Aquatic invasive species	25	18	14	*11.1*
Septic system discharge	9	21	17	*9.2*
Noise pollution	7	9	12	*5.5*
Fishing pressure	2	7	7	*3.1*
Boat traffic	2	4	9	*2.9*
Shoreland property runoff	3	5	7	*2.9*
Excessive aquatic plant growth	3	4	7	*2.7*
Shoreline erosion	2	4	5	*2.1*
Degradation of native aquatic plants	3	3	4	*2.0*
Boating Safety	0	3	2	*1.0*
Light Pollution	0	0	3	*0.6*
Loss of shoreline vegetation	1	0	0	*0.2*
Other	6	4	2	*2.3*
	178	173	161	*100.0*



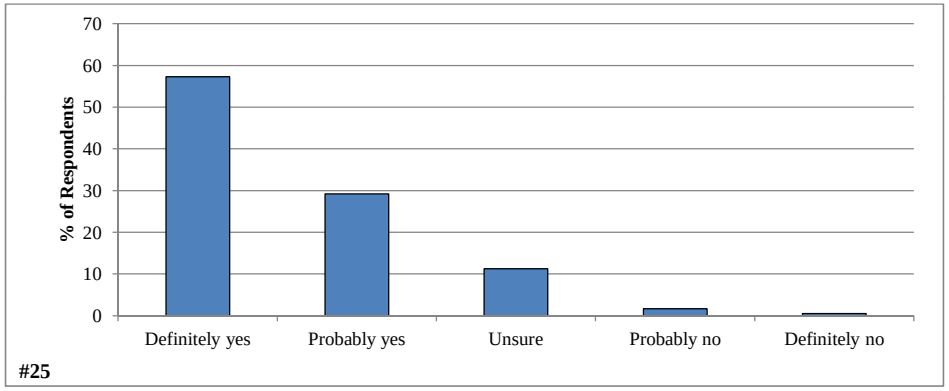
#24 During open water season how often does aquatic plant growth negatively impact your enjoyment of Rollingstone Lake?

	Total	%
1 - Never	8	*4.6*
2	9	*5.1*
3 - Sometimes	59	*33.7*
4	65	*37.1*
5 - Always	34	*19.4*
	175	*100.0*



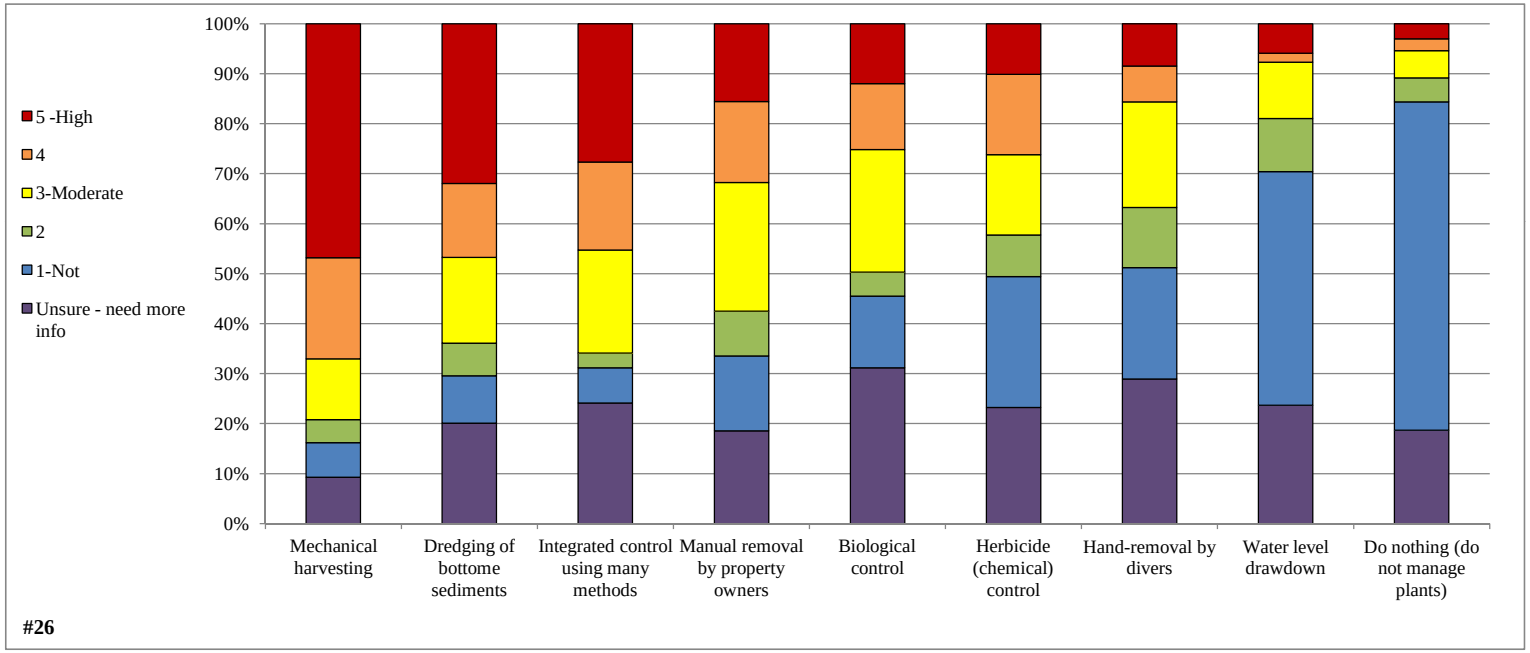
#25 Considering your answer to the question above, do you believe aquatic plant control is needed on Rollingstone Lake?

	Total	%
Definitely yes	102	*57.3*
Probably yes	52	*29.2*
Unsure	20	*11.2*
Probably no	3	*1.7*
Definitely no	1	*0.6*
	178	*100.0*



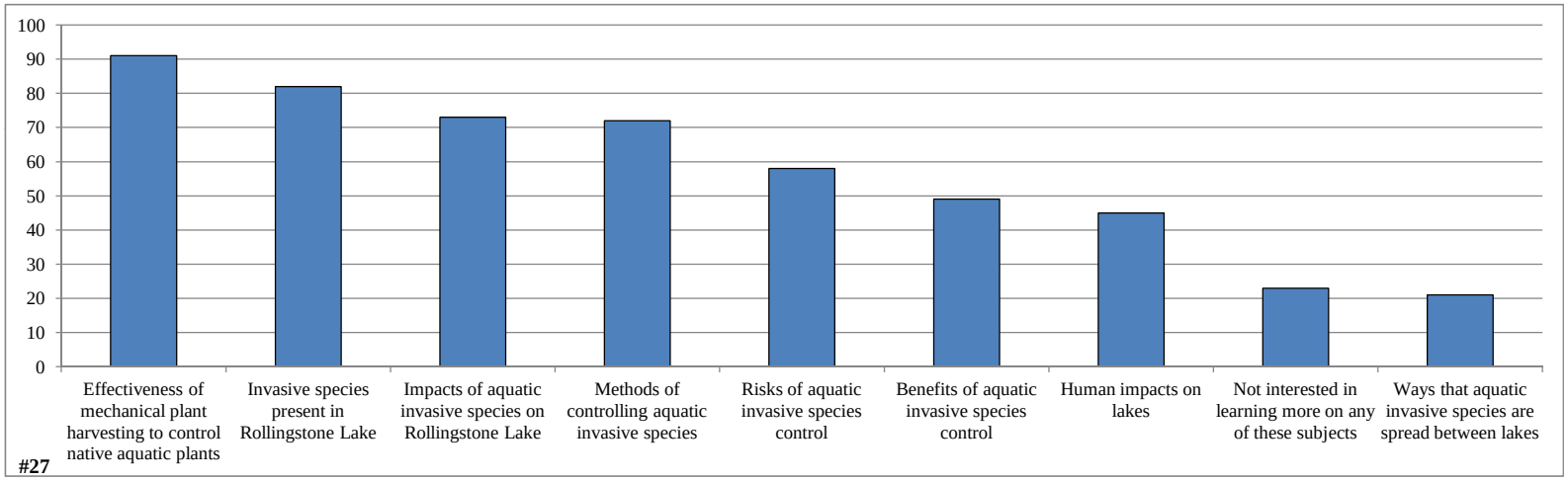
#26 What is your level of support for the responsible use of the following techniques on Rollingstone Lake?

	1-Not	2	3-Moderate	4	5 -High	Unsure - need more info	*Total*	*Average*
Mechanical harvesting	12	8	21	35	81	16	*157*	*4.1*
Dredging of bottome sediments	16	11	29	25	54	34	*135*	*4.0*
Integrated control using many methods	12	5	35	30	47	41	*129*	*3.7*
Manual removal by property owners	25	15	43	27	26	31	*136*	*3.1*
Biological control	24	8	41	22	20	52	*115*	*3.1*
Herbicide (chemical) control	44	14	27	27	17	39	*129*	*2.7*
Hand-removal by divers	37	20	35	12	14	48	*118*	*2.5*
Water level drawdown	79	18	19	3	10	40	*129*	*2.0*
Do nothing (do not manage plants)	109	8	9	4	5	31	*135*	*1.4*



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

	Total
Effectiveness of mechanical plant harvesting to control native aquatic plants	91
Invasive species present in Rollingstone Lake	82
Impacts of aquatic invasive species on Rollingstone Lake	73
Methods of controlling aquatic invasive species	72
Risks of aquatic invasive species control	58
Benefits of aquatic invasive species control	49
Human impacts on lakes	45
Not interested in learning more on any of these subjects	23
Ways that aquatic invasive species are spread between lakes	21

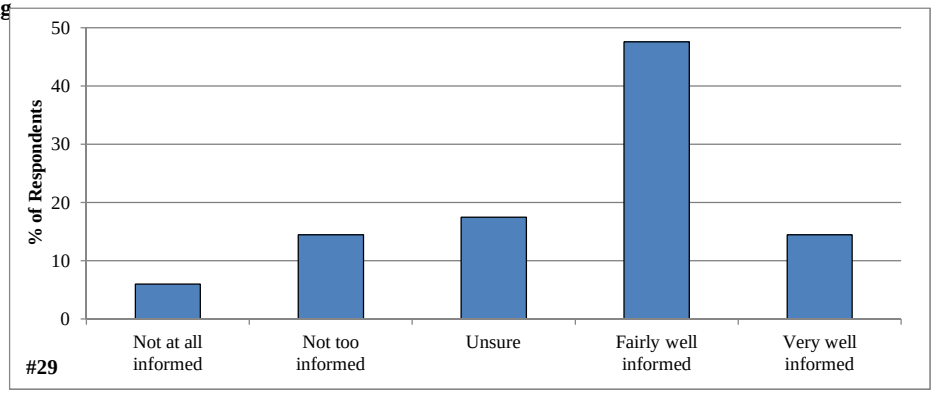


#28 Before receiving this mailing, have you ever heard of the Rollingstone Lake P & R District?

	Total	%
Yes	166	*90.7*
No	17	*9.3*
	183	*100.0*

#29 How informed has the Rollingstone Lake P & R District kept you, regarding issues with Rollingstone Lake and its management?

	Total	%
Not at all informed	10	*6.0*
Not too informed	24	*14.5*
Unsure	29	*17.5*
Fairly well informed	79	*47.6*
Very well informed	24	*14.5*
	166	*100.0*

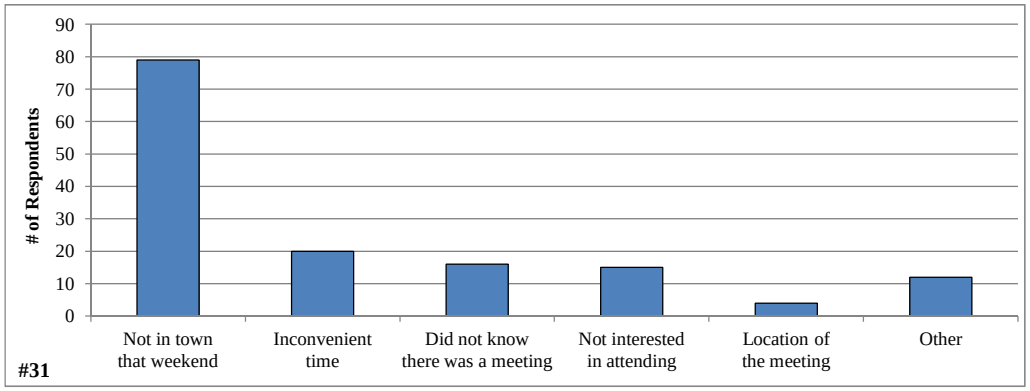


#30 Did you attend the Rollingstone Lake P & R District meeting on Memorial Day weekend?

	Total
Yes	34
No	135

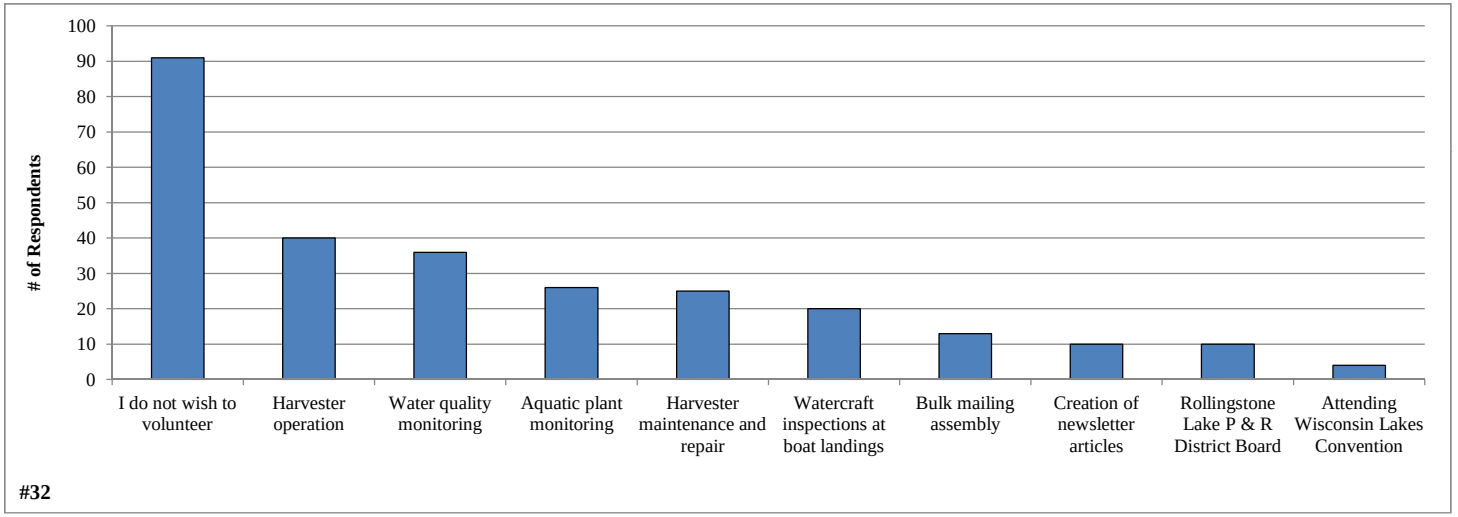
#31 If you did not attend the Memorial Day weekend meeting, what is the reason you chose not to attend?

	Total
Not in town that weekend	79
Inconvenient time	20
Did not know there was a meeting	16
Not interested in attending	15
Location of the meeting	4
Other	12



#32 Please circle the activities you would be willing to participate in if the Rollingstone Lake P & R District requires additional assistance

	Total
I do not wish to volunteer	91
Harvester operation	40
Water quality monitoring	36
Aquatic plant monitoring	26
Harvester maintenance and repair	25
Watercraft inspections at boat landings	20
Bulk mailing assembly	13
Creation of newsletter articles	10
Rollingstone Lake P & R District Board	10
Attending Wisconsin Lakes Convention	4



Survey Number	General Comments
1	I used to operate the harvester when we first started also helped Walleye raise teh money for the first harvester. Through out the years after others didn't get involved things changed but so do times. 4) None
2	
3	Am only there on weekends. Not sure what could help with. 1) Seasonal, winter
4	Own forest land on the west side of HY 55. Also own a summer cottage on Pickerel Lake. My only concern about Rollingstone is how it might impact Pickerel. I have been connected with this area for over 50 yrs. 1) Other warm seasons 14) Dredge lake 15) Low lake water 23) A lot of iron in the lake water which stains my boat hull
5	Get rid of the weed spreader (harvester) and try something that might work, like dredging, herbicide or anything else that stops spreading weeds all over the lake.
6	The lake is a big pond and is shallow - weeds will always be present and are a reason the lake does not have a lot of jet skis and water skiing - which is nice. The fishing seems to be fairly stable, and the lake itself seems healthy. Recently, we have had clear clean lake water, but in years past we have had some really bad algea blooms and/or fish kills (one spring) that make the lake very unusable.
7	23) Motor size HP
8	Would biological control of plant life cause any future problems in other areas. Like the saying goes - if the disease doesn't kill you, the cure will. I am all for ridding the lake of the weeds that are chocking everything out, but don't want to lose the fishing quality we have or once had.
9	Overall happy with Rollingstone Lake. However, would like to see the weed harvester in the west bay.
10	23) Low water level
11	
12	We are 81 yrs old - to old to operate the harvester, but 2 years ago, I took 10 loads of weeds out alone. We did our share over the 22 yrs since we retired here. 23) Large motor boats
13	
14	23) Removal of dams inlet & outlet, ski boat traffic
15	I hope that the $10,000 we paid to do a lake study so we could continue the harvester program was better spent than to just do this mailer. Why has this study been so unavailable to the public and lake property owners? No one seems to know what is going on with this project. We need to know who to go to to get some answers as to the progress of this study. I thought we were supposed to get options/results of study re: run-off, what is coming in the lake from streams, dredging options, etc. Nothing - it's a big secret. 23) Lack of walleye stocking 22) lack of walleye stocking - there are some existing walleye populations from previous stocking - big fish, but few. Need to resume walleye stocking.
16	Thank you for your efforts. We look forward to more info and improved lake quality
17	
18	23) Boat traffic thru AIS
19	
20	

Survey Number	General Comments
21	
22	
23	1) Uses 8 months of year round
24	
25	
26	I'm willing to help when around. 16) North atmosphere
27	I have been here 26+ years. I'm ashamed to invite anyone to visit. The water in the summer stinks. I only took my pontoon out once last year, the weeds are so thick the motor can't run. My kids won't come here because grandkids can't swim. Property values are taking a hit. Who wants to own lake property that you can't swim in, or go boating. Good luck. Thanks for trying and all your effort. 27) Not sure of names
28	Our property is not on the lake. We have enjoyed the lake for years and hope to for years to come. Maybe we have a little different perspective, since our property is not on the water, but we hope the lake continues to improve for the future.
29	We are charter members of the association, both in our late 70's and not of too good health, but have supported the association financially when asked.
30	
31	
32	14) Dredging
33	
34	
35	
36	
37	
38	
39	Am 86 years old - don't use the lake. 1) Not on lake
40	Does not apply to us - we don't use the lake.
41	
42	
43	It seems the harvesting is replanting the weeds on the north side. Could not run pontoon boat for the last 4 years on the north end of the lake. No harvester even came on the north end of the lake in 2009.
44	
45	
46	I live in Lincoln Co and rarely go over there except for a few times fishing. I was raised on the lake in the 50's. It has went down hill ever since.
47	
48	For over 50 years I have seen the lake become weedier and have noticed the influx of fishermen to the point of over fishing. I strongly believe many are over fishing the lake. Further, I have experienced the days of limiting out on walleyes on any given night and now you can't even get one during evening fishing. Where is the DNR on stocking walleye if the lake doesn't naturally reproduce? We are paying taxes and fees to support such a basic service!!!
49	

Survey Number	General Comments
50	My biggest concern is the weed abundance. We have owned the property 2 years and have seen the harvester on our side of the lake once - when a volunteer was harvesting in front of his own property. We need to get aggressive on this topic before we all own property that is either swamp or a field. We've all seen it happen to neighboring lakes - the water level drops as the weeds take over - soon no lake. Increase my taxes if we need to pay someone to run the harvester or other methods to ensure we don't loose this battle. Thank you.
51	
52	We have been on lake a long time since 1951. The lake was not as weedy, the size of northern were bigger. Walleye and musky were more common. Bass and panfish has taken off greatly. As an avid sportsman, I'm wondering why northern are snakes, walleye and musky have disappeared, lake has gotten very weedy. There used to be a dam on south side of lake, with this being gone is this why lake has become so weedy? I would like to see big game fish take back off like the panfish are. Does the septic changes have an effect on the lake being weedy? I have also noticed a tremendous amount of non-lake owners using lake, possibly in my eyes over fishing lake.
53	
54	I think we need some rules on personal watercraft, AKA jet skis, on the lake. They are starting to become a pain. Also, we need noise rules for large campgrounds from broadcasting loud music into the night.
55	
56	Unfortunately, our current schedules do not allow us enough time to spend on our property or volunteering.
57	
58	Plan on moving up 2-3 years, maybe then.
59	The weed harvester is wore out. The muck in the lake is terrible - we can't go swimming - can't even walk in the water to get the dock in and out - without getting your feet sucked in. We have removed what we could for 10 summers - using a rake, a metal plate & a wheel barrow - did not do any good - more drifted in from next door. We have to go to different lakes to go swimming and it is a big pain. We have to be careful if the grandkids or other little ones are on the dock - because if they would fall in they definitely would get sucked into the muck. This lake used to be 25 feet deep and now it's 12 or 13 feet deep. What's the use of paying higher taxes for living on the lake - when all you can do is fish? Hardly anybody goes waterskiing or tubing, etc. Even going out or coming in to shore with the boat - the motor gets clogged because of the muck.
60	16) Timber
61	The only thing wrong with fishing is the lack of walleyes that cannot spawn due to the sludge in Pickerel Creek. The weed situation has improved over the last 35 years when we first started RSLP&R. The water is clear and we have new fresh water sponges, darters and loons we didn't have years ago.
62	1) Summer weekends
63	
64	
65	When we get closer to retirement we would be glad to help with different things, but not at this time.
66	
67	Park the weed harvester. You can only harvest in front of your property if you run the harvester - good old boys club. Don't want all the weed bogs left from harvest operation. Park the harvester.
68	

Survey Number	General Comments
69	
70	
71	
72	We feel that the district should be made up of only properties that are actually on the lake. We live miles from the lake and yet have to pay for it. We are closer to Pickerel Lake. We pay enough in state taxes to help out. We should not have to pay more just because someone that lives on the lake does not want to. Put the cost on those that live on and use it the most. After attending the meetings I have this comment: Find people that know state statutes and how they relate to running the meetings - Most of the meetings are illegal and could pose some problems down the road. It's not enough to volunteer because you care, if you care enough to volunteer you should care enough to do it correctly. 23) Taxes
73	Good job committee members. Just what I hoped to see.
74	Too much of the "harvested weeds" end up floating around the lake and not in the harvester.
75	
76	
77	
78	
79	
80	
81	
82	
83	
84	31) Work all weekends
85	Thanks for the survey!!! Please get whatever you need from the residents/landowners to further improve this beautiful lake and watershed. It is a far too important resource to mismanage.
86	We enjoy boating, but have never put our boat in Rollingstone Lake - due to a poor boat ramp and parking and also the weeds. 23) Boat ramp 31) Family conflict
87	
88	When we retire I will volunteer for the above items. Our time is very limited up north and try to enjoy as the time comes. My job today is traveling all week and very limited on spare time on weekends. 22) Continued expansion trailer parks
89	While the aquatic weeds are probably worse than when we first bought on the lake, there hasn't been the huge masses of floating weeds that used to clog the shoreline and our docks. We enjoy fishing and while I rated the lake "fair" for fishing there are times yet (especially spring) when anybody can catch panfish on the lake. You can tell by the number of boats that are out on the lake. Last spring there were a number of violators during this time and the wardens were notified to check it out. The panfishing is nothing like it was when we first came here, just 14 years ago. I believe it will continue to deteriorate under the current conditions and pressure.
90	Doesn't cutting weeds make them grow more (like cutting grass?) Should be pulled out by the roots? Who pays for divers to hand remove? Taxes are high enough. We who are retired are on fixed income.
91	
92	

Survey Number	General Comments
93	I have concerns on the oxygen levels in late winter. Last year I felt was worse than this year. I believe we should look at some type of air compressor system to raise the levels in the winter. 22) Low oxygen level late winter before thaw
94	
95	Both of us volunteered before, but are too old to continue. There is a lot of favoritism on the Board. Also feel that the people who run the annual picnic should be honored and recognized for their contributions - they are a rare group! There should be a training class or two for those who run the weeder equipment, we know all people can't come to just one class, so a couple should be scheduled. Also there are other shorelines besides the north and east ends.
96	Extremely weedy lake. Not certain how you can harvest the shorelines. I just feel that boaters and fishermen should have to be fifty feet or more from peoples private piers to respect the privacy of the lake property owners, especially when you want to sit on a bench on your pier in the early morning with a nice cup of coffee, or want to enjoy a peaceful quiet lake, just hearing the loons or watching the eagles soar above the lake. Those are a lot of what I enjoy. 23) Fishermen respecting lake property owners
97	
98	I know that years ago, this was a fine fishing lake,now it is filled with slimy looking weeds on shore and in the center of the lake. These weeds need to be replaced with native plants, then replace the walleyes that I heard once a part of Rollingstone lake.
99	The points I would like addressed - the need to have a boat launch fee to maintain the launch, and keep the traffic down on the lake. The fishing pressure needs to be relieved. I would like to know more about dredging/sludge pumping to improve the lake bottom and weed population. Reduce the northern population.
100	I believe the lake itself is better than it was 17 years ago,but it would be better if we could harvest or manage weedcutting better. I would be willing to pay additional money and suggest hiring a crew of 2-3 employees to operate and haul weeds weekly. This cost could be shared by the district residents and I don't think it would be that big a cost for each district property owner. Also, we have less fishing pressure now than we did years ago and I have noticed the size of the bluegills seems to be smaller, could they be a little stunted? I don't believe its from fishing pressure or over harvesting. I still catch as many or more fish than years ago but not as many big ones, maybe it's a cycle, I don't know. Thanks you for your help and work on this project.
101	
102	
103	31) Live out of state
104	I don't fish the lake. I just visit a few times a year.
105	
106	I ice fish during the months of Jan -Feb - March, (weekends). I plan to spend a significant amount of time on our property this summer. Please feel free to contact me. If I can help I will. Thanks for your concern.
107	
108	Some years back I did harvest weeds on Rollingstone Lake. However, because merely cutting off the weeds still does not totally remove the roots, which I believe must be removed totally to insure no new regrowth of weeds. Thank you.
109	I use my place for 4 wheelers and snowmobiling only.

Survey Number	General Comments
110	We would like to see the lake dredged. We have not found an area that does not have muck and weeds which makes it almost impossible to jump in for a swim on hot days. 14) Dredging lake 23) Lowering lake
111	
112	This is a great lake, the weeds need to stay to protect the fish. They need very little control, the weed harvester is doing OK.
113	
114	23) Excessive taxation of people who neither live on nor use your lake
115	
116	14) Taxes
117	
118	
119	
120	1) Camper with electric 31) Health problems
121	In 1968 we came to Rollingstone Lake.We liked the north woods and we liked to fish. We built a cabin on a lot on Walleye Rd. In 1975 we bought a lot on the lake. We became involved in fund raisers to help make the lake less weedy. The fish had become smaller in size. In the 80's we donated an amount to help pay for the first harvester, they didn't have too many volunteers at that time. In the late 80,s we retired and became the chairman of the P & R district. We bought a new weed harvester and with all the volunteers that were asked to help, we were making progress cleaning up the lake and fishing became quite good. Next we started to get the people to clean up their septic systems. The people got new systems and holding tanks. Everything was going good. The DNR let us spray purple loosestrife. Mole Lake Indians planted wild rice. We monitored the water quality of the lake for the DNR for many years. We kept track of the loons. In the middle 90's I had to quit the chairman job because of my health, the next chairman didn't ask people to volunteer and he wasn't a go getter and the lake slowly returned to weeds and not taking care of the lake.
122	
123	We currently have our home for sale on Rollingstone Lake because the lake is so full of weeds. It's to the point you cannot go for a pontoon ride without stopping multiple times to get the weeds off the motor. The kids don't want to swim or fish because of the weed problem. We are finding it hard to sell because people ask about the water quality and depth of the lake. It's a shame because we love it up here.
124	Weed harvesting has been used on Rollingstone for many years. The volunteers have worked tirelessly to try to control the weed overgrowth with little results. A multi step approach needs to be used to control these weeds. A plan should be implemented to control small sized pan fish. Suggest catch & release of game fish for 3 plus years to help control panfish and increase trophy fishing for the future of our children and their children.
125	31) We were out of state
126	
127	

Survey Number	General Comments
128	I answered question with "I do not wish to volunteer" because I do not know enough about the answers possible for question 32. I do know that the lake management is a difficult job because it deals with private citizens around the lake, their property, etc., and the rest of the public that might use the lake. I have fished the lake in the winter, spring, summer and fall. I think it is a wonderful lake and is abundant with panfish. The weeds do become horrendous by late summer, though. Providing education to the public as in billboards, signs, etc., at the landing and garbage cans will help with the cleanliness of the lake. A "pay and spray" boat and trailer wash might be nice to remove plants, etc. Signs to educate the public may work. Post meeting minutes, lake study results, etc. Post help wanted signs for workers, etc. Landowners must remember also that they do not own the water, they just live there. Tourists provide many things to our community, some good, some bad, but it seems that the worst offenders of our lands are people who live in the area.
129	
130	
131	1) Wooded property not directly on lake
132	In general, the Rollingstone P&R District has made positive changes to the quality of Rollingstone Lake. During the 1980's, I remember weeds accumulating along the shore that extended well past the ends of all the docks. Now, the loose floating weeds are still present, but not nearly what it used to be. I feel the greatest impact to the overall quality of the lake was the elimination of failing septic systems around the lake.
133	Since my first husband passed away 13 years ago we do not use the lake at all. My present husband is elderly and still very active but could not help with the above activities. We are not up there that often, mostly to mow and check things. Been trying to sell the cottage. Getting to be too much work and having to go up all the time. Do not enjoy it anymore. Too many years up there.
134	I have had a cottage on Rollingstone for 46 years. My wife, mother and stepfather also live on the lake.
135	Not at the lake enough to volunteer. 23) Need more fish less weeds
136	
137	14) Weed control
138	Many years ago my shoreline was clean and clear, having a sandy bottom. Now I do not have a shoreline due to vegetation. The plants go from shore to about 30-40 foot out. The bottom is all muck.
139	Leaving weed lines in certin places in lake should be left alone.
140	We just started camping on Rollingstone 2 years ago. Fishing is great in spring but the weeds by mid summer are so thick your boat can hardly move. The algea seems to get quite bad. We don't know a lot about the P&R group but would like to learn more and would like to donate to the garage sale especially. 31) Ill
141	
142	
143	
144	Rollingstone Lake is pretty weedy. The kids go to another lake to swim because of this. It has gotten better if the weed chopper keeps up.

Survey Number	General Comments
145	As for question 12 -boat launching - What about the people who live around Rollingstone Lake, own their trailer, pay taxes, pay rent on the land, but have no pier. I could see a small nominal fee for these people from May to the end of October. These people are forced to launch their boat each time they go out to fish. People with piers have their boat at the pier the entire summer. 31) Never know when we come up
146	Rollingstone Lake is a great resource that we have in NE Wisconsin. I understand that it has received a lot of pollution from septic systems in the past. I also realize that as the lake becomes more developed, the shoreline vegitation is cleared which allows more rain to come to the ground and create more erosion potential. Excavation for new roads, driveways and foundations also create problems. We really need to safeguard the natural resources surrounding this lake and prevent it from looking like a golf course. This lake is shallow enough already and it will only get shallower if we don't prevent it from becoming silted in.
147	
148	
149	
150	
151	
152	
153	
154	
155	I have been told in the past Rollingstone was a good walleye lake to fish. I haven't caught one in all the years I have fished the lake or heard of anyone catching one. Get the lake weeds under control to make this lake better. 31) Live too far away
156	
157	
158	
159	There is no change without change. As long as the same people stay in power (board members) nothing will change. Term limits are necessary. 22) Water depth
160	We would like that our septic systems should be checked out more often for things like tank cracks, ground run off, leaks, and our main concern at this time are the weeds in our lake. Way too many weeds in the lake. 22) Too many weeds in water
161	
162	
163	Very sick the last 2 years. Can't stay out of the hospital.
164	
165	
166	1) Supporter not in district
167	
168	
169	
170	When I retire I would be more interested in helping in different chores or needs.
171	
172	31) Had to work that weekend

Survey Number	General Comments
173	1) Whenever we want throughout the year 14) Only for people not on the lake 23) 2 feet of muck
174	
175	From what I heard, the dam needs to be changed. The lake has an enormous amount of silt on the bottom. Some sort of bottom discharge dam would allow the incoming silt to leave the lake. Without this the lake will continue to fill up and get shallow. Eventually, Rollingstone will turn into a bog. I hear all the walleye stories from years past and truly believe that the current condition of the lake that the walleyes won't survive and never reproduce. Thank you for your work and interest in our lake!
176	Many issues of this letter don't concern me because I live off the lake. I answered to the best of my ability. Thank you for this info anyway.
177	
178	23) Would like to be able to have a sandy beach for children to go swimming
179	The weed harvester you have used in the past 30 plus years has been a waste of time and money. Trimming weeds does not accomplish a single thing. The southern 50% of the lake is nothing short of a weed infested wasteland including any part of the lake under 5 feet deep or less. The DNR has barges and the machine that sucks the silt from the bottom of lakes. Rolling stone needs to be cleaned of silt and/or restructured. You don't have to do 100% of the lake, but something must be done to clean and restructure the lake. Anything short of this is a waste of time and money.
180	I think it would be great if they would allow persons that own camp grounds to put in sand or whatever it takes to make a beach for children to go swimming and something to do.
181	We've been going to this lake for 53 years. Water quality and levels are my most concern. I remember when water levels were up and less vegetation and clearer water, better fishing. Maybe install some type of dam to help control a little more water to the lake. There use to be a dam!!!
182	Have fished Rollingstone Lake for many years - approx 40. What happened to the lake the last 5 years? Too much algae and weeds. I can remember 26" walleyes and 32" northerns. Some of the pan fish last year were not healthy. Appears to be an abundance of them. Twenty years ago the algea bloom didn't become a problem until the first part of August. Today it happens the end of June. No fertilizer should be used on the lawns. Lets protect our resources !!
183	In my opinion its sewage that caused this mess that this lake is faced with. The weeds and the silty bottom need to be dealt with before the lake fills in to the point of becoming a marsh and not navigatable by anything but airboats. PS - thanks for asking for my views. 23) Septics caused this mess. 40 years ago that lake was clean with only a few weed beds. Now all weeds and bottom is 2'-4' or more of mushy silt. The lake needs to be dredged to eliminate this, then clean up septics.
184	
185	Water quality is the main concern; property on or near the shore is mainly impacted. We would also like to see the walleye stocking start up again. Water skiing/tubing activities are very important.
186	
187	

Survey Number	General Comments
188	(No survey filled out by this person) I live over 5 miles away from Rollingstone. I don't care what happens on the lake. I don't use it, don't fish it, frequent the resorts, swim, boat or do anything else concerning the lake. All I do is get slapped with an addition to my property taxes to help pay for the lake district. As far as any business generated by tourists using the lake, that only effects that Hwy 55 where I live is so busy you can't cross the road. You could better serve the district if you would have listened to some of us 20 years ago when we warned that houses on the lake were draining their sewage into the lake.
189	(Survey not filled out) Regarding Rolling Stone Lake, I'll give you my 2 cents worth, if it matters. I am the second generation up their (sp) & my Dad and his friends fished that lake without any complaints. This may have been done in the 40's and 50's. I do not fish, I do not have the time or major interest. You and others do more worrying about the condition of that lake, than what I believe is necessary. Everybody in the area is going "overboard" to create a "perfect lake" and you're just fighting nature. There is no perfect lake and Rolling Stone has survived since the planet was created. You can continue to cut weeds and do this and that, but it's still an on-going battle with nature. How about one really nice sandy beach! With the resorts on that lake their (sp) isn't one nice beach on that lake! If money continues to be spent on that lake, don't you think people deserve some decent beaches? I'm sure some of the money from property taxes is some way involved with the maintenance/upkeep of the lake. I travel an extra 10 miles and go to Crystal lake, as it has a sandy bottom, clean water and warms up nicely in summer. I've never seen a weed cutter on that lake and it seems to be doing fine. Should I say "keep up the good work", as I'm sure it will continue to go on forever!? Good luck fighting Mother Nature, but I know you can't win!

C

APPENDIX C

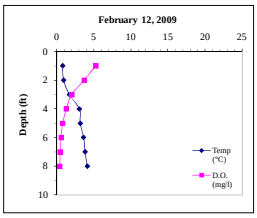
Water Quality Data

Rolling Stone

Date: 02-12-09
Time: 10:45
Weather: Mostly Cloudy, Breezy, 33 F
Ent: BTB **Verf:**

Max Depth (ft): 9.4
RSLS Depth (ft): 3.0
RSLB Depth (ft): 8.0
Secchi Depth (ft): 7.9

Depth (ft)	Temp (°C)	D.O. (mg/l)	pH	Sp. Cond (µS/cm)
1.0	0.8	5.2	7.2	232
2.0	0.9	3.7	7.0	224
3.0	1.7	2.0	6.9	261
4.0	3.1	1.3	6.8	276
5.0	3.2	0.8	6.6	279
6.0	3.6	0.6	6.6	280
7.0	3.8	0.5	6.5	288
8.0	4.1	0.4	6.5	282



Parameter	RSLS	RSLB
Total P (µg/L)	41.000	48.000
Dissolved P (µg/L)	7.000	6.000
Chl a (µg/L)	NA	NA
TKN (µg/L	960.00	1100.00
NO3+NO2-N (µg/L)	ND	ND
NH3-N (µg/L)	290.000	295.000
Total N (µg/L)	960.00	1100.00
Lab Cond. (µS/cm)	NA	NA
Lab pH	NA	NA
Alkal (mg/l CaCO3)	NA	NA
Total Susp Sol (mg/l)	8	10
Calcium (mg/l)	NA	NA

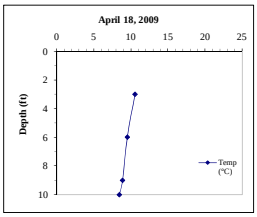
Data collected by EJH and SNR (Onterra)

Rolling Stone

Date: 04-18-09
Time:
Weather:
Ent: BTB **Verf:**

Max Depth (ft):
RSLS Depth (ft):
RSLB Depth (ft):
Secchi Depth (ft): 7.3

Depth (ft)	Temp (°F)	Temp (°C)	pH	Sp. Cond (µS/cm)
3.0	48.9	10.6		
6.0	47.2	9.5		
9.0	46.2	8.9		
10.0	45.5	8.4		



Parameter	RSLS	RSLB
Total P (µg/L)	21.000	NA
Dissolved P (µg/L)	NA	NA
Chl a (µg/L)	NA	NA
TKN (µg/L	NA	NA
NO3+NO2-N (µg/L)	NA	NA
NH3-N (µg/L)	NA	NA
Total N (µg/L)	NA	NA
Lab Cond. (µS/cm)	NA	NA
Lab pH	NA	NA
Alkal (mg/l CaCO3)	NA	NA
Total Susp Sol (mg/l)	NA	NA
Calcium (mg/l)	NA	NA

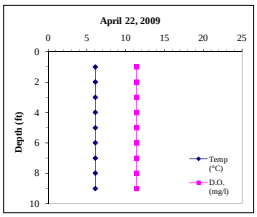
Data collected by: Matthew F. Kerzisnik, Jerry Mijal, Vern Rusch, Sonny Wreczycki (Rolling Stone Lake CLMN)

Rolling Stone

Date: 04-22-09
Time: 11:00
Weather: Mostly Cloudy, Breezy, 43 F
Ent: BTB **Verf:**

Max Depth (ft): 9.7
RSLS Depth (ft): 3.0
RSLB Depth (ft): 8.0
Secchi Depth (ft): 6.5

Depth (ft)	Temp (°C)	D.O. (mg/l)	pH	Sp. Cond (µS/cm)
1.0	6.1	11.4	8.2	180
2.0	6.1	11.4	8.2	182
3.0	6.1	11.4	8.2	182
4.0	6.1	11.4	8.0	181
5.0	6.1	11.4	7.9	182
6.0	6.1	11.4	7.9	182
7.0	6.1	11.4	7.9	182
8.0	6.1	11.4	7.9	182
9.0	6.1	11.4	8.0	182



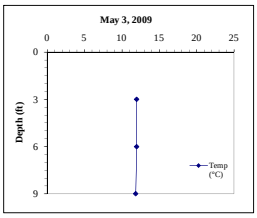
Parameter	RSLS	RSLB
Total P (µg/L)	21.000	24.000
Dissolved P (µg/L)	ND	ND
Chl a (µg/L)	6.04	NA
TKN (µg/L	530.00	460.00
NO3+NO2-N (µg/L)	ND	ND
NH3-N (µg/L)	ND	ND
Total N (µg/L)	530.00	460.00
Lab Cond. (µS/cm)	189	189
Lab pH	8.61	8.63
Alkal (mg/l CaCO3)	93	93
Total Susp Sol (mg/l)	ND	ND
Calcium (mg/l)	22.3	NA

Data collected by: Tim Hoyman (Onterra)

Rolling Stone

Date: 05-03-09 **Max Depth (ft):**
Time: **RSLS Depth (ft):**
Weather: **RSLB Depth (ft):**
Ent: BTB **Verf:** **Secchi Depth (ft):** 8.0

Depth (ft)	Temp (°F)	Temp (°C)	pH	Sp. Cond (µS/cm)
3.0	51.2	12.0		
6.0	51.2	12.0		
9.0	51.0	11.9		



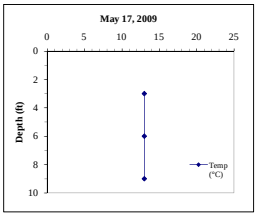
Parameter	RSLS	RSLB
Total P (µg/L)	NA	NA
Dissolved P (µg/L)	NA	NA
Chl a (µg/L)	NA	NA
TKN (µg/L	NA	NA
NO3+NO2-N (µg/L)	NA	NA
NH3-N (µg/L)	NA	NA
Total N (µg/L)	NA	NA
Lab Cond. (µS/cm)	NA	NA
Lab pH	NA	NA
Alkal (mg/l CaCO3)	NA	NA
Total Susp Sol (mg/l)	NA	NA
Calcium (mg/l)	NA	NA

Data collected by: Matthew F. Kerzisnik, Jerry Mijal (Rolling Stone Lake CLMN)

Rolling Stone

Date: 05-17-09 **Max Depth (ft):**
Time: **RSLS Depth (ft):**
Weather: **RSLB Depth (ft):**
Ent: BTB **Verf:** **Secchi Depth (ft):** 9.0

Depth (ft)	Temp (°F)	Temp (°C)	pH	Sp. Cond (µS/cm)
3.0	52.8	13.0		
6.0	52.8	13.0		
9.0	52.8	13.0		



Parameter	RSLS	RSLB
Total P (µg/L)	NA	NA
Dissolved P (µg/L)	NA	NA
Chl a (µg/L)	NA	NA
TKN (µg/L	NA	NA
NO3+NO2-N (µg/L)	NA	NA
NH3-N (µg/L)	NA	NA
Total N (µg/L)	NA	NA
Lab Cond. (µS/cm)	NA	NA
Lab pH	NA	NA
Alkal (mg/l CaCO3)	NA	NA
Total Susp Sol (mg/l)	NA	NA
Calcium (mg/l)	NA	NA

Data collected by: Matthew F. Kerzisnik, Jerry Mijal (Rolling Stone Lake CLMN)

Rolling Stone

Date: 05-31-09 **Max Depth (ft):**
Time: **RSLS Depth (ft):**
Weather: **RSLB Depth (ft):**
Ent: BTB **Verf:** **Secchi Depth (ft):** 9.0

Data collected by: Matthew F. Kerzisnik, Jerry Mijal (Rolling Stone Lake CLMN)

Rolling Stone

Date: 06-13-09 **Max Depth (ft):**
Time: **RSLS Depth (ft):**
Weather: **RSLB Depth (ft):**
Ent: BTB **Verf:** **Secchi Depth (ft):** 9.0

Parameter	RSLS	RSLB
Total P (µg/L)	NA	NA
Dissolved P (µg/L)	NA	NA
Chl a (µg/L)	NA	NA
TKN (µg/L	700.00	NA
NO3+NO2-N (µg/L)	ND	NA
NH3-N (µg/L)	27.000	NA
Total N (µg/L)	700.00	NA
Lab Cond. (µS/cm)	NA	NA
Lab pH	NA	NA
Alkal (mg/l CaCO3)	NA	NA
Total Susp Sol (mg/l)	NA	NA
Calcium (mg/l)	NA	NA

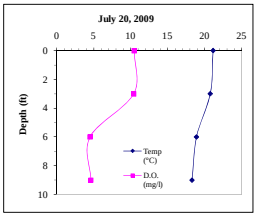
Data collected by: Matthew F. Kerzisnik, Jerry Mijal (Rolling Stone Lake CLMN)

Rolling Stone

Date: 07-20-09
Time:
Weather:
Ent: BTB **Verf:**

Max Depth (ft): 9.0
RSLS Depth (ft): 0.0
RSLB Depth (ft): 9.0
Secchi Depth (ft): 2.5

Depth (ft)	Temp (°C)	D.O. (mg/l)	pH	Sp. Cond (µS/cm)
0.0	21.1	10.5	9.1	133
3.0	20.8	10.4	9.1	133
6.0	18.9	4.5	8.9	133
9.0	18.3	4.6	8.4	135



Parameter	RSLS	RSLB
Total P (µg/L)	58.000	NA
Dissolved P (µg/L)	NA	NA
Chl a (µg/L)	43.00	NA
TKN (µg/L	1350.00	NA
NO3+NO2-N (µg/L)	ND	NA
NH3-N (µg/L)	NA	NA
Total N (µg/L)	1350.00	NA
Lab Cond. (µS/cm)	NA	NA
Lab pH	NA	NA
Alkal (mg/l CaCO3)	NA	NA
Total Susp Sol (mg/l)	NA	NA
Calcium (mg/l)	23.0	NA

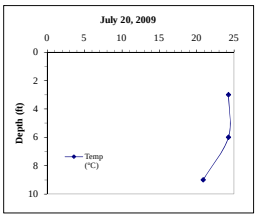
Data collected by: Kyle McLaughlin (WDNR)

Rolling Stone

Date: 07-20-09
Time:
Weather:
Ent: BTB **Verf:**

Max Depth (ft):
RSLS Depth (ft):
RSLB Depth (ft):
Secchi Depth (ft): 2.5

Depth (ft)	Temp (°F)	Temp (°C)	pH	Sp. Cond (µS/cm)
3.0	70.8	24.3		
6.0	70.8	24.3		
9.0	65.4	20.9		



Parameter	RSLS	RSLB
Total P (µg/L)	NA	NA
Dissolved P (µg/L)	NA	NA
Chl a (µg/L)	46.600	NA
TKN (µg/L	1820.000	NA
NO3+NO2-N (µg/L)	ND	NA
NH3-N (µg/L)	16.000	NA
Total N (µg/L)	1820.000	NA
Lab Cond. (µS/cm)	NA	NA
Lab pH	NA	NA
Alkal (mg/l CaCO3)	NA	NA
Total Susp Sol (mg/l)	NA	NA
Calcium (mg/l)	NA	NA

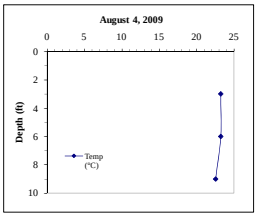
Data collected by: Matthew F. Kerzisnik, Jerry Mijal (Rolling Stone Lake CLMN)

Rolling Stone

Date: 08-04-09
Time:
Weather:
Ent: BTB **Verf:**

Max Depth (ft):
RSLS Depth (ft):
RSLB Depth (ft):
Secchi Depth (ft): 7.0

Depth (ft)	Temp (°F)	Temp (°C)	pH	Sp. Cond (µS/cm)
3.0	69.2	23.3		
6.0	69.2	23.3		
9.0	68.1	22.6		



Parameter	RSLS	RSLB
Total P (µg/L)	NA	NA
Dissolved P (µg/L)	NA	NA
Chl a (µg/L)	NA	NA
TKN (µg/L	NA	NA
NO3+NO2-N (µg/L)	NA	NA
NH3-N (µg/L)	NA	NA
Total N (µg/L)	NA	NA
Lab Cond. (µS/cm)	NA	NA
Lab pH	NA	NA
Alkal (mg/l CaCO3)	NA	NA
Total Susp Sol (mg/l)	NA	NA
Calcium (mg/l)	NA	NA

Data collected by: Matthew F. Kerzisnik, Jerry Mijal (Rolling Stone Lake CLMN)

Rolling Stone

Date: 06-13-09
Time: 8/19/2009
Weather:
Ent: BTB **Verf:**

Max Depth (ft):
RSLS Depth (ft):
RSLB Depth (ft):
Secchi Depth (ft):

Parameter	RSLS	RSLB
Total P (µg/L)	46.000	NA
Dissolved P (µg/L)	NA	NA
Chl a (µg/L)	14.10	NA
TKN (µg/L	NA	NA
NO3+NO2-N (µg/L)	NA	NA
NH3-N (µg/L)	NA	NA
Total N (µg/L)	NA	NA
Lab Cond. (µS/cm)	NA	NA
Lab pH	NA	NA
Alkal (mg/l CaCO3)	NA	NA
Total Susp Sol (mg/l)	NA	NA
Calcium (mg/l)	NA	NA

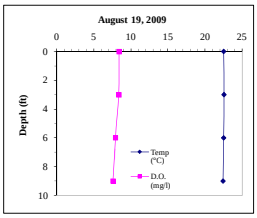
Data collected by: Matthew F. Kerzisnik, Jerry Mijal (Rolling Stone Lake CLMN)

Rolling Stone

Date: 08-19-09
Time:
Weather:
Ent: BTB **Verf:**

Max Depth (ft): 9.0
RSLS Depth (ft): 0.0
RSLB Depth (ft): 9.0
Secchi Depth (ft): 4.8

Depth (ft)	Temp (°C)	D.O. (mg/l)	pH	Sp. Cond (µS/cm)
0.0	22.5	8.4	8.7	135
3.0	22.5	8.4	8.7	135
6.0	22.5	7.9	8.7	135
9.0	22.4	7.6	8.7	135



Parameter	RSLS	RSLB
Total P (µg/L)	51.000	NA
Dissolved P (µg/L)	NA	NA
Chl a (µg/L)	10.90	NA
TKN (µg/L	NA	NA
NO3+NO2-N (µg/L)	NA	NA
NH3-N (µg/L)	NA	NA
Total N (µg/L)	NA	NA
Lab Cond. (µS/cm)	195	NA
Lab pH	8.44	NA
Alkal (mg/l CaCO3)	94	NA
Total Susp Sol (mg/l)	NA	NA
Calcium (mg/l)	NA	NA

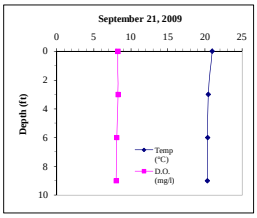
Data collected by: Kyle McLaughlin (WDNR)

Rolling Stone

Date: 09-21-09
Time:
Weather:
Ent: BTB **Verf:**

Max Depth (ft): 9.0
RSLS Depth (ft): 0.0
RSLB Depth (ft): 9.0
Secchi Depth (ft): 10.0

Depth (ft)	Temp (°C)	D.O. (mg/l)	pH	Sp. Cond (µS/cm)
0.0	20.9	8.2	8.6	133
3.0	20.4	8.3	8.8	132
6.0	20.3	8.1	8.8	133
9.0	20.3	8.0	8.8	133



Parameter	RSLS	RSLB
Total P (µg/L)	34.000	NA
Dissolved P (µg/L)	NA	NA
Chl a (µg/L)	7.20	NA
TKN (µg/L	NA	NA
NO3+NO2-N (µg/L)	NA	NA
NH3-N (µg/L)	NA	NA
Total N (µg/L)	NA	NA
Lab Cond. (µS/cm)	NA	NA
Lab pH	NA	NA
Alkal (mg/l CaCO3)	NA	NA
Total Susp Sol (mg/l)	NA	NA
Calcium (mg/l)	NA	NA

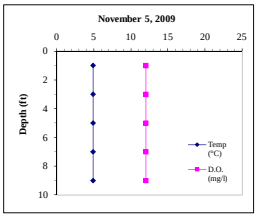
Data collected by: Kyle McLaughlin and Kevin Gauthier Sr (WDNR)

Rolling Stone

Date: 11-05-09
Time: 12:05
Weather: Breezy, 44F, Clear
Ent: BTB **Verf:**

Max Depth (ft): 9.0
RSLS Depth (ft): 3.0
RSLB Depth (ft): 8.0
Secchi Depth (ft): 6.6

Depth (ft)	Temp (°C)	D.O. (mg/l)	pH	Sp. Cond (µS/cm)
1.0	4.9	12.0	8.8	189
3.0	4.9	12.0	8.9	189
5.0	4.9	12.0	8.9	189
7.0	4.9	12.0	8.9	189
9.0	4.9	12.0	8.9	189



Parameter	RSLS	RSLB
Total P (µg/L)	29.000	28
Dissolved P (µg/L)	NA	NA
Chl a (µg/L)	10.60	NA
TKN (µg/L	870.00	NA
NO3+NO2-N (µg/L)	ND	NA
NH3-N (µg/L)	ND	NA
Total N (µg/L)	870.00	NA
Lab Cond. (µS/cm)	NA	NA
Lab pH	NA	NA
Alkal (mg/l CaCO3)	NA	NA
Total Susp Sol (mg/l)	2	3
Calcium (mg/l)	NA	NA

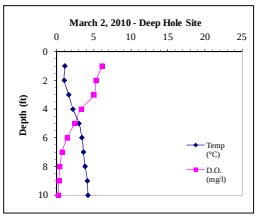
Data collected by: Tim Hoyman (Onterra)

Rolling Stone

Date: 03-02-10
Time: 10:30
Weather: 100% Sun, 25F, calm
Ent: DAC **Verf:**

Max Depth (ft): 10.0
RSLS Depth (ft): -
RSLB Depth (ft): -
Secchi Depth (ft): 2.6

Depth (ft)	Temp (°C)	D.O. (mg/l)	pH	Sp. Cond (µS/cm)
1.0	1.1	6.1	7.5	278
2.0	1.0	5.3	7.5	277
3.0	1.6	5.0	7.5	279
4.0	2.2	3.3	7.4	279
5.0	3.0	2.4	7.3	278
6.0	3.4	1.4	7.3	280
7.0	3.6	0.7	7.2	286
8.0	3.8	0.4	7.2	290
9.0	4.1	0.3	7.2	307
10.0	4.2	0.2	7.2	322



Parameter	RSLS	RSLB
Total P (µg/L)	NA	NA
Dissolved P (µg/L)	NA	NA
Chl a (µg/L)	NA	NA
TKN (µg/L	NA	NA
NO3+NO2-N (µg/L)	NA	NA
NH3-N (µg/L)	NA	NA
Total N (µg/L)	NA	NA
Lab Cond. (µS/cm)	NA	NA
Lab pH	NA	NA
Alkal (mg/l CaCO3)	NA	NA
Total Susp Sol (mg/l)	NA	NA
Calcium (mg/l)	NA	NA

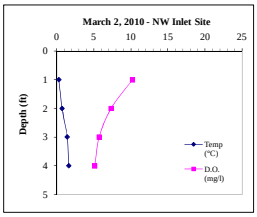
Data collected by: Dan Cibulka and Brenton Butterfield (Onterra) in response to a report of a fish kill in lake. Data taken at the Deep Hole site. Ice depth 1.6 ft.

Rolling Stone

Date: 03-02-10
Time: 10:50
Weather: 100% Sun, 25F, calm
Ent: DAC **Verf:**

Max Depth (ft): 5.5
RSLS Depth (ft): -
RSLB Depth (ft): -
Secchi Depth (ft): 3.0

Depth (ft)	Temp (°C)	D.O. (mg/l)	pH	Sp. Cond (µS/cm)
1.0	0.3	10.2	7.5	228
2.0	0.7	7.3	7.4	228
3.0	1.4	5.7	7.2	246
4.0	1.6	5.1	7.2	252



Parameter	RSLS	RSLB
Total P (µg/L)	NA	NA
Dissolved P (µg/L)	NA	NA
Chl a (µg/L)	NA	NA
TKN (µg/L	NA	NA
NO3+NO2-N (µg/L)	ND	NA
NH3-N (µg/L)	ND	NA
Total N (µg/L)	NA	NA
Lab Cond. (µS/cm)	NA	NA
Lab pH	NA	NA
Alkal (mg/l CaCO3)	NA	NA
Total Susp Sol (mg/l)	NA	NA
Calcium (mg/l)	NA	NA

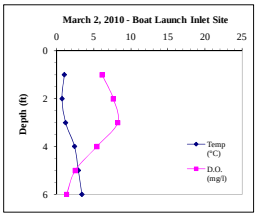
Data collected by: Dan Cibulka and Brenton Butterfield (Onterra) in response to a report of a fish kill in lake. Data was taken in the near the NW inlet of Rollingstone Lake.

Rolling Stone

Date: 03-02-10
Time: 11:15
Weather: 100% Sun, 25F, calm
Ent: DAC **Verf:**

Max Depth (ft): 6.2
RSLS Depth (ft): -
RSLB Depth (ft): -
Secchi Depth (ft): 3.6

Depth (ft)	Temp (°C)	D.O. (mg/l)	pH	Sp. Cond (µS/cm)
1.0	1.0	6.1	7.4	258
2.0	0.7	7.6	7.6	244
3.0	1.2	8.2	7.6	256
4.0	2.4	5.4	7.5	271
5.0	2.9	2.5	7.3	276
6.0	3.4	1.3	7.3	280



Parameter	RSLS	RSLB
Total P (µg/L)	NA	NA
Dissolved P (µg/L)	NA	NA
Chl a (µg/L)	NA	NA
TKN (µg/L	NA	NA
NO3+NO2-N (µg/L)	NA	NA
NH3-N (µg/L)	NA	NA
Total N (µg/L)	NA	NA
Lab Cond. (µS/cm)	NA	NA
Lab pH	NA	NA
Alkal (mg/l CaCO3)	NA	NA
Total Susp Sol (mg/l)	NA	NA
Calcium (mg/l)	NA	NA

Data collected by: Dan Cibulka and Brenton Butterfield (Onterra) in response to a report of a fish kill in lake. Data was taken in the near the Boat Launch inlet on the NE side of Rollingstone Lake.

Water Quality Data

2009	Surface		Bottom	
Parameter	Count	Mean	Count	Mean
Secchi Depth (feet)	11	6.9	NA	NA
Total P (µg/L)	8	37.6	3	33.3
Dissolved P (µg/L)	1	7.0	1	6.0
Chl a (µg/L)	7	19.8	NA	NA
TKN (µg/L	6	1038.3	2	780.0
NO3+NO2-N (µg/L)	6	ND	2	ND
NH3-N (µg/L)	5	111.0	2	295.0
Total N (µg/L)	6	1038.3	2	780.0
Lab Cond. (µS/cm)	2	192.0	1	189.0
Lab pH	2	8.5	1	8.6
Alkal (mg/l CaCO3)	2	93.4	1	93.2
Total Susp Sol (mg/l)	2	5.0	2	6.5
Calcium (µg/L)	2	22.7	NA	NA

Wisconsin Trophic State Index (WTSI)

Year	TP	Chla	SD
1973	58.05		53.08
1974	56.85		54.22
1987			55.44
1988	51.65	52.75	50.23
1989	52.31	49.36	47.04
1990	51.71	49.70	46.46
1991	52.43	50.36	48.65
1992	52.19	48.58	46.70
1993	54.45	51.60	49.99
1994	52.35	47.26	47.06
1995	52.47	45.07	47.44
1996	55.35	49.24	47.26
1997	56.91	50.44	48.29
1998	58.35	56.93	54.48
1999	54.02	49.09	48.67
2000	57.17	53.08	52.32
2001	56.17	48.20	49.28
2002	63.28	59.21	58.46
2003	54.95	50.88	48.12
2004	56.82	54.93	52.21
2005	55.27	51.12	50.96
2006	57.68	56.61	54.91
2007	51.95	55.87	59.96
2008	57.32	51.31	44.98
2009	59.26	61.50	52.95
All Years (weighted)	55.81	52.70	49.79
WI Natural Lakes	53.19	54.23	47.33
Northeast Region	51.05	51.49	45.61

Morphological / Geographical Data

Parameter	Value
Acreage	672
Volume (acre-feet)	4,032
Perimeter (miles)	
Shoreland Development	
Maximum Depth (feet)	12
County	Langlade County
WBIC	389300
Lillie Mason Region(1983)	Northeast Region
Nichols Ecoregion(1999)	NLFF

Watershed Data

WiLMS Class	Acreage	kg/yr	lbs/yr
Forest	5974.5	218	479.6
Open Water	672.0	82	180.4
Pasture/Grass	83.2	10	22.0
Row Crops	-	-	-
Urban - Rural Residential	-	-	-
Wetland	2178.9	88	180.4

Watershed to Lake Area	13:1

	Secchi (feet)				Chlorophyll a (µg/L)				Phosphorus (µg/L)				Phosphorus (µg/L)			
	Growing Season		Summer		Growing Season		Summer		Growing Season				Spring Turnover		Fall Turnover	
Year	Count	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean
1973	2	5.9	1	5.3					1	58	1	46.67				
1974	2	5.35	1	4.9					2	42.5	1	40				
1987	14	6.59	4	4.5												
1988	10	6.98	7	6.46	2	11	2	11	2	20.5	2	20.5				
1989	15	8.2	9	8.06	5	7.2	3	7	4	22.75	3	22.33				
1990	14	8.43	11	8.39	4	6.5	3	7.33	4	19.5	3	20.67				
1991	19	7.59	13	7.21	3	8	3	8	3	22.67	3	22.67				
1992	13	8.25	9	8.25	3	6.31	3	6.31	3	22	3	22				
1993	16	7.42	11	6.57	7	7.92	5	9.44	7	26.29	5	29.4				
1994	15	7.61	6	8.05	8	8.36	6	5.29	8	24.67	6	22.44				
1995	19	7.7	12	7.84	7	5.56	4	3.95	8	23.5	5	22.8				
1996	17	7.68	12	7.94	9	7.97	6	6.89	9	33.33	6	33				
1997	19	7.19	11	7.39	8	9.12	6	8.09	9	40.43	6	40.32				
1998	22	5.43	15	4.81	8	17.01	6	19.23	9	45.22	6	48.5				
1999	19	7.68	11	7.2	7	5.53	5	6.75	8	26.88	5	27.8				
2000	16	6.91	8	5.59	3	9.33	2	11.5	5	36	3	41.67				
2001	18	6.63	12	6.9	3	5.93	2	6	5	36.2	3	36.67				
2002	16	4.03	10	3.65	4	24.11	3	26.05	5	75.6	3	91.33				
2003	16	7.92	10	7.48	4	7.83	3	8.58	6	28.33	3	31.33				
2004	13	6.31	8	5.63	7	13.27	6	14.72	9	35.67	6	39.83				
2005	11	6.68	7	6.14	4	8.41	3	8.85	5	32.2	3	32.67				
2006	4	4.63	3	4.67	3	18.41	3	18.41	4	44.5	4	44.5				
2007	5	4.42	3	3.29	2	16.69	2	16.69	4	30.2	2	21.33				
2008	4	8.15	2	9.3	2	11.14	1	9.08	4	40.5	2	42.5				
2009	17	6.51	10	5.35	4	20.99	2	35.35	5	37.0	2	54.5				
All Years (weighted)		7.0		6.7		10.3		10.9		33.9		35.0				
WI Natural Lakes				7.9				13.4				25				
Northeast Region				8.9				9.3				19				

D

APPENDIX D

Watershed Analysis WiLMS Results

Date: 5/14/2010 Scenario: Rolling Stone Lake Current

Lake Id: Rolling Stone Lake
Watershed Id: 0

Hydrologic and Morphometric Data

Tributary Drainage Area: 8235.0 acre
Total Unit Runoff: 12 in.
Annual Runoff Volume: 8235.0 acre-ft
Lake Surface Area <As>: 672 acre
Lake Volume <V>: 4032 acre-ft
Lake Mean Depth <z>: 6.0 ft
Precipitation - Evaporation: 5.3 in.
Hydraulic Loading: 8531.8 acre-ft/year
Areal Water Load <qs>: 12.7 ft/year
Lake Flushing Rate <p>: 2.12 1/year
Water Residence Time: 0.47 year
Observed spring overturn total phosphorus (SPO): 21 mg/m^3
Observed growing season mean phosphorus (GSM): 36.4 mg/m^3
% NPS Change: 0%
% PS Change: 0%

NON-POINT SOURCE DATA

Land Use	Acre	Low	Most Likely	High	Loading %	Low	Most Likely	High
	(ac)	Loading (kg/ha-year)				Loading (kg/year)		
Row Crop AG	0.0	0.50	1.00	3.00	0.0	0	0	0
Mixed AG	0.0	0.30	0.80	1.40	0.0	0	0	0
Pasture/Grass	83	0.10	0.30	0.50	2.5	3	10	17
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)	0.0	0.05	0.10	0.25	0.0	0	0	0
Wetlands	2178	0.10	0.10	0.10	22.2	88	88	88
Forest	5974	0.05	0.09	0.18	54.8	121	218	435
Lake Surface	672.0	0.10	0.30	1.00	20.5	27	82	272

POINT SOURCE DATA

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

SEPTIC TANK DATA

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

TOTALS DATA

Description	Low	Most Likely	High	Loading %
Total Loading (lb)	528.2	876.1	1790.3	100.0
Total Loading (kg)	239.6	397.4	812.1	100.0
Areal Loading (lb/ac-year)	0.79	1.30	2.66	0.0
Areal Loading (mg/m^2-year)	88.10	146.13	298.61	0.0
Total PS Loading (lb)	0.0	0.0	0.0	0.0
Total PS Loading (kg)	0.0	0.0	0.0	0.0
Total NPS Loading (lb)	468.2	696.2	1190.8	100.0
Total NPS Loading (kg)	212.4	315.8	540.1	100.0

Phosphorus Prediction and Uncertainty Analysis Module

Date: 5/14/2010 Scenario: Rolling Stone Lake Current
Observed spring overturn total phosphorus (SPO): 21.0 mg/m^3
Observed growing season mean phosphorus (GSM): 36.4 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	16	26	53	-10	-27
Canfield-Bachmann, 1981 Natural Lake	16	24	43	-12	-33
Canfield-Bachmann, 1981 Artificial Lake	15	22	37	-14	-38
Rechow, 1979 General	5	9	18	-27	-74
Rechow, 1977 Anoxic	19	31	64	-5	-14
Rechow, 1977 water load<50m/year	13	21	42	-15	-41
Rechow, 1977 water load>50m/year	N/A	N/A	N/A	N/A	N/A
Walker, 1977 General	14	24	49	3	14
Vollenweider, 1982 Combined OECD	13	20	36	-9	-31
Dillon-Rigler-Kirchner	6	10	21	-11	-52
Vollenweider, 1982 Shallow Lake/Res.	10	16	29	-13	-45
Larsen-Mercier, 1976	13	22	46	1	5
Nurnberg, 1984 Oxic	7	12	24	-24	-66

Lake Phosphorus Model	Confidence Lower Bound	Confidence Upper Bound	Parameter Fit?	Back Calculation (kg/year)	Model Type
Walker, 1987 Reservoir	17	45	FIT	0	GSM
Canfield-Bachmann, 1981 Natural Lake	7	69	FIT	1	GSM
Canfield-Bachmann, 1981 Artificial Lake	7	63	FIT	1	GSM
Rechow, 1979 General	5	16	FIT	0	GSM
Rechow, 1977 Anoxic	20	54	FIT	0	GSM
Rechow, 1977 water load<50m/year	13	36	FIT	0	GSM
Rechow, 1977 water load>50m/year	N/A	N/A	N/A	N/A	N/A
Walker, 1977 General	13	45	FIT	0	SPO
Vollenweider, 1982 Combined OECD	10	37	FIT	0	ANN
Dillon-Rigler-Kirchner	6	18	FIT	0	SPO
Vollenweider, 1982 Shallow Lake/Res.	8	29	FIT	0	ANN
Larsen-Mercier, 1976	14	38	P Pin	0	SPO
Nurnberg, 1984 Oxic	7	22	FIT	0	ANN

Water and Nutrient Outflow Module

Date: 5/14/2010 Scenario: Rolling Stone Lake Current
Average Annual Surface Total Phosphorus: 37.6mg/m^3
Annual Discharge: 8.53E+003 AF => 1.05E+007 m^3
Annual Outflow Loading: 832.0 LB => 377.4 kg

E

APPENDIX E

2007 Aquatic Plant Survey Data.

Point Number	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	Notes	Ceratophyllum demersum	Chara sp.	Elodea canadensis	Heteranthera dubia	Lemna trisulca	Myriophyllum sibiricum	Nuphar variegata	Nymphaea odorata	Potamogeton amplifolius	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Schoenoplectus acutus	Sparganium fluctuans	Typha latifolia	Vallisneria americana	Nuphar advena
1	45.44068778	-88.95862351	1.5	M	P		1	1	1											2	1					
2	45.43994981	-88.95863708	2.3	M	P															2						
3	45.43921183	-88.95865066	2	M	P															2						
4	45.43847385	-88.95866424	2.4	M	P				1											3	1					
5	45.43773587	-88.95867781	2.8	M	P				1											2						
6	45.43699789	-88.95869139	2.9	M	P				1											1						
7	45.43625991	-88.95870496	3	M	P				1											2						
8	45.43552193	-88.95871853	2.7	M	P						1									2					1	
9	45.43478395	-88.95873211	3.4	M	P				1								1			2	1					
10	45.43404597	-88.95874568	2.1	M	P															3	1				1	
11	45.43330799	-88.95875925	1.8	M	P									V						2	1				1	
12	45.43183203	-88.95878640	1	M	P																					V
13	45.44289216	-88.95753443	1	M	P									V												
14	45.44215418	-88.95754802	3	M	P		1													1	1					
15	45.44141620	-88.95756161	2.2	M	P				1		1									3						
16	45.44067822	-88.95757520	2.1	M	P				1		1									3						
17	45.43994024	-88.95758879	1.8	M	P		1				1									3						
18	45.43920226	-88.95760238	3.4	M	P															2						
19	45.43846429	-88.95761597	3.3	M	P				1											2	1					
20	45.43772631	-88.95762956	3.5	M	P		1		1								1			1						
21	45.43698833	-88.95764315	3.7	M	P		1		1											2						
22	45.43625035	-88.95765674	3.8	M	P												1			2					1	
23	45.43551237	-88.95767033	2.9	M	P															2	1					
24	45.43477439	-88.95768392	3	M	P															2						
25	45.43403641	-88.95769750	2.5	M	P				1											2						
26	45.43329843	-88.95771109	1.7	M	P															2						
27	45.43256045	-88.95772467	1.8	M	P		1		2											1	1					
28	45.44435854	-88.95645887	1	M	P									V										V		
29	45.44362056	-88.95647248	1.8	M	P		1		1					V						1	3					
30	45.44288258	-88.95648609	2.4	M	P		1		1											3	1					

Point Number	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	Notes	Ceratophyllum demersum	Chara sp.	Elodea canadensis	Heteranthera dubia	Lemna trisulca	Myriophyllum sibiricum	Nuphar variegata	Nymphaea odorata	Potamogeton amplifolius	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Schoenoplectus acutus	Sparganium fluctuans	Typha latifolia	Vallisneria americana	Nuphar advena
31	45.44214461	-88.95649969	2.4	M	P				1											3	1				1	
32	45.44140663	-88.95651330	3.1	M	P		1													3						
33	45.44066865	-88.95652690	2.7	M	P															2					2	
34	45.43993067	-88.95654051	3.7	M	P												1			1	2				1	
35	45.43919269	-88.95655411	3.5	M	P															2						
36	45.43845471	-88.95656771	3.6	M	P		1													2						
37	45.43771674	-88.95658132	3.9	M	P															2					1	
38	45.43697876	-88.95659492	3.8	M	P		1										1			2	1					
39	45.43624078	-88.95660852	3.5	M	P				1		1									2						
40	45.43550280	-88.95662212	3.5	M	P				1											2	1					
41	45.43476482	-88.95663572	3.3	M	P															2						
42	45.43402684	-88.95664932	2.5	M	P		1										1			2						
43	45.43328886	-88.95666292	2.1	M	P															3						
44	45.43255088	-88.95667652	2.3	M	P						1									2					V	
45	45.43181290	-88.95669012	1.6	S	P		V				1			V				1								V
46	45.44434896	-88.95541050	2.1	M	P		V		1					V				1		V	1					
47	45.44361098	-88.95542412	2.3	M	P		1			1	1										1					
48	45.44287300	-88.95543774	3.6	M	P															3	1					
49	45.44213502	-88.95545136	3.2	M	P		1		1											2					1	
50	45.44139704	-88.95546498	3.9	M	P		1		1											1	1					
51	45.44065907	-88.95547860	3.8	M	P				1								1			1	1					
52	45.43992109	-88.95549222	3.8	M	P		1		1								1			2	1					
53	45.43918311	-88.95550584	4.4	M	P		1										1			2						
54	45.43844513	-88.95551945	4.5	M	P															2					2	
55	45.43770715	-88.95553307	4.3	M	P		1		1											2	2					
56	45.43696918	-88.95554669	4.8	M	P		1		1											2	1				1	
57	45.43623120	-88.95556030	4.4	M	P		1													2	1				2	
58	45.43549322	-88.95557392	4.1	M	P		1					1								1					2	
59	45.43475524	-88.95558753	3.4	M	P		1										1			2	1					
60	45.43401726	-88.95560115	2.9	M	P															3	1					

Point Number	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	Notes	Ceratophyllum demersum	Chara sp.	Elodea canadensis	Heteranthera dubia	Lemna trisulca	Myriophyllum sibiricum	Nuphar variegata	Nymphaea odorata	Potamogeton amplifolius	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Schoenoplectus acutus	Sparganium fluctuans	Typha latifolia	Vallisneria americana	Nuphar advena
61	45.43327928	-88.95561476	2.8	M	P															2						
62	45.43254130	-88.95562837	2.3	M	P															3					1	
63	45.43180332	-88.95564199	1.8	M	P						1				1					1					1	
64	45.44433936	-88.95436213	2.3	M	P		1		1											3						
65	45.44360139	-88.95437577	3.5	M	P		1													3						
66	45.44286341	-88.95438940	3.3	M	P		1		1											2	2					
67	45.44212543	-88.95440304	4.8	M	P		1		1								1			2	1					
68	45.44138745	-88.95441667	2.9	M	P		1													1	3					
69	45.44064947	-88.95443030	3.4	M	P		1					1					2			2	1					
70	45.43991150	-88.95444393	5.1	M	P		1		1								1			1	2					
71	45.43917352	-88.95445756	4.9	M	P				1								1			2	1					
72	45.43843554	-88.95447120	5.8	M	P		1													1	1				2	
73	45.43769756	-88.95448483	5.5	M	P		1													2						
74	45.43695959	-88.95449846	4.8	M	P		1										2			2	1					
75	45.43622161	-88.95451208	5	M	P		1		1								1			2						
76	45.43548363	-88.95452571	4.1	M	P		1		1											3	2					
77	45.43474565	-88.95453934	3.7	M	P		1		1											2	1					
78	45.43400767	-88.95455297	3.1	M	P		1										1			3					1	
79	45.43326969	-88.95456660	3.4	M	P				2											2					1	
80	45.43253171	-88.95458022	3.1	M	P				1									1		2						
81	45.43179374	-88.95459385	2.3	M	P					1	1				1				1	2	1					
82	45.44432976	-88.95331377	2.5	M	P		1		1											2						
83	45.44359178	-88.95332741	4.5	M	P		1		1								1			2	3					
84	45.44285381	-88.95334106	3.2	M	P										1		1			2						
85	45.44211583	-88.95335471	2.8	M	P		1										1			2	3					
86	45.44137785	-88.95336836	5.5	M	P		1		1								1			1	1				2	
87	45.44063987	-88.95338200	5.3	M	P		1		1											2					1	
88	45.43990190	-88.95339565	5.1	M	P		1										2			2	1					
89	45.43916392	-88.95340929	5.5	M	P		2													2	3					
90	45.43842594	-88.95342294	6.3	M	P		1		1								1			2	1					

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91	45.43768796	-88.95343658	6.7	M	P		1										1			1	2					
92	45.43694998	-88.95345022	6.6	M	P		1		1								1				2					
93	45.43621201	-88.95346387	6.7	M	P		1		1								1			2	1					
94	45.43547403	-88.95347751	6.3	M	P		2		1								1			1	1					
95	45.43473605	-88.95349115	5.2	M	P												1			3	1				1	
96	45.43399807	-88.95350479	3.1	M	P												1			3	1					
97	45.43326009	-88.95351843	3.1	M	P												1			2	1					
98	45.43252212	-88.95353207	3.6	M	P		1				1									2						
99	45.43178414	-88.95354571	2.3	M	P		1			1	2				1					1					V	
100	45.44358217	-88.95227906	2.1	R	P		1			1	1							1			1				1	
101	45.44284419	-88.95229272	3	M	P		1													2	2				2	
102	45.44210622	-88.95230638	3.6	M	P		1													3	2					
103	45.44136824	-88.95232004	6.1	M	P		1										1			1	1					
104	45.44063026	-88.95233370	6.8	M	P		1										1			1	2					
105	45.43989229	-88.95234736	6.3	M	P		1		1											1	2					
106	45.43915431	-88.95236102	7.4	M	P												2			1	2					
107	45.43841633	-88.95237468	7.9	M	P							1								2	2					
108	45.43767835	-88.95238834	7.8	M	P		1										2			1	1					
109	45.43694037	-88.95240199	7.8	M	P		1										1				1					
110	45.43620240	-88.95241565	8	M	P		1										2			1	1					
111	45.43546442	-88.95242931	8.1	M	P		1										1			1	1					
112	45.43472644	-88.95244296	3.7	S	P		1					1								1					1	
113	45.43398846	-88.95245662	3.6	R	P															2	1	V				
114	45.43325048	-88.95247027	4.8	M	P				2											2	3					
115	45.43251251	-88.95248392	5.5	S	P		1				1						1			1					1	
116	45.43177453	-88.95249758	1.8	S	P						1									1						
117	45.44357255	-88.95123071	3.3	M	P				1		1									2	1					
118	45.44283457	-88.95124438	3.6	M	P				1	1										3					1	
119	45.44209660	-88.95125806	4.9	M	P		1													1					1	
120	45.44135862	-88.95127173	5.3	M	P					1							1			2						

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121	45.44062064	-88.95128540	6.2	M	P		2										2			1	2					
122	45.43988266	-88.95129908	7.5	M	P		1										2				2					
123	45.43914469	-88.95131275	8.9	M	P		1										2				1					
124	45.43840671	-88.95132642	9.5	M	P		1		1											1	2					
125	45.43766873	-88.95134009	9.1	M	P		1													1	1					
126	45.43693076	-88.95135376	9.4	M	P		1										3			1						
127	45.43619278	-88.95136743	9.1	M	P		1													2	2					
128	45.43545480	-88.95138110	8.2	M	P												1				1					
129	45.43471682	-88.95139477	7	M	P		1													2	1					
130	45.43397884	-88.95140844	6.8	M	P		1		1			1			1										1	
131	45.43324087	-88.95142211	2.3	R	P					1	1	1		V	V							V				V
132	45.43250289	-88.95143578	6.7	M	P		1				1									2	1					
133	45.43176491	-88.95144944	3.4	S	P						1				1						1		1		1	
134	45.44430089	-88.95016867	1	M	P									V										V		
135	45.44356292	-88.95018235	2.2	M	P		1		1					V						1	3				V	
136	45.44282494	-88.95019604	3.2	M	P		1		1						V					2	2					
137	45.44208696	-88.95020973	4.1	M	P		1													2	1				1	
138	45.44134899	-88.95022342	5.5	M	P		1										2			2	1					
139	45.44061101	-88.95023711	6.6	M	P		1													1	2					
140	45.43987303	-88.95025079	7.2	M	P							1					2				2					
141	45.43913506	-88.95026448	7.6	M	P												2			1	1					
142	45.43839708	-88.95027816	8	M	P												2				2					
143	45.43765910	-88.95029185	10.3	M	P		1		1											1	2					
144	45.43692113	-88.95030553	9.9	M	P																1					
145	45.43618315	-88.95031922	8.1	M	P		1										2			2						
146	45.43544517	-88.95033290	8	M	P			1	1											1	2					
147	45.43470719	-88.95034658	7.4	M	P				1								1			1	2					
148	45.43396922	-88.95036027	6.8	M	P		1										1			2	1					
149	45.43323124	-88.95037395	4.5	M	P												1			2	1					
150	45.43249326	-88.95038763	4.3	M	P		1		1		1	1			1		1			2						

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151	45.43175528	-88.95040131	6.9	M	P		2		1		1									1						
152	45.43101731	-88.95041499	2	M	P						1	1			1						1		1			
153	45.44355328	-88.94913400	1	M	P									V										V		
154	45.44281530	-88.94914770	3.6	M	P		2													3	1					
155	45.44207732	-88.94916141	3.4	M	P		1										1			3	1				1	
156	45.44133935	-88.94917511	4.4	M	P												1			2	2					
157	45.44060137	-88.94918881	5.7	M	P		1		1								2			1	2					
158	45.43986339	-88.94920251	6.8	M	P		1										1				2					
159	45.43912542	-88.94921621	7.5	M	P		1		1			1					2			2	1					
160	45.43838744	-88.94922991	9.8	M	P		1								1					1	1					
161	45.43764946	-88.94924361	8.7	M	P		1													1	2					
162	45.43691149	-88.94925730	7.5	M	P		1		1			1					1				2					
163	45.43617351	-88.94927100	8.1	M	P		1										2				1					
164	45.43543553	-88.94928470	9.4	M	P				1								1				1					
165	45.43469756	-88.94929839	8.8	M	P		1		1								2			1	1					
166	45.43395958	-88.94931209	7.8	M	P															1	2					
167	45.43322160	-88.94932579	6.4	M	P		1		1								2			2	1					
168	45.43248362	-88.94933948	5.4	M	P		1				1						1			2	1				1	
169	45.43174565	-88.94935318	5.5	M	P				1		1						1			2	1				1	
170	45.43100767	-88.94936687	2.4	M	P						2									1					2	
171	45.44354363	-88.94808565	1	M	P									V												
172	45.44280565	-88.94809937	2.5	M	P		1													3	2					
173	45.44206767	-88.94811308	4.2	M	P														1	3						
174	45.44132970	-88.94812680	4.5	M	P		1													3	1					
175	45.44059172	-88.94814051	5.2	M	P												2			2	1					
176	45.43985375	-88.94815422	6.6	M	P		2					2					1			1	2					
177	45.43911577	-88.94816794	7.8	M	P												1				2					
178	45.43837779	-88.94818165	8.8	M	P				1			2								2						
179	45.43763982	-88.94819536	8.5	M	P		1					1					2			1	3					
180	45.43690184	-88.94820907	9.7	M	P												1			1	2					

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181	45.43616386	-88.94822279	9.1	S	P																					
182	45.43542589	-88.94823650	9.7	M	P		1		1								1			2	2					
183	45.43468791	-88.94825021	8.7	M	P				1										1	1	3					
184	45.43394993	-88.94826392	8.3	M	P		1		1											1	1					
185	45.43321195	-88.94827763	7	M	P				1			1					2			1	1					
186	45.43247398	-88.94829133	6.8	M	P		1		1								2			2						
187	45.43173600	-88.94830504	8	M	P																1					
188	45.43099802	-88.94831875	1.6	R	P										1					1	1					
189	45.44279599	-88.94705103	2.6	M	P		1	1	1		1	V								1	V				V	V
190	45.44205801	-88.94706476	3.2	M	P						1									2					2	
191	45.44132004	-88.94707849	2.8	R	P					1	1				1											
192	45.44058206	-88.94709221	5.1	M	P		1		1		1	1								1	2					
193	45.43984409	-88.94710594	5.4	M	P															3	1					
194	45.43910611	-88.94711967	6.3	M	P							2					1			1	1					
195	45.43836813	-88.94713340	8.2	M	P				1										1	1	2					
196	45.43763016	-88.94714712	10.3	M	P				1											1	1					
197	45.43689218	-88.94716085	10.1	M	P		1										1				1					
198	45.43615420	-88.94717457	9.3	M	P		1		1											1	1					
199	45.43541623	-88.94718830	9.4	M	P															1	1					
200	45.43467825	-88.94720202	9.8	M	P		1													1	1					
201	45.43394027	-88.94721574	8.9	M	P				1			1														
202	45.43320230	-88.94722947	8.2	M	P				1												3					
203	45.43246432	-88.94724319	7.4	M	P												1				3					
204	45.43172634	-88.94725691	9	M	P						1										1					
205	45.43098837	-88.94727063	2.8	S	P		1									1	1				1					
206	45.43983442	-88.94605766	5.5	M	P		3		2											1	2				1	
207	45.43909644	-88.94607140	5.8	M	P		1										1			1	1				2	
208	45.43835847	-88.94608514	6.6	M	P							1					1				3					
209	45.43762049	-88.94609888	7.2	M	P				1			1									3					
210	45.43688251	-88.94611262	9.1	M	P		1		1								2			1	2					

Point Number	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	Notes	Ceratophyllum demersum	Chara sp.	Elodea canadensis	Heteranthera dubia	Lemna trisulca	Myriophyllum sibiricum	Nuphar variegata	Nymphaea odorata	Potamogeton amplifolius	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Schoenoplectus acutus	Sparganium fluctuans	Typha latifolia	Vallisneria americana	Nuphar advena
211	45.43614454	-88.94612636	9.4	M	P				1			1					1				2					
212	45.43540656	-88.94614010	10.5	M	P		1										1				1					
213	45.43466858	-88.94615383	10.2	M	P				1												1					
214	45.43393061	-88.94616757	10.1	M	P																1					
215	45.43319263	-88.94618131	9.2	M	P		1										1				2					
216	45.43245465	-88.94619504	5.7	M	P				1		1	1								2	1					
217	45.43171668	-88.94620878	6.5	M	P		1										3			1	1					
218	45.43097870	-88.94622251	6.1	M	P		1					2													1	
219	45.43982474	-88.94500938	3.1	M	P		2				1				1				1	1						
220	45.43908676	-88.94502313	4.9	M	P							1			1		1			1	2				1	
221	45.43834879	-88.94503689	6.3	M	P				1		1	1					1			1	2					
222	45.43761081	-88.94505064	7.2	M	P							1									1					
223	45.43687284	-88.94506439	9.5	M	P		1										2				2					
224	45.43613486	-88.94507814	9.1	M	P		1					1									2					
225	45.43539688	-88.94509190	9.8	M	P												1				2					
226	45.43465891	-88.94510565	10.8	M	P															1	2					
227	45.43392093	-88.94511940	10.2	M	P												1				1					
228	45.43318296	-88.94513315	8.9	M	P		1														1					
229	45.43244498	-88.94514690	7.6	M	P				1											1						
230	45.43170700	-88.94516065	6.5	M	P				1								1			1	2				1	
231	45.43096903	-88.94517439	6.4	M	P		1	1	1			1								1	3	V				
232	45.43981505	-88.94396110	3.9	M	P		1													1	3				1	
233	45.43907708	-88.94397486	5.7	M	P		1										1			2	2					
234	45.43833910	-88.94398863	6.3	M	P		1		1		1	1									1					
235	45.43760113	-88.94400240	6.9	M	P						1						1			1	2					
236	45.43686315	-88.94401617	7.7	M	P							2								1	2					
237	45.43612517	-88.94402993	9.4	M	P		1					1								1	2					
238	45.43538720	-88.94404370	9.7	M	P		1																			
239	45.43464922	-88.94405746	10.3	M	P		1													1	2					
240	45.43391125	-88.94407123	9.6	M	P																1					

Point Number	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	Notes	Ceratophyllum demersum	Chara sp.	Elodea canadensis	Heteranthera dubia	Lemna trisulca	Myriophyllum sibiricum	Nuphar variegata	Nymphaea odorata	Potamogeton amplifolius	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Schoenoplectus acutus	Sparganium fluctuans	Typha latifolia	Vallisneria americana	Nuphar advena
241	45.43317327	-88.94408499	9.3	M	P							1					1				2					
242	45.43243529	-88.94409875	7.5	M	P																1					
243	45.43169732	-88.94411251	6.8	M	P												1			1	3					
244	45.43095934	-88.94412628	6.2	M	P		1		1								2			1	2				1	
245	45.43022136	-88.94414004	5.4	S	P		2							V						1	3					
246	45.42948339	-88.94415380	1.1	M	P						1			V	V								1			
247	45.42874541	-88.94416756	3.2	M	P															1					1	
248	45.42800743	-88.94418132	1.7	M	P									V						1	1	V				
249	45.43980535	-88.94291282	1.9	M	P		1				1	1								1	1					
250	45.43906738	-88.94292660	4.3	M	P		1				1						1			1	3				1	
251	45.43832940	-88.94294038	6.3	M	P		1		2			3								1	1					
252	45.43759143	-88.94295416	6.5	M	P		1					1					1				2					
253	45.43685345	-88.94296794	8.7	M	P							2									2					
254	45.43611548	-88.94298172	8.5	M	P							1									2					
255	45.43537750	-88.94299550	10.4	M	P															1	1					
256	45.43463953	-88.94300928	10.4	M	P															1	1					
257	45.43390155	-88.94302305	11.6	M	P		1														2					
258	45.43316357	-88.94303683	9.9	M	P												1			1	1					
259	45.43242560	-88.94305061	8.1	M	P		1										1			1	1				1	
260	45.43168762	-88.94306438	6.6	M	P												2			1	1					
261	45.43094965	-88.94307816	6.1	M	P												1			1	3					
262	45.43021167	-88.94309194	5.7	M	P												1			3	2					
263	45.42947369	-88.94310571	4.9	M	P		1													2	1					
264	45.42873572	-88.94311948	4.3	M	P							1					1			2	2					
265	45.42799774	-88.94313326	2.2	M	P												1			3	1					
266	45.42725976	-88.94314703	2.4	M	P															2	1					
267	45.43979565	-88.94186454	2.2	M	P							1								1						
268	45.43905767	-88.94187833	3.9	M	P						1	1					1				1				V	
269	45.43831970	-88.94189213	5.2	M	P		1					1								1	2					
270	45.43758172	-88.94190592	6.7	M	P		1				1	1					1			2	1					

Point Number	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	Notes	Ceratophyllum demersum	Chara sp.	Elodea canadensis	Heteranthera dubia	Lemna trisulca	Myriophyllum sibiricum	Nuphar variegata	Nymphaea odorata	Potamogeton amplifolius	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Schoenoplectus acutus	Sparganium fluctuans	Typha latifolia	Vallisneria americana	Nuphar advena
271	45.43684375	-88.94191971	13.6	M	P							1									1					
272	45.43610577	-88.94193351	10.4	M	P				1			2								1	2					
273	45.43536780	-88.94194730	12.5	M	P		1													1	2					
274	45.43462982	-88.94196109	14.9	M	P		1										2			2	3					
275	45.43389185	-88.94197488	14.7	M	P																1					
276	45.43315387	-88.94198867	13.7	M	P															1	1					
277	45.43241589	-88.94200246	11.1	M	P		1					1								1	1					
278	45.43167792	-88.94201625	11.6	M	P		1		1			3								1	2					
279	45.43093994	-88.94203004	9.6	M	P							1					1			1	2					
280	45.43020197	-88.94204383	7.7	M	P				1											1	1					
281	45.42946399	-88.94205762	8.8	M	P		1										1			2	1					
282	45.42872601	-88.94207141	7.1	M	P		1										2			2	1					
283	45.42798804	-88.94208520	2.8	M	P		1		1											3	1					
284	45.42725006	-88.94209898	2.5	M	P									V						2	1				1	
285	45.42651208	-88.94211277	2.1	M	P															1					2	V
286	45.43978593	-88.94081626	1.2	M	P																					
287	45.43904796	-88.94083006	2.7	M	P							2									2					
288	45.43830998	-88.94084387	3.4	M	P							2									1				2	
289	45.43757201	-88.94085768	5.9	M	P												1			2	2				1	
290	45.43683403	-88.94087149	6.7	M	P							1					2		1	2	1					
291	45.43609606	-88.94088530	10.2	M	P							1					1				1					
292	45.43535808	-88.94089910	10.5	M	P				1			1					2			1	1					
293	45.43462011	-88.94091291	12.2	M	P							1					2			1	2					
294	45.43388213	-88.94092671	14.4	M	P															1	1					
295	45.43314416	-88.94094052	14.5	M	P																1					
296	45.43240618	-88.94095432	13.1	M	P		1					2					1			2	2					
297	45.43166820	-88.94096812	10.8	M	P		1					1								1	1					
298	45.43093023	-88.94098193	9.4	M	P		1										1		1	1	2					
299	45.43019225	-88.94099573	9.3	M	P															1	1					
300	45.42945428	-88.94100953	7.9	M	P		1		1								1			2	2					

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301	45.42871630	-88.94102333	6.4	M	P		1													3						
302	45.42797832	-88.94103713	5.4	M	P		1										1			3	1					
303	45.42724035	-88.94105094	4.1	M	P				1								1			3	1					
304	45.42650237	-88.94106473	3.3	M	P		1				1									2	1				2	
305	45.43903823	-88.93978180	2.5	M	P		1		1		2	1								1	1				1	
306	45.43830026	-88.93979562	4.7	M	P		1				1	1					1			3	1					
307	45.43756228	-88.93980944	5.4	M	P		1				1									3						
308	45.43682431	-88.93982326	8.1	M	P							1					1			3	2					
309	45.43608633	-88.93983708	8.2	M	P		1					2					2			1	1					
310	45.43534836	-88.93985090	11.4	M	P						1						1			2	1					
311	45.43461038	-88.93986472	10.5	M	P							2					2			1	1					
312	45.43387241	-88.93987854	11.2	M	P				1			1									2					
313	45.43313443	-88.93989236	11.8	M	P						1			1						1	2					
314	45.43239646	-88.93990618	13.7	M	P												1			1	2					
315	45.43165848	-88.93992000	8.2	M	P		1										1			1	2					
316	45.43092050	-88.93993381	9.1	M	P												1			1	1					
317	45.43018253	-88.93994763	6.6	M	P				1								1			2	1					
318	45.42944455	-88.93996144	7.2	M	P		1					1								1	3				1	
319	45.42870658	-88.93997526	6.3	M	P															2	1					
320	45.42796860	-88.93998907	7.2	M	P															1	1					
321	45.42723063	-88.94000289	3.5	M	P						1	1								2						
322	45.42649265	-88.94001670	3.1	M	P				1		1	1								3					1	
323	45.42575467	-88.94003051	1.9	M	P			1			2						1								1	
324	45.43902849	-88.93873353	1.7	M	P		2		1			1									1					
325	45.43829052	-88.93874737	2.9	M	P						1									2	2				2	
326	45.43755255	-88.93876121	4.5	M	P				1		1									3	1					
327	45.43681457	-88.93877504	5.1	M	P		1		1										1	3	1					
328	45.43607660	-88.93878887	5.5	M	P												1			2	1				2	
329	45.43533862	-88.93880271	5.4	M	P		1		1		1									3	1					
330	45.43460065	-88.93881654	5.5	M	P				1								2			2	1					

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331	45.43386267	-88.93883037	5.4	M	P						1	1					2			2	1					
332	45.43312470	-88.93884421	5.8	M	P							1					1			3	2					
333	45.43238672	-88.93885804	5.6	M	P												1			2	1					
334	45.43164875	-88.93887187	6.8	M	P		1					1					1			1	2				1	
335	45.43091077	-88.93888570	6.9	M	P		1										2			1	3					
336	45.43017280	-88.93889953	6.4	M	P		1										1			1	2				1	
337	45.42943482	-88.93891336	5.3	M	P															3	1					
338	45.42869685	-88.93892719	5.1	M	P				1											2	1				1	
339	45.42795887	-88.93894101	4.3	M	P															3						
340	45.42722089	-88.93895484	3.3	M	P		1		1		1									3						
341	45.42648292	-88.93896867	2.7	M	P				2								1			3					1	
342	45.42574494	-88.93898250	2.2	M	P					1	1	1													1	
343	45.42500697	-88.93899632	1.6	M	P				2		3				V											V
344	45.43828077	-88.93769912	2.9	M	P															1	1					
345	45.43754280	-88.93771297	3.3	M	P		1		1		2									1	1					
346	45.43680483	-88.93772682	4.6	M	P															3	1					
347	45.43606685	-88.93774066	4.9	M	P		1								1					3	1				1	
348	45.43532888	-88.93775451	7	M	P		1				1									2	1					
349	45.43459090	-88.93776836	6.6	M	P		1			1										2	1					
350	45.43385293	-88.93778220	6.1	M	P		2				1	2								2					2	
351	45.43311495	-88.93779605	7	M	P		1													2						
352	45.43237698	-88.93780990	6	M	P		1		1		1	1			1		1			2	1				1	
353	45.43163900	-88.93782374	5.2	M	P		1												1	3					1	
354	45.43090103	-88.93783758	6.1	M	P		1										1			2	1					
355	45.43016305	-88.93785143	5.2	M	P		1		1										1	2						
356	45.42942508	-88.93786527	5.1	M	P												1			3	1					
357	45.42868710	-88.93787911	4.6	M	P		1										1			3	1				1	
358	45.42794913	-88.93789295	3.9	M	P				1											3					1	
359	45.42721115	-88.93790680	3.6	M	P				2		1									3					1	
360	45.42647318	-88.93792064	2.8	M	P												1		1	2					1	

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361	45.42573520	-88.93793448	2.7	M	P			1	2											1					V	
362	45.42499723	-88.93794832	2.3	M	P		1		1		2	1								1					2	
363	45.42425925	-88.93796216	1.5	S	P				1	1			V	V	V					1		V			V	
364	45.43679507	-88.93667859	3.1	M	P						1				1					1						
365	45.43605710	-88.93669246	4	M	P		1												1	2						
366	45.43531912	-88.93670632	4.1	M	P						1					1					1				3	
367	45.43458115	-88.93672018	5.1	M	P		1		1		1									2	2				1	
368	45.43384318	-88.93673404	6.2	M	P		2				1						1			1					1	
369	45.43310520	-88.93674790	7	M	P				1			1					1			1	1				1	
370	45.43236723	-88.93676175	4.4	M	P		2			1	1	1								1						
371	45.43162925	-88.93677561	3.5	M	P												2			2	1					
372	45.43089128	-88.93678947	3.8	M	P		1													3						
373	45.43015330	-88.93680333	4.7	M	P		1													3	1					
374	45.42941533	-88.93681718	5.9	M	P				1								1			2					1	
375	45.42867735	-88.93683104	4.6	M	P		2													3						
376	45.42793938	-88.93684490	4.4	M	P						1						1			3						
377	45.42720140	-88.93685875	3.7	M	P															2						
378	45.42646343	-88.93687260	2.7	M	P										1					3						
379	45.42572545	-88.93688646	2	M	P				1											3	1					
380	45.42498748	-88.93690031	5.2	M	P		1		1		1									3						
381	45.43604733	-88.93564425	1.9	M	P						1									1	1					
382	45.43530936	-88.93565812	1.7	M	P		1				1	1			1		1			1						
383	45.43457139	-88.93567200	2	M	P					1					1				1	1					1	
384	45.43383341	-88.93568587	3.4	M	P				1		1									2						
385	45.43309544	-88.93569974	3.6	M	P		1				1				1					1					3	
386	45.43235746	-88.93571361	3.9	M	P		1		2	1	1						1		1	2						
387	45.43161949	-88.93572749	4	M	P		1		1		2									3						
388	45.43088152	-88.93574136	3.7	M	P		1		1		1						1		1	3						
389	45.43014354	-88.93575523	3.3	M	P		2										1			3						
390	45.42940557	-88.93576910	3.3	M	P				1											3	1				1	

Point Number	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	Notes	Ceratophyllum demersum	Chara sp.	Elodea canadensis	Heteranthera dubia	Lemna trisulca	Myriophyllum sibiricum	Nuphar variegata	Nymphaea odorata	Potamogeton amplifolius	Potamogeton illinoensis	Potamogeton praelongus	Potamogeton pusillus	Potamogeton richardsonii	Potamogeton robbinsii	Potamogeton zosteriformis	Schoenoplectus acutus	Sparganium fluctuans	Typha latifolia	Vallisneria americana	Nuphar advena
391	45.42866759	-88.93578297	4.2	M	P		1		1								1		1	2					1	
392	45.42792962	-88.93579684	4.3	M	P		1		1						2		2		1		1					
393	45.42719164	-88.93581071	2.9	M	P		1				1									3	1					
394	45.42645367	-88.93582457	2.4	M	P		2												1	3						
395	45.42571569	-88.93583844	2.6	M	P				2											3	1				1	
396	45.42497772	-88.93585231	2.6	M	P						1								2	3						
397	45.43234769	-88.93466547	1.6	S	P				1		2				1					1	1				1	
398	45.43160972	-88.93467936	2	M	P						2				1				1		1				1	
399	45.43087174	-88.93469324	2.8	M	P						1									3	2					
400	45.43013377	-88.93470713	2.5	M	P												1			2	1				1	
401	45.42939580	-88.93472101	3.4	M	P		1		1		1									2	1					
402	45.42865782	-88.93473490	2.1	M	P		1		1		1									3						
403	45.42791985	-88.93474878	2.6	M	P						1								1	3					2	
404	45.42718187	-88.93476266	2.5	M	P		1				1				1					3						
405	45.42644390	-88.93477654	1.9	M	P				1		1									3	1					
406	45.42570592	-88.93479042	3.2	M	P						1									2					1	
407	45.42496795	-88.93480430	2.1	M	P				1		2									2					1	
408	45.43012399	-88.93365903	1.5	M	P						V						1				1				1	
409	45.42938601	-88.93367293	2.1	M	P		1		2	1	1			V						1	1					