A

APPENDIX A

Public Participation Materials

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?

- To create a better understanding of lake's positive and negative attributes.
- To discover ways to minimize the negative attributes and maximize the positive attributes.
- To foster realistic expectations and dispel myths.
- To create a snapshot of the lake for future reference and planning.

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

Water Quality Analysis

- General water chemistry
- Nutrient analysis
  - Lake trophic state (Eutrophication)
  - Limiting plant nutrient
- Supporting data for watershed modeling

Watershed Assessment

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

Aquatic Plant Surveys

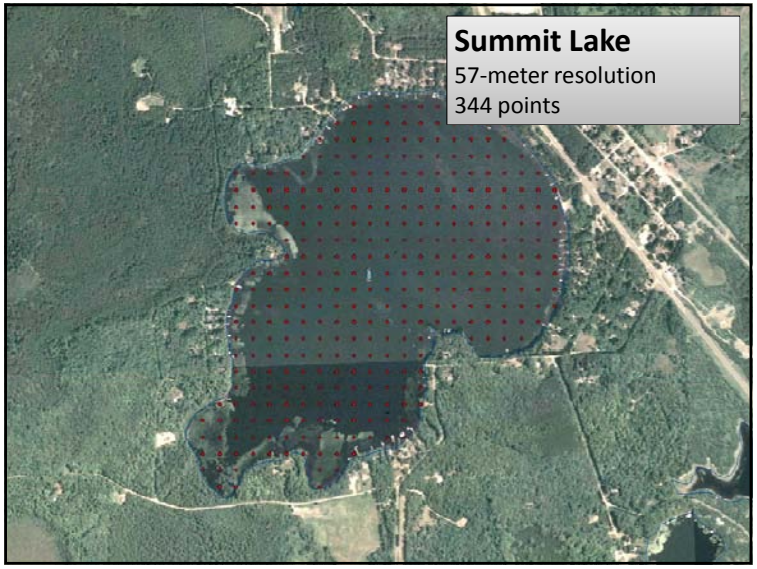
- Concerned with both native and non-native plants
- Multiple surveys used in assessment
  - Curly-leaf pondweed survey
  - Point-intercept survey
  - Plant community mapping
  - Volunteer survey findings

Non-native Aquatic Plants

Curly-leaf Pondweed

Non-native Aquatic Plants

Eurasian Water Milfoil

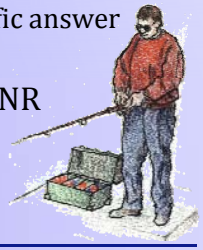


Fisheries Data Integration

- 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

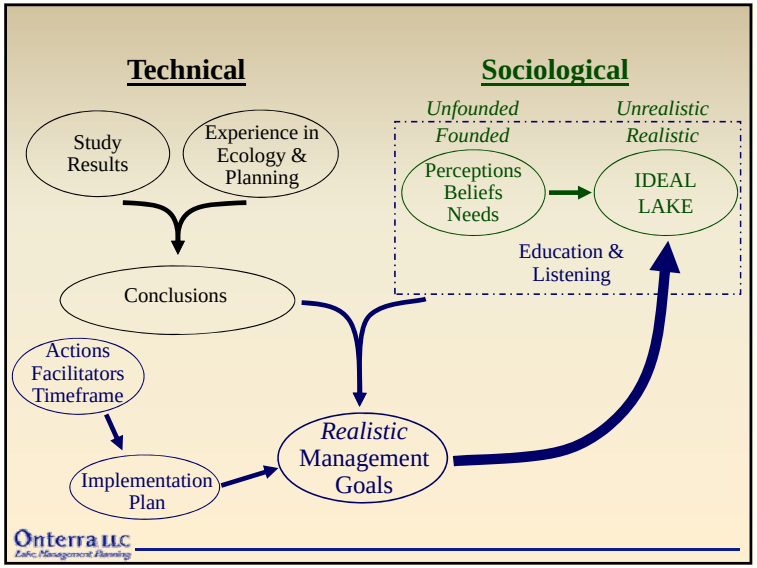


Planning Process

Planning Committee Meetings

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

Implementation Plan



Presentation Outline

- **Lake Management Planning Project Overview**
- **Study Results**
  - Watershed
  - Water Quality
  - Aquatic Plants
  - Fisheries
- **"Big Picture"**

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Study and Plan Goals

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

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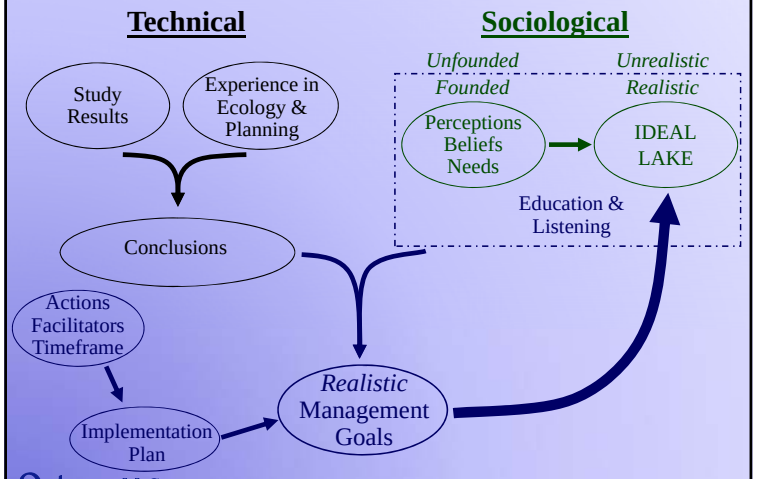
Planning Process



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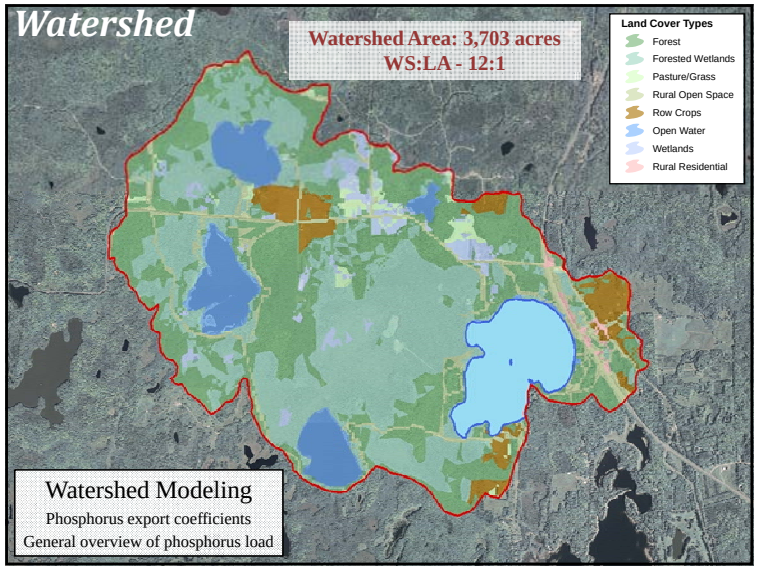
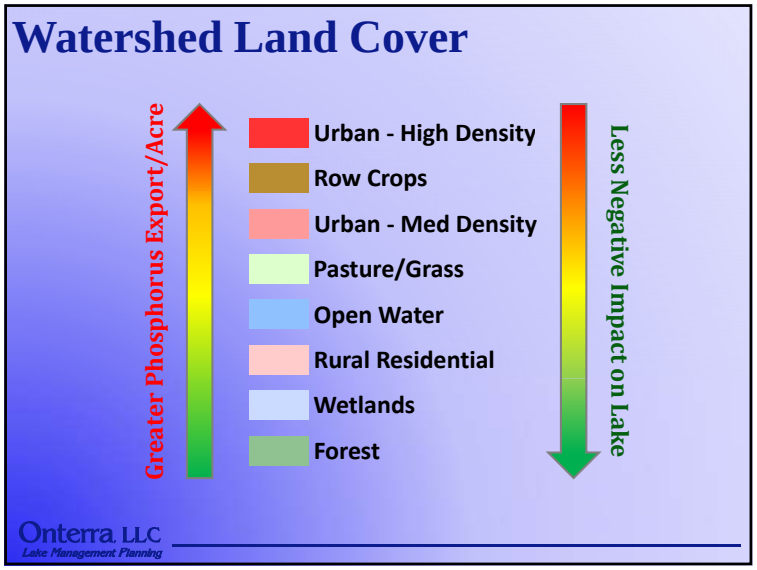

Watershed
Watershed Area: 3,703 acres
WS:LA - 12:1
Land Cover Types
Forest
Forested Wetlands
Pasture/Grass
Rural Open Space
Row Crops
Open Water
Wetlands
Rural Residential
Watershed Modeling
Phosphorus export coefficients
General overview of phosphorus load


Watershed Land Cover
Greater Phosphorus Export/Acre
Urban - High Density
Row Crops
Urban - Med Density
Pasture/Grass
Open Water
Rural Residential
Wetlands
Forest
Less Negative Impact on Lake
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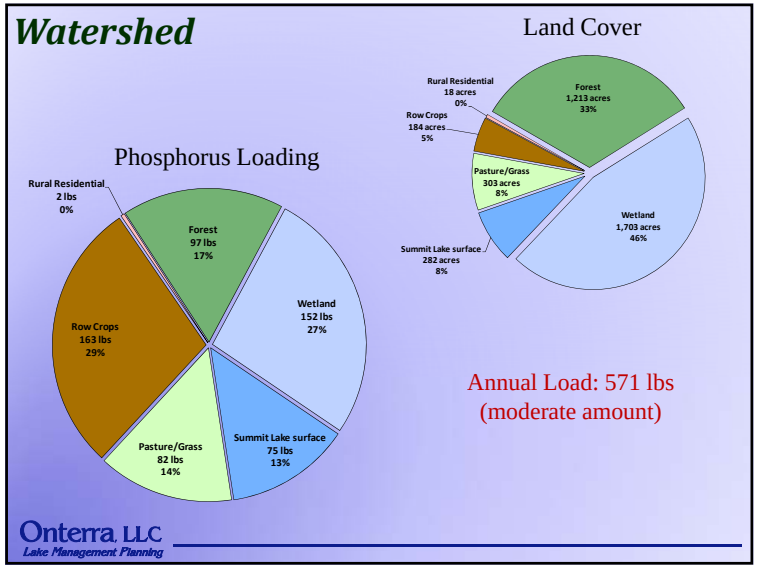
Watershed
Land Cover
Rural Residential 18 acres 0%
Row Crops 184 acres 5%
Forest 1,213 acres 33%
Pasture/Grass 303 acres 8%
Wetland 1,703 acres 46%
Summit Lake surface 282 acres 8%
Phosphorus Loading
Rural Residential 2 lbs 0%
Forest 97 lbs 17%
Wetland 152 lbs 27%
Row Crops 163 lbs 29%
Pasture/Grass 82 lbs 14%
Summit Lake surface 75 lbs 13%
Annual Load: 571 lbs
(moderate amount)
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Shoreland Assessment
Shoreland area is important for buffering runoff and provides valuable habitat for aquatic and terrestrial wildlife.
It does not look at lake shoreline on a property-by-property basis.
Assessment ranks shoreland area from shoreline back 35 feet
Urbanized
Natural
Range
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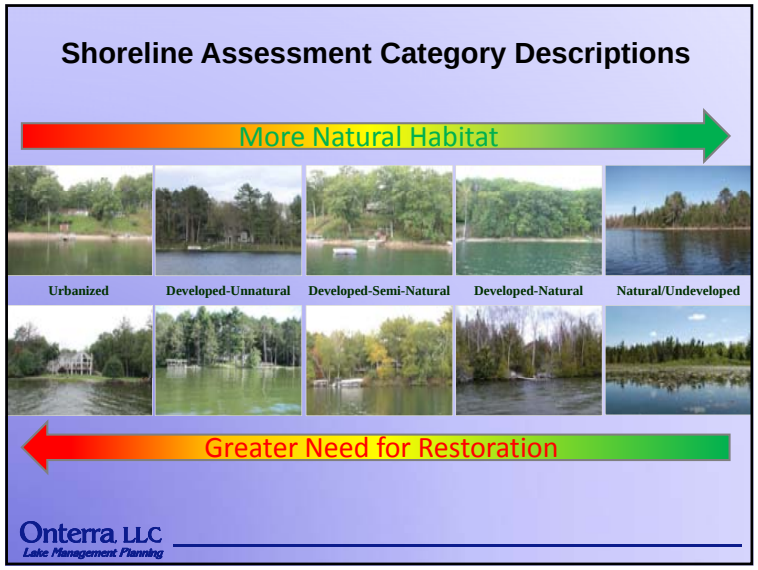
Shoreline Assessment Category Descriptions
More Natural Habitat
Urbanized
Developed-Unnatural
Developed-Semi-Natural
Developed-Natural
Natural/Undeveloped
Greater Need for Restoration
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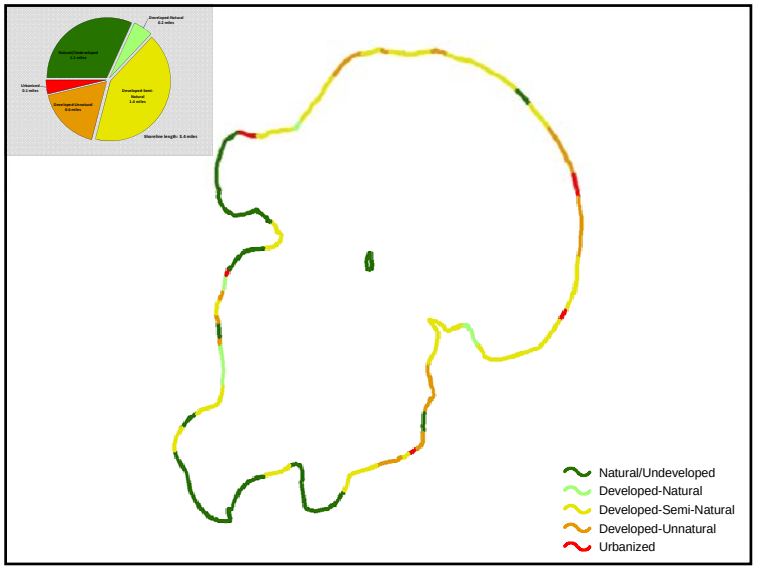
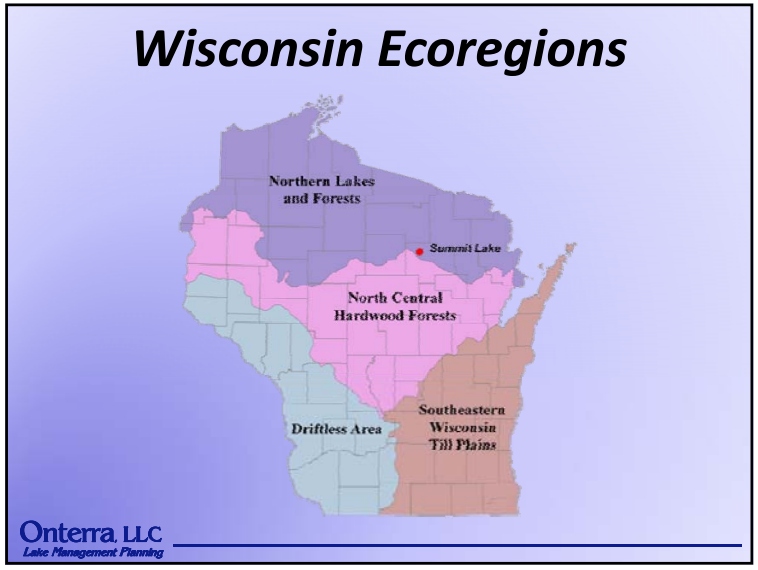

Natural/Undeveloped
Developed-Natural
Developed-Semi-Natural
Developed-Unnatural
Urbanized


Wisconsin Ecoregions
Northern Lakes and Forests
Summit Lake
North Central Hardwood Forests
Driftless Area
Southeastern Wisconsin Till Plains
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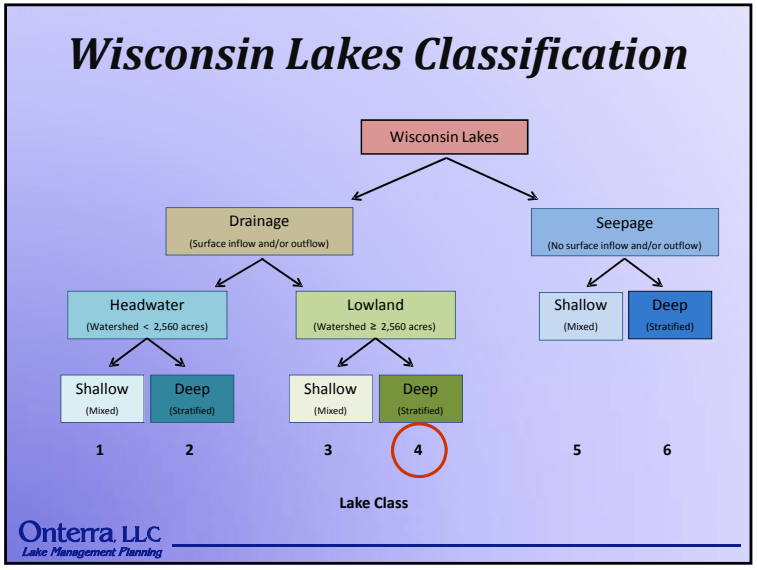
Wisconsin Lakes Classification
Wisconsin Lakes
Drainage
(Surface inflow and/or outflow)
Seepage
(No surface inflow and/or outflow)
Headwater
(Watershed < 2,560 acres)
Lowland
(Watershed ≥ 2,560 acres)
Shallow
(Mixed)
Deep
(Stratified)
Shallow
(Mixed)
Deep
(Stratified)
Shallow
(Mixed)
Deep
(Stratified)
1
2
3
4
5
6
Lake Class
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Water Quality

- **Phosphorus (Limiting Plant Nutrient)**
  Nitrogen:Phosphorus = 27:1
- **Chlorophyll-*a* (Algal Abundance)**
  Low algal abundance
- **Water Clarity (Secchi Disk)**
  Moderately Clear Water

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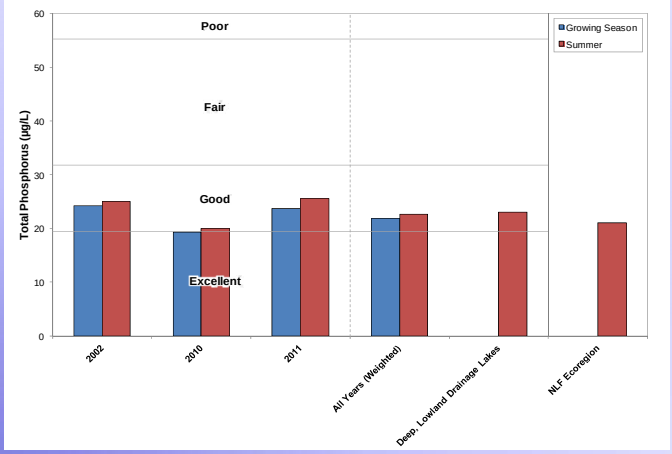
Average Annual TP Concentrations



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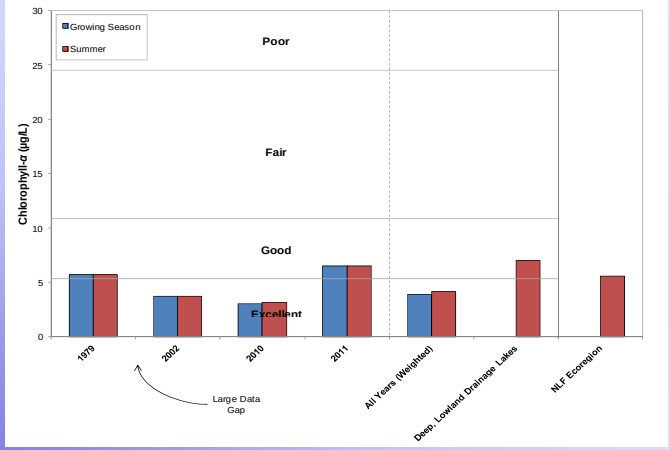
Average Annual Chl-a Concentrations



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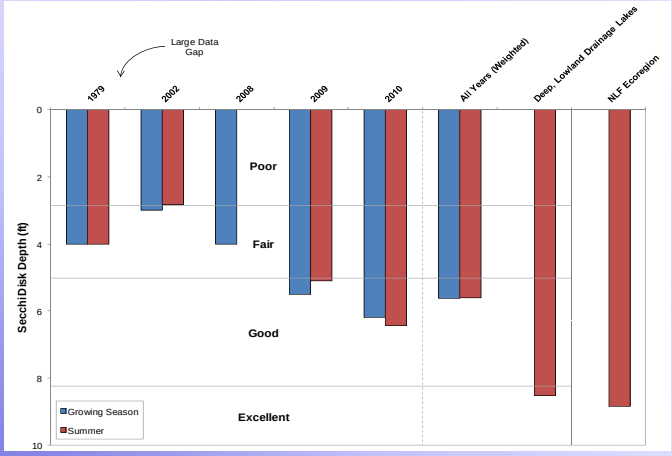
Average Annual Secchi Disk Clarity



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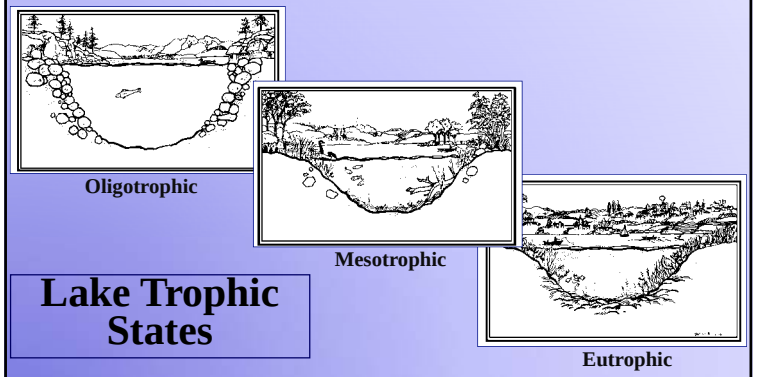
Eutrophication
-Lake Aging



Lake Trophic States

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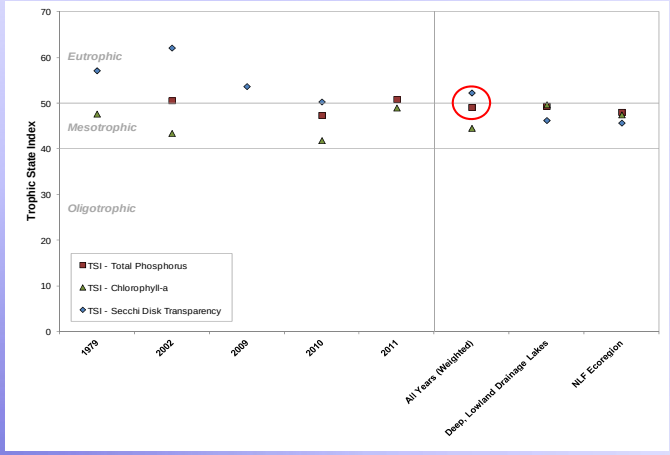
Trophic State Index



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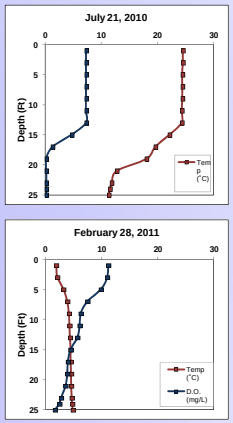
Other Water Quality Results

- Lake thermally stratifies during summer months
- No indication of low winter dissolved oxygen
- Alkalinity = 7.0 mg/L as $CaCO_3$ – indicates moderate sensitivity to acid rain
- Low calcium concentrations (1.8 mg/L)
  - Not suitable for zebra mussel establishment



No veligers observed in 2010 samples

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Aquatic Plant Surveys

- Concerned with both native and non-native plants
- Multiple surveys used in assessment
  - Curly-leaf pondweed survey **NONE FOUND**
  - Point-intercept survey
    - Systematic sampling method
    - Can compare lakes within same ecoregion
  - Plant community mapping
    - Accurately map floating-leaf & emergent communities
    - May compare to future surveys

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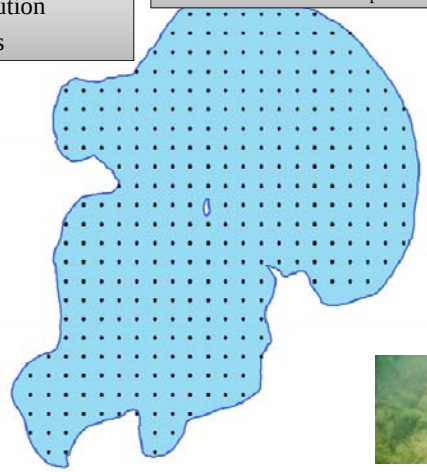
Summit Lake
57-meter resolution
344 total points

Maximum depth of plants = 7 feet
66% of littoral zone points contain plants



Species List

- **17 Native Species**
  - 11 from the PI survey
  - Twin-stemmed bladderwort somewhat rare in Wisconsin
- **No non-native species found in Summit Lake**

Life Form	Scientific Name	Common Name	Coefficient of Conservatism (c)	2010 (Onterra)
Emergent	*Bolboschoenus fluviatilis*	River bulrush	5	I
	Carex utriculata	Northwest Territory sedge	7	I
	Dulichium arundinaceum	Three-way sedge	9	I
	Eleocharis palustris	Creeping spikerush	6	X
	Sagittaria latifolia	Common arrowhead	3	I
FL	*Brasenia schreberi*	Watershield	7	X
	Nymphaea odorata	White water lily	6	X
	Nuphar variegata	Spatterdock	6	X
FL/E	*Sparganium angustifolium*	Narrow-leaf bur-reed	9	I
	Sparganium fluctuans	Floating-leaf bur-reed	10	X
Submergent	*Eriocaulon aquaticum*	Pipewort	9	X
	Isoetes echinospora	Spiny-spored quillwort	8	X
	Myriophyllum tenellum	Dwarf water milfoil	10	X
	Potamogeton oakesianus	Oakes' pondweed	10	X
	Potamogeton epihydrus	Ribbon-leaf pondweed	8	X
	Utricularia geminiscapa	Twin-stemmed bladderwort	9	X
S/E	*Eleocharis acicularis*	Needle spikerush	5	I

FL = Floating Leaf; FL/E = Floating Leaf and Emergent; S/E = Submergent and Emergent;
X = Located on rake during point-intercept survey; I = Incidental Species

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Submergent Plant Growth Forms

Isoetid
Turf Species

Elodeid
Leafy Plants

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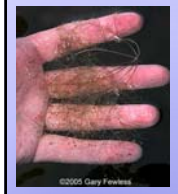
Bladderworts
Carnivorous Plants



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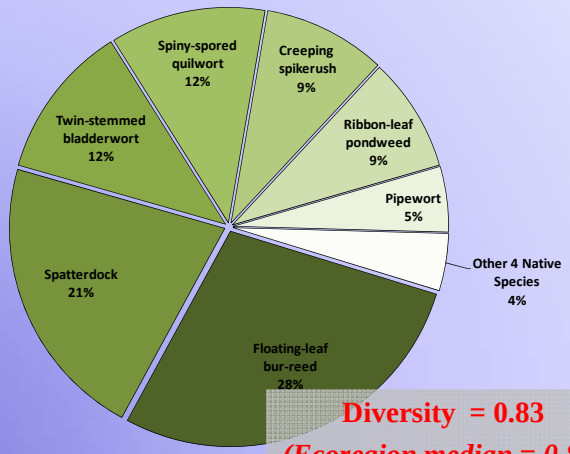
Relative Frequency of Occurrence



Diversity = 0.83

(Ecoregion median = 0.86)

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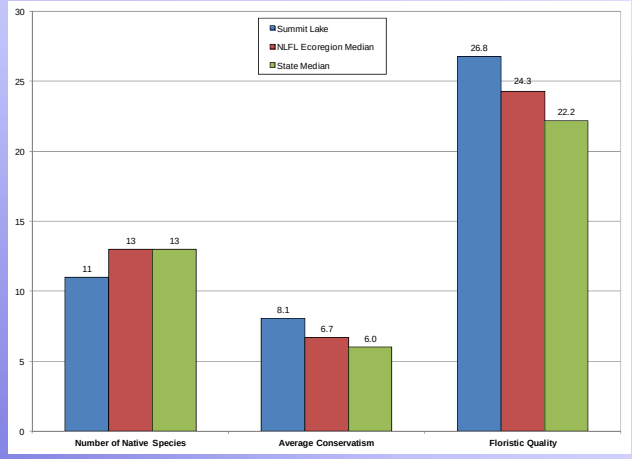
Floristic Quality Analysis



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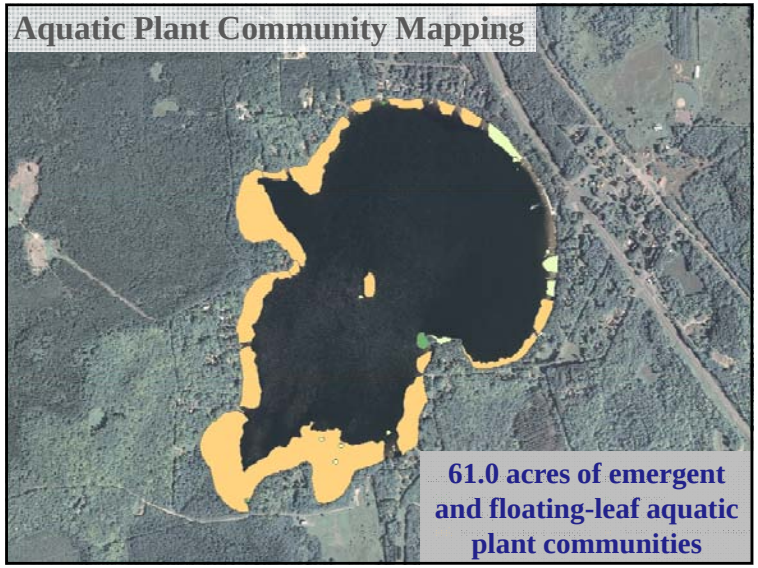
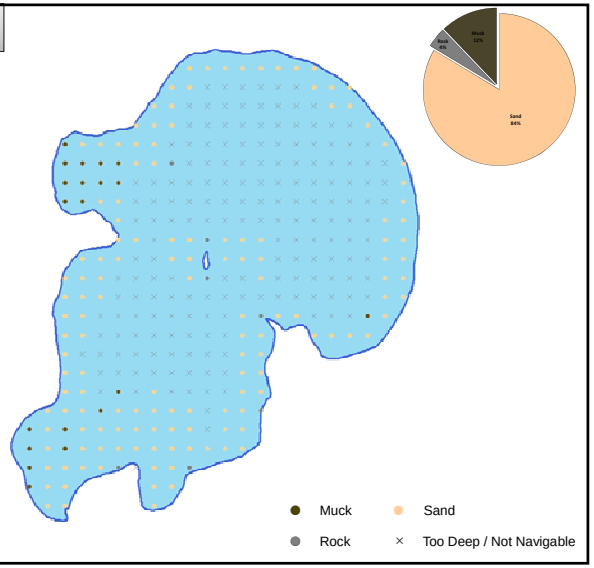
Aquatic Plant Community Mapping



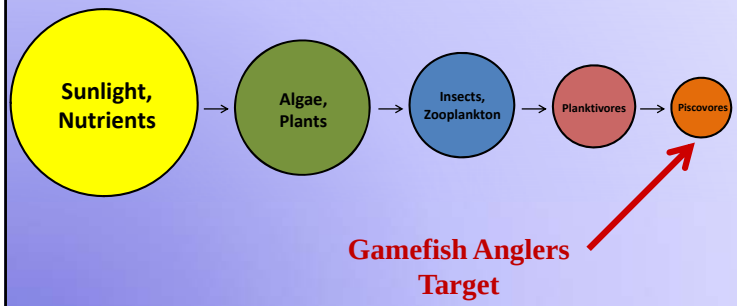
61.0 acres of emergent and floating-leaf aquatic plant communities

Sediment



Summit Lake Fisheries

Energy Flow



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Summit Lake Fisheries

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Summit Lake Fisheries

- Currently managed to for a walleye and muskellunge fishery.
  - Stocking every other year by WDNR, some approved stocking by Association.
  - WDNR seeks to establish reproducing walleye population.
- Few largemouth bass in lake, no smallmouth detected in 2002, 2009 and 2010 surveys.

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Conclusions

- Water quality is good
- Overall watershed is largely in healthy condition
  - Moderate phosphorus input; ecologically helpful landcover types present.
  - Shoreline is mostly developed-semi-natural. Some shoreland areas could benefit from restoration, though it is not vital at this time.
- Aquatic plant community
  - Based on standard analysis, native community is of good quality.
  - Lake has a fairly diverse plant community, and includes plants indicative of a high quality system.

Onterra LLC Lake Management Planning

B

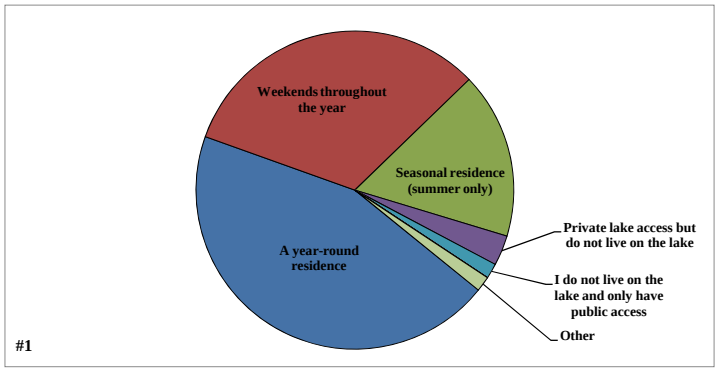
APPENDIX B

Stakeholder Survey Response Charts and Comments

Returned Surveys	65
Sent Surveys	106
Response Rate (%)	61.3

#1 What type of property do you own on Summit Lake?

	Total	%
A year-round residence	29	*45.3*
Weekends throughout the year	21	*32.8*
Seasonal residence (summer only)	11	*17.2*
Private lake access but do not live on the lake	2	*3.1*
I do not live on the lake and only have public access	1	*1.6*
Undeveloped	0	*0.0*
Resort	0	*0.0*
Rental property	0	*0.0*
Other	1	*1.6*
	64	*100.0*

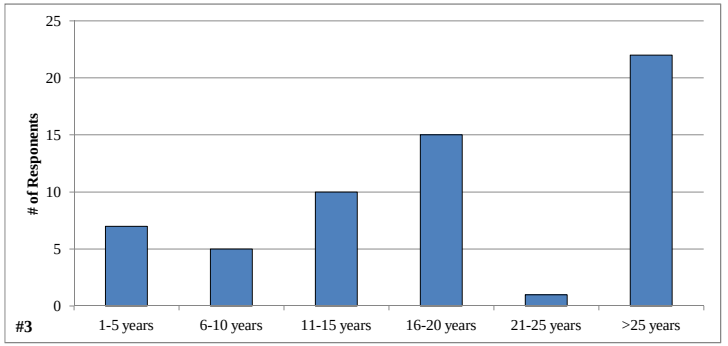


#2 If you are not a year-round resident, how many days each year is your property used by you or others?

Answered Question	56
Average	184.3
Standard deviation	132.4

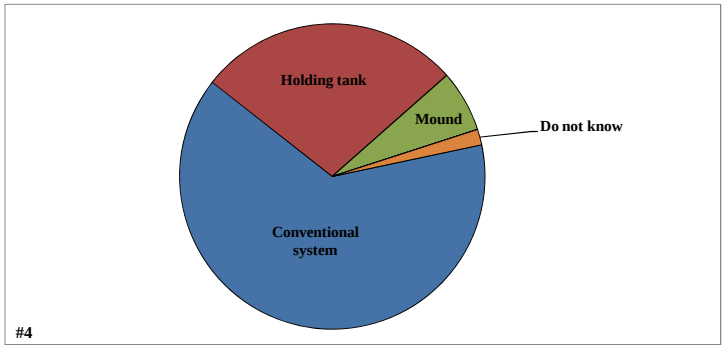
#3 How long have you owned your property on Summit Lake?

	Total	%
1-5 years	7	*11.7*
6-10 years	5	*8.3*
11-15 years	10	*16.7*
16-20 years	15	*25.0*
21-25 years	1	*1.7*
>25 years	22	*36.7*
	60	*100.0*



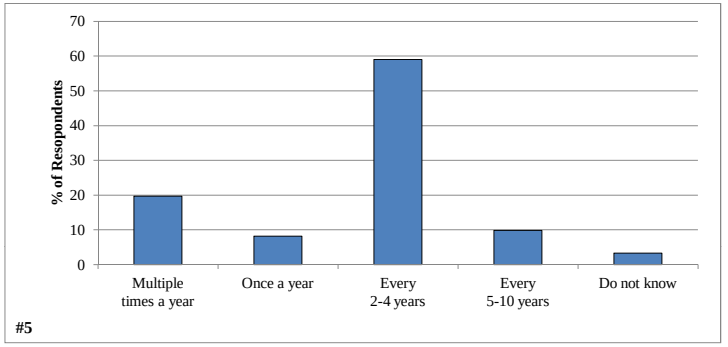
#4 What type of septic system does your property utilize?

	Total	%
Conventional system	39	*63.9*
Holding tank	17	*27.9*
Mound	4	*6.6*
Advanced treatment system	0	*0.0*
Municipal sewer	0	*0.0*
Do not know	1	*1.6*
	61	*98.4*



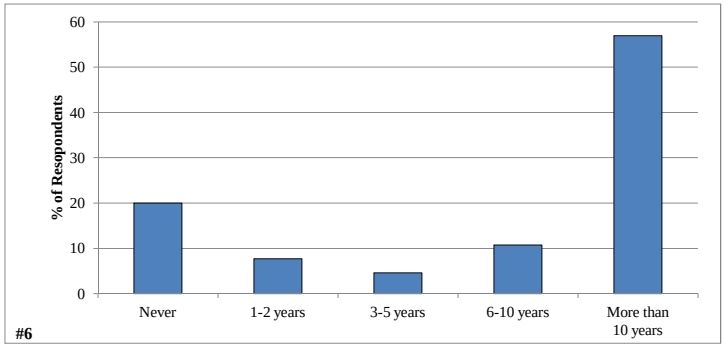
#5 How often is the septic tank on your property pumped?

	Total	%
Multiple times a year	12	*19.7*
Once a year	5	*8.2*
Every 2-4 years	36	*59.0*
Every 5-10 years	6	*9.8*
Do not know	2	*3.3*
	61	*100.0*



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

	Total	%
Never	13	*20.0*
1-2 years	5	*7.7*
3-5 years	3	*4.6*
6-10 years	7	*10.8*
More than 10 years	37	*56.9*
	65	*100.0*

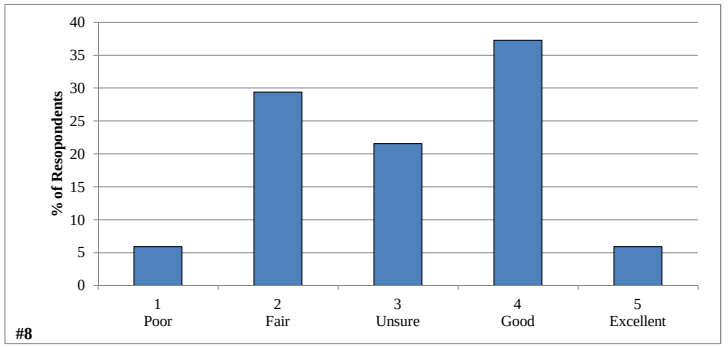


#7 Have you personally fished on Summit Lake in the past 3 years?

	Total	%
Yes	45	*88.2*
No	6	*11.8*
	51	*100.0*

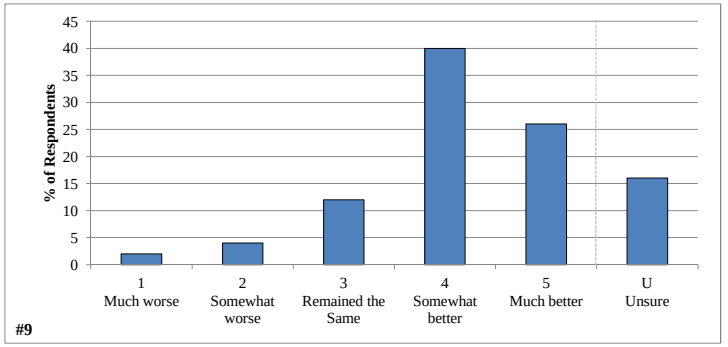
#8 How would you describe the current quality of fishing on Summit Lake?

	Total	%
1 - Poor	3	*5.9*
2 - Fair	15	*29.4*
3 - Unsure	11	*21.6*
4 - Good	19	*37.3*
5 - Excellent	3	*5.9*
	51	*100.0*



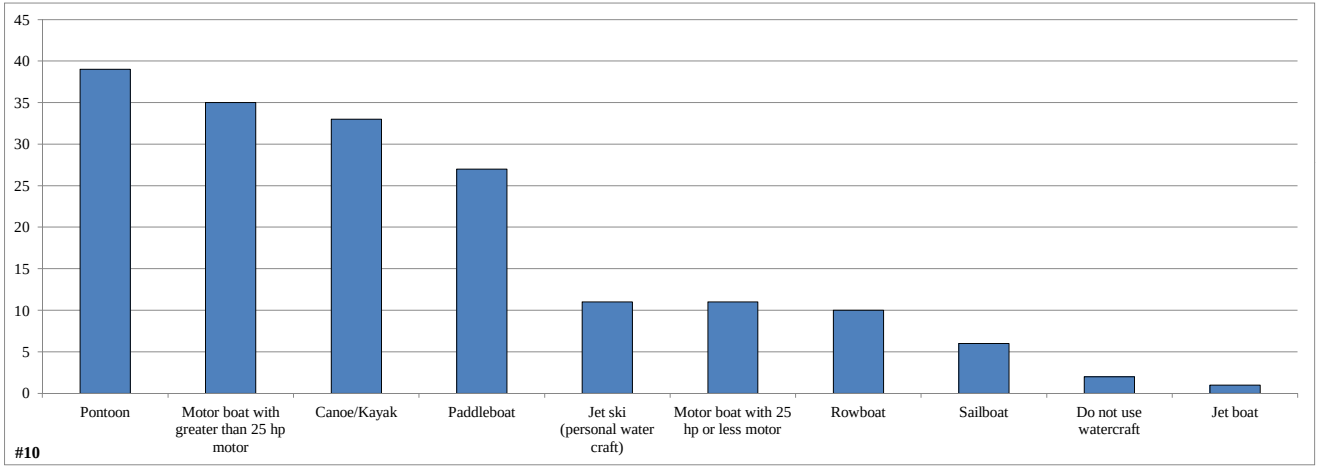
#9 How has the quality of fishing changed on Summit Lake since you started fishing the lake?

	Total	%
1 - Much worse	1	*2.0*
2 - Somewhat worse	2	*4.0*
3 - Remained the Same	6	*12.0*
4 - Somewhat better	20	*40.0*
5 - Much better	13	*26.0*
U - Unsure	8	*16.0*
	50	*100.0*



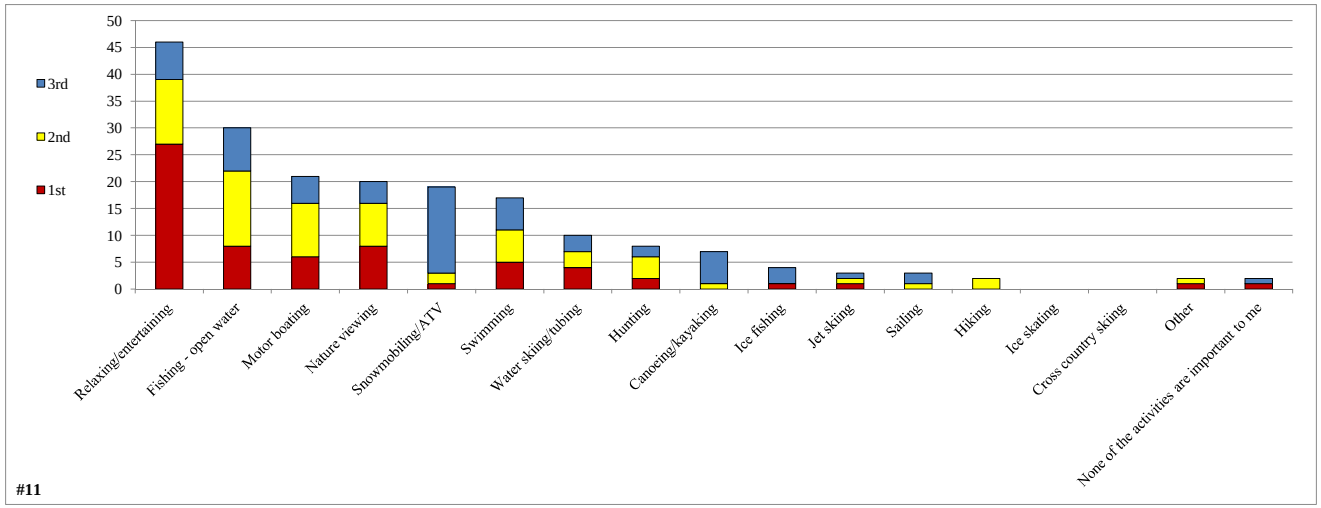
#10 What types of watercraft do you currently use on the lake?

	Total
Pontoon	39
Motor boat with greater than 25 hp motor	35
Canoe/Kayak	33
Paddleboat	27
Jet ski (personal water craft)	11
Motor boat with 25 hp or less motor	11
Rowboat	10
Sailboat	6
Do not use watercraft	2
Jet boat	1



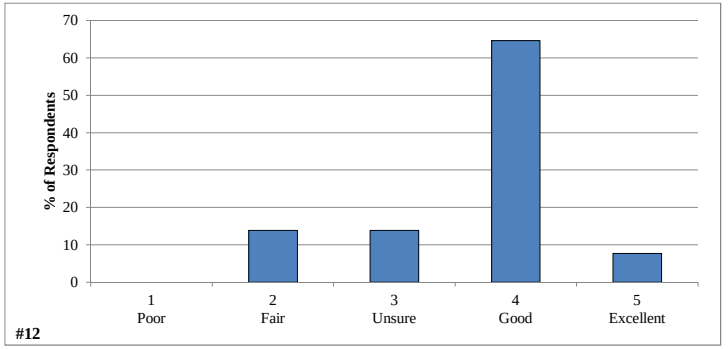
#11 Please rank up to three activities that are important reasons for owning your property on or near the lake.

	1st	2nd	3rd	*% ranked*
Relaxing/entertaining	27	12	7	*23.7*
Fishing - open water	8	14	8	*15.5*
Motor boating	6	10	5	*10.8*
Nature viewing	8	8	4	*10.3*
Snowmobiling/ATV	1	2	16	*9.8*
Swimming	5	6	6	*8.8*
Water skiing/tubing	4	3	3	*5.2*
Hunting	2	4	2	*4.1*
Canoeing/kayaking	0	1	6	*3.6*
Ice fishing	1	0	3	*2.1*
Jet skiing	1	1	1	*1.5*
Sailing	0	1	2	*1.5*
Hiking	0	2	0	*1.0*
Ice skating	0	0	0	*0.0*
Cross country skiing	0	0	0	*0.0*
Other	1	1	0	*1.0*
None of the activities are important to me	1	0	1	*1.0*
	65	65	64	*100.0*



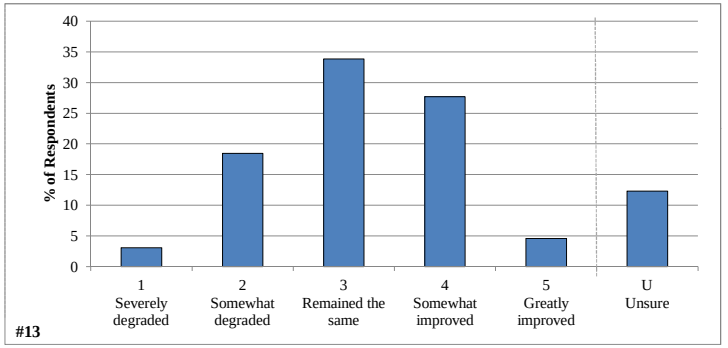
#12 How would you describe the current water quality of Summit Lake?

	Total	%
1 - Poor	0	*0.0*
2 - Fair	9	*13.8*
3 - Unsure	9	*13.8*
4 - Good	42	*64.6*
5 - Excellent	5	*7.7*
	65	*100.0*



#13 How has the water quality changed in Summit Lake since you obtained your property?

	Total	%
1 - Severely degraded	2	*3.1*
2 - Somewhat degraded	12	*18.5*
3 - Remained the same	22	*33.8*
4 - Somewhat improved	18	*27.7*
5 - Greatly improved	3	*4.6*
U - Unsure	8	*12.3*
	65	*100.0*



#14 Have you ever heard of aquatic invasive species?

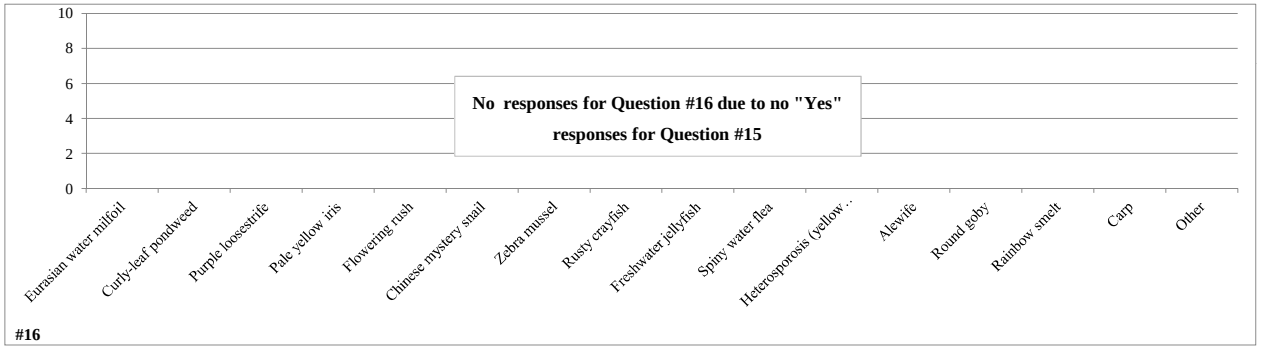
	Total	%
Yes	65	*100.0*
No	0	*0.0*
	65	*100.0*

#15 Are you aware of aquatic invasive species in Summit Lake?

	Total	%
Yes	0	*0.0*
No	64	*100.0*
	64	*100.0*

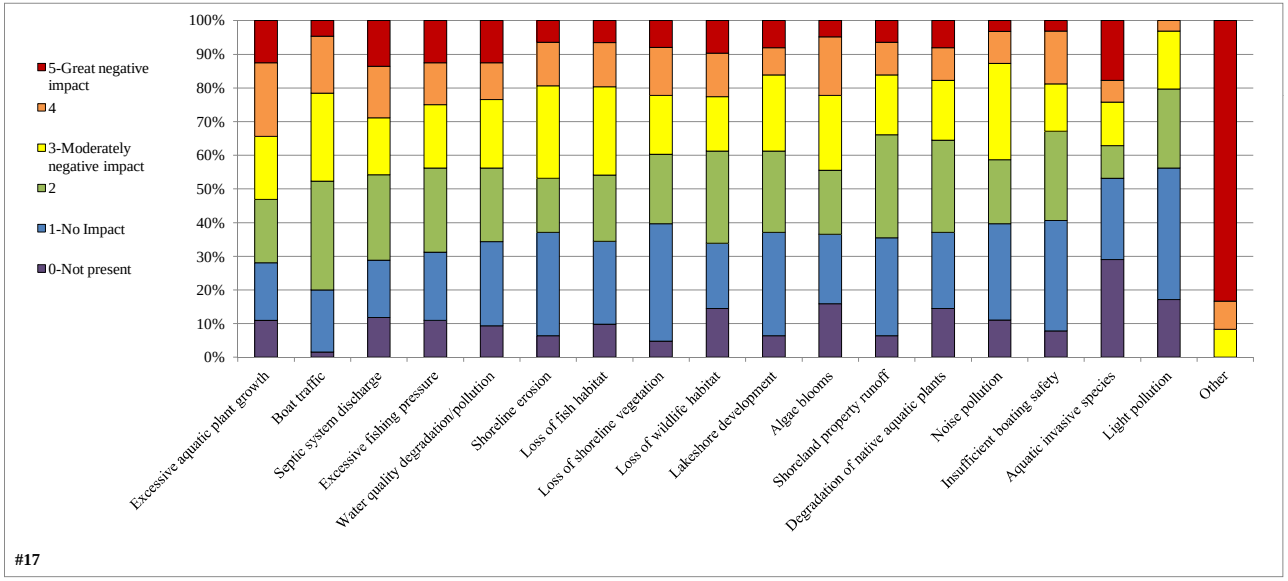
#16 Which aquatic invasive species are you aware of in the lake or channel?

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



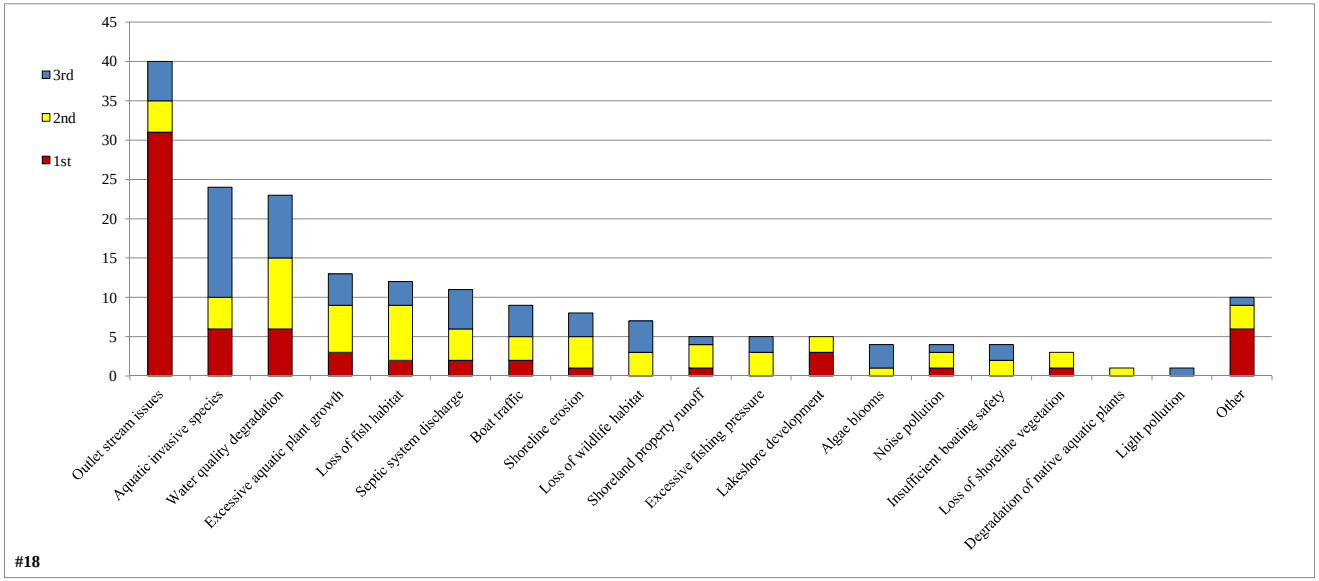
#17 To what level do you believe each of the following factors may be negatively impacting Summit Lake?

	0-Not present	1-No Impact	2	3-Moderately negative impact	4	5-Great negative impact	*Total*	*Average*
Excessive aquatic plant growth	7	11	12	12	14	8	*57*	*2.6*
Boat traffic	1	12	21	17	11	3	*64*	*2.5*
Septic system discharge	7	10	15	10	9	8	*52*	*2.5*
Excessive fishing pressure	7	13	16	12	8	8	*57*	*2.4*
Water quality degradation/pollution	6	16	14	13	7	8	*58*	*2.4*
Shoreline erosion	4	19	10	17	8	4	*58*	*2.3*
Loss of fish habitat	6	15	12	16	8	4	*55*	*2.3*
Loss of shoreline vegetation	3	22	13	11	9	5	*60*	*2.3*
Loss of wildlife habitat	9	12	17	10	8	6	*53*	*2.2*
Lakeshore development	4	19	15	14	5	5	*58*	*2.2*
Algae blooms	10	13	12	14	11	3	*53*	*2.2*
Shoreland property runoff	4	18	19	11	6	4	*58*	*2.1*
Degradation of native aquatic plants	9	14	17	11	6	5	*53*	*2.1*
Noise pollution	7	18	12	18	6	2	*56*	*2.1*
Insufficient boating safety	5	21	17	9	10	2	*59*	*2.1*
Aquatic invasive species	18	15	6	8	4	11	*44*	*2.0*
Light pollution	11	25	15	11	2	0	*53*	*1.5*
Other	0	0	0	1	1	10	*12*	*4.8*



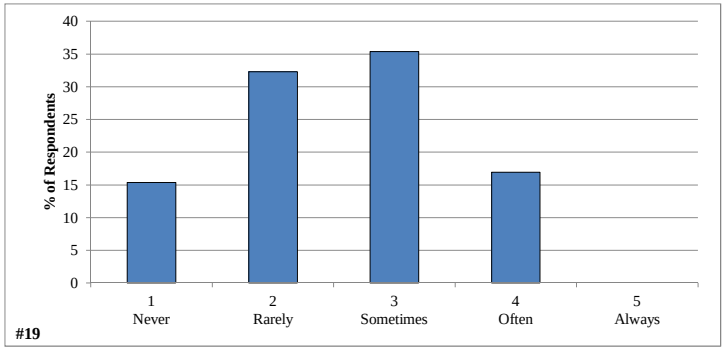
#18 From the list below, please rank your top three concerns regarding Summit Lake.

	1st	2nd	3rd	*% Ranked*
Outlet stream issues	31	4	5	*21.2*
Aquatic invasive species	6	4	14	*12.7*
Water quality degradation	6	9	8	*12.2*
Excessive aquatic plant growth	3	6	4	*6.9*
Loss of fish habitat	2	7	3	*6.3*
Septic system discharge	2	4	5	*5.8*
Boat traffic	2	3	4	*4.8*
Shoreline erosion	1	4	3	*4.2*
Loss of wildlife habitat	0	3	4	*3.7*
Shoreland property runoff	1	3	1	*2.6*
Excessive fishing pressure	0	3	2	*2.6*
Lakeshore development	3	2	0	*2.6*
Algae blooms	0	1	3	*2.1*
Noise pollution	1	2	1	*2.1*
Insufficient boating safety	0	2	2	*2.1*
Loss of shoreline vegetation	1	2	0	*1.6*
Degradation of native aquatic plants	0	1	0	*0.5*
Light pollution	0	0	1	*0.5*
Other	6	3	1	*5.3*
	65	63	61	*100.0*



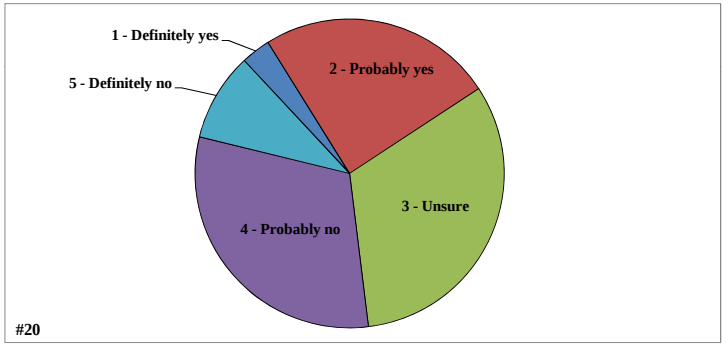
#19 During open water season how often does aquatic plant growth, including algae, negatively impact your enjoyment of Summit Lake?

	Total	%
1 - Never	10	*15.4*
2 - Rarely	21	*32.3*
3 - Sometimes	23	*35.4*
4 - Often	11	*16.9*
5 - Always	0	*0.0*
	65	*100.0*



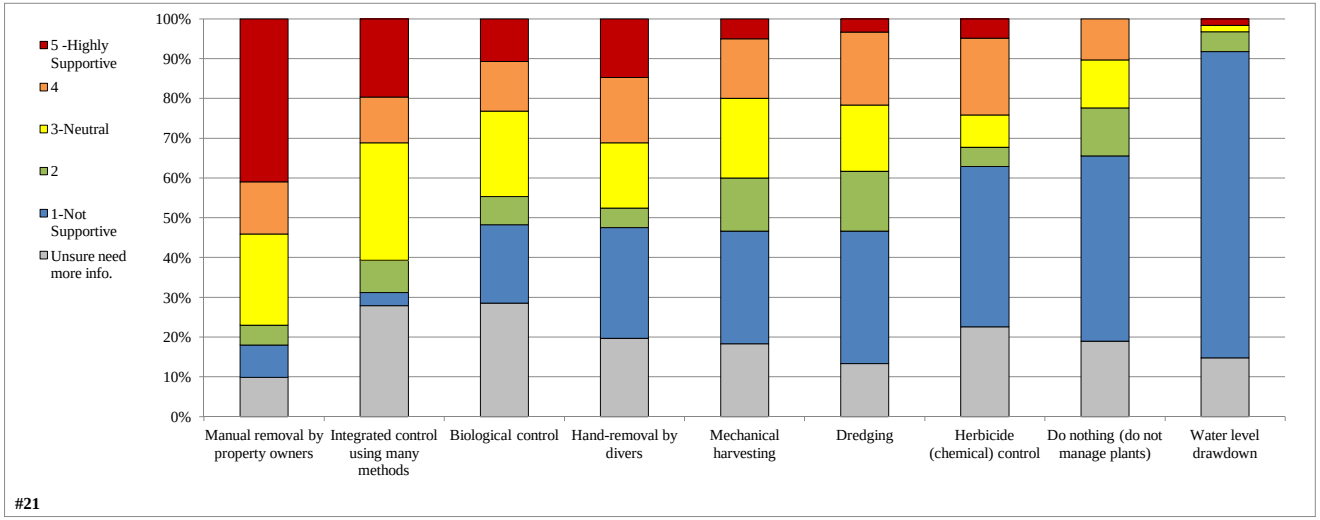
#20 Considering your answer to the question above, do you believe aquatic plant control is needed on Summit Lake?

	Total	%
1 - Definitely yes	2	*3.1*
2 - Probably yes	16	*24.6*
3 - Unsure	21	*32.3*
4 - Probably no	20	*30.8*
5 - Definitely no	6	*9.2*
	65	*100.0*



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

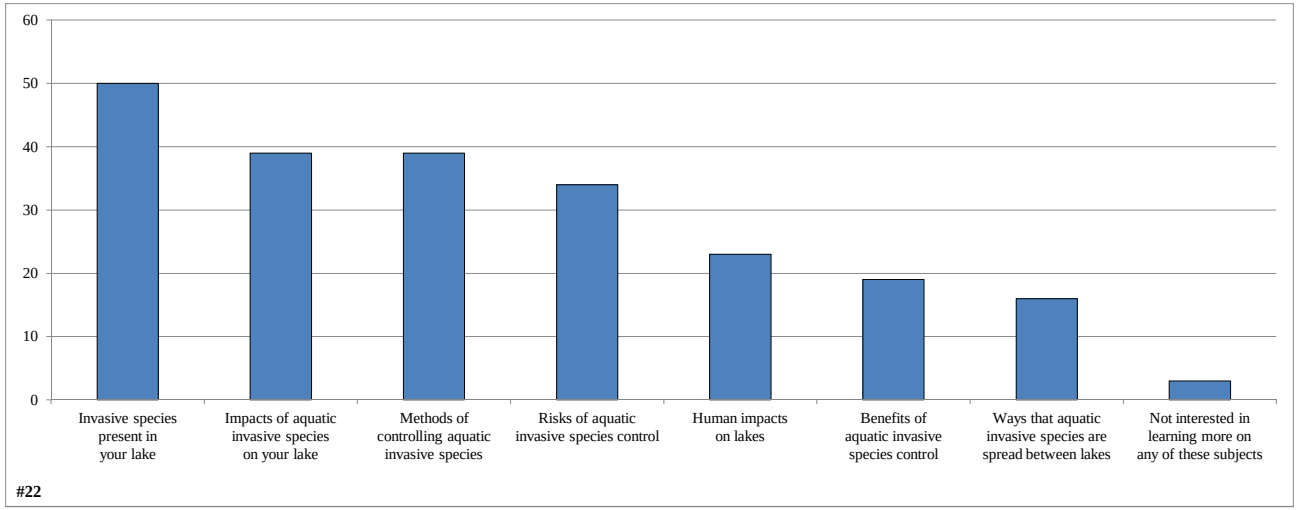
	1-Not Supportive	2	3-Neutral	4	5 -Highly Supportive	Unsure need more info.	*Total*	*Average*
Manual removal by property owners	5	3	14	8	25	6	*55*	*3.8*
Integrated control using many methods	2	5	18	7	12	17	*44*	*3.5*
Biological control	11	4	12	7	6	16	*40*	*2.8*
Hand-removal by divers	17	3	10	10	9	12	*49*	*2.8*
Mechanical harvesting	17	8	12	9	3	11	*49*	*2.4*
Dredging	20	9	10	11	2	8	*52*	*2.3*
Herbicide (chemical) control	25	3	5	12	3	14	*48*	*2.3*
Do nothing (do not manage plants)	27	7	7	6	0	11	*47*	*1.8*
Water level drawdown	47	3	1	0	1	9	*52*	*1.2*



#21

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

	Total
Invasive species present in your lake	50
Impacts of aquatic invasive species on your lake	39
Methods of controlling aquatic invasive species	39
Risks of aquatic invasive species control	34
Human impacts on lakes	23
Benefits of aquatic invasive species control	19
Ways that aquatic invasive species are spread between lakes	16
Not interested in learning more on any of these subjects	3



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

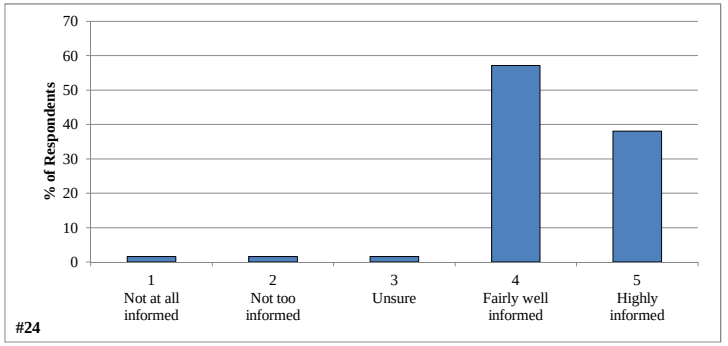
	Total	%
Yes	65	*100.0*
No	0	*0.0*
	65	*100.0*

#24 What is your membership status with the Summit Lake Association, Inc.?

	Total	%
Current member	61	*93.8*
Former member	2	*3.1*
Never been a member	2	*3.1*
	65	*100.0*

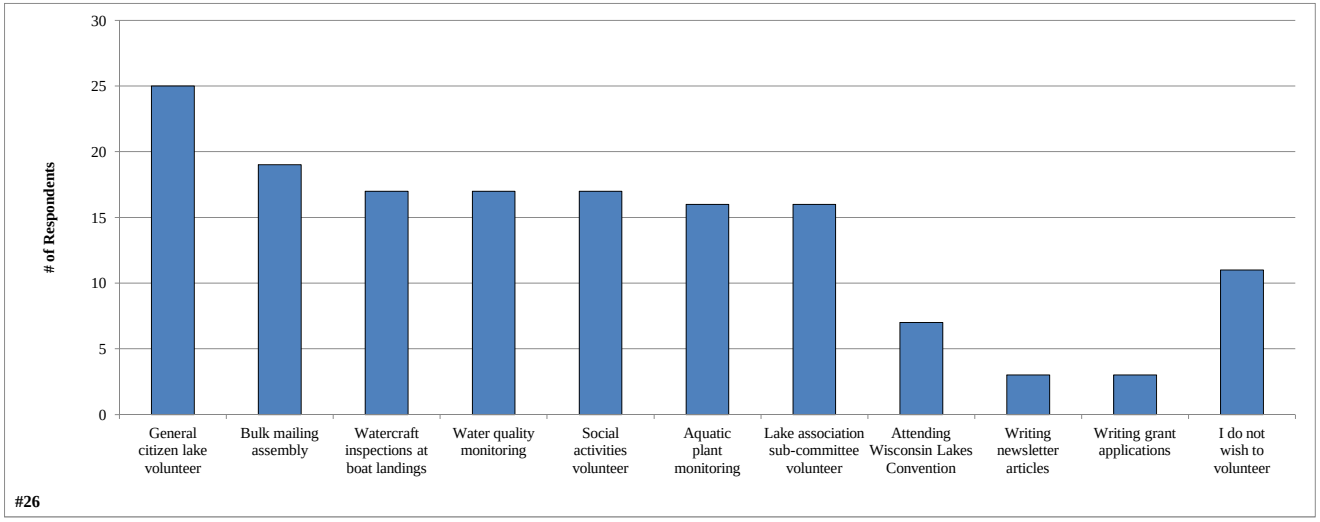
#25 How informed has the Summit Lake P & R District kept you regarding issues with Summit Lake and its management?

	Total	%
1 - Not at all informed	1	*1.6*
2 - Not too informed	1	*1.6*
3 - Unsure	1	*1.6*
4 - Fairly well informed	36	*57.1*
5 - Highly informed	24	*38.1*
	63	*100.0*



#26 Please circle the activities you would be willing to participate in if called upon.

	Total
General citizen lake volunteer	25
Bulk mailing assembly	19
Watercraft inspections at boat landings	17
Water quality monitoring	17
Social activities volunteer	17
Aquatic plant monitoring	16
Lake association sub-committee volunteer	16
Attending Wisconsin Lakes Convention	7
Writing newsletter articles	3
Writing grant applications	3
I do not wish to volunteer	11



Survey Number	1h Comment	11p Comment	16p Comment	17r Comment	18s Comment	Other Comments (and Question 27)
1						
2						
3						
4						
6						
7						
8						
9		quiet and private and r added # =cool weather				
11				unlawful trenching outlet stream		
12						
13						
14						
15						
16						
17						
18						
19						
20						
21				level of lake has dropped in recent years	low water levels	
22						
23						
24				artifical lowering of lake level	artifical lowering of lake level	
25						
26				outlet issues		

Survey Number	1h Comment	11p Comment	16p Comment	17r Comment	18s Comment	Other Comments (and Question 27)
27			the flat reeds that have increased all over the lake	why are the residents of the lake allowed to build rock walls????		
28						
29						
30				outlet destruction		
31						
32						
33						
34						
35						
36						
37						
38				water level	water level	
39						
40						
41						
42						
43						
44						
45						
46				bass lake people	bass lake	biggest threat is bass lake
47					low water level	Because of low water level we did not put our boat in the water this past season
48		view of water		water level	water level	Thanks for all your work
49						(*Name omitted*) you are doing a fantastic job!
50						0n question 4 this person uses a compost toilet.We would like to see the island preserved thus not letting it erode any further
51					low water level	We thank (*Name omitted*) for taking such an active role for the association along with other officers (*Name omitted*) board members
52						My big concern is the outlet problems to Bass Lake
53						Need to monitor activity with the outlet to prevent incidents and illegal activity .Camera r a good idea

Survey Number	1h Comment	11p Comment	16p Comment	17r Comment	18s Comment	Other Comments (and Question 27)
54	year round but not primary					Ice fishing seems to have had a negative impact on the crappie population. I have been told the people ice fishing are keeping fish of all sizes. I personally have seen crappie fishing this summer has not been as great as in the past.
55					people using our boat landing bringing boats in from other waters no one to check the motor for invasive species	A huge concern for my family is monitoring the boats that come on our lake, especially with having a public beach & Rasmussen Cottages, we have a very heavily traveled lake with tourists & fishermen. We must protect our water. 10 yrs ago you never saw fishermen come into our lake like they do now! You never know what seeds are on their motors from other lakes! Another big concern is what is going on with the Bass Lakers & how all of this is going to end. It is so sad how much bad feelings have developed because of this situation!
56					water level	The lake level has been the most pressing issue over the past few years. Fishing quality seemed to be improving but has dropped off the last couple years. Reed growth on the north shore and west shore seems to have increased but maybe a result of low lake levesl and lower boat activity in bays and nearer to shore. The control of the lake discharge and issues with individuals on Bass Lake need to be resolved. The tampering with the water levels should be left to natural impacts, not forced by individuals.
57						Controlling lake level at outlet. Why is lake not showing tint? Are we getting less water inlet from the Tamarak Swamp? Very difficult to lauch boat; lake level too low.
58						We at Summit Lake need to try to keep others from destroyng our water levels by trying to take what is not theirs to begin with. Keeping the culvert level as it is is vital. Keeping the outlet from being ravaged by others is vital and holding the shoreline at (*Name omitted*) is crucial. These 3 areas are the heart of keeping Summit Lake healthy. Our lake's integrity is vital to ourselves and our children. We need to keep our lake levels from being devastated which will lower our property values as well. We need to keep others away from taking what will harm Summit Lake in the future. We need to keep Summit Lake a great place to vacation with family & friends.

Survey Number	1h Comment	11p Comment	16p Comment	17r Comment	18s Comment	Other Comments (and Question 27)
59				artifical lowering of water level dredging		Try to control plant life by mechanical &/or natural means instead of chemicals. *Strongly recommend Lake District formation -- be proactive & prevent future problems instead of reacting to them once they exist. Sewage (septic) systems should be evaluated & minimum standards made & enforced. Keep doing what we are doing to enhance fishing. Would like to get out more but don't have time right now. *Outlet needs to be protected to keep lake water levels at proper height to ensure stable plant/wildlife environment.
60					intrusion from Bass Lake	Is there any way to stop Bass Lake? We need to get some outside help to stop Bass Lake. President, governor, assembly??? Newspaper - Milwaukee Journal. We need a sign on island: No fireworks when loons are nesting. We need to get trench filled in.
61				water level		I have noticed the 4-wheelers will drive into the lake at the boat landing to wash off. This may not be good if they just drove through creeks/swamps. This could spread aquatic species. A sign should be posted at boat landing. This could be a real serious way of infecting our lake.
62						I do not want to become a Lake District and be taxed for these services. I am for and will volunteer as I am available for fish management and habitat programs. I would like more information via links to websites or other to get mor information on DNR rulings on our lake. Do not know the specifics of latest ruling to fix outlet. Think we should release our attorney and return any unused money back to property owners. Do not see legal value other than to keep stirring the pot so he can keep booking hours.
63				loss of water due to outlet dredging		Please continue to fish & to restore the outlet to its natural state. Would favor closing the lake (boat ramp) to the public to protect our boating safety from invasive species and to protect our fishing. Concerned about lower water level and boating safety. Concerned about clear water and increased weed growth. Continue stocking efforts by fish association. Implement a slot rule for walleye. Implement a catch & release only for musky. Do not see DNR presence in summer months to help patrol fishing & boating safety.

Survey Number	1h Comment	11p Comment	16p Comment	17r Comment	18s Comment	Other Comments (and Question 27)
64						We need to become more proactive to protect & preserve the quality or lack thereof of our lake, particularly the outlet issues. The association is a very important beginning.
65				drought		In the 40 years that we have had property on Summit Lake, we have watched the lake level from high in spring to low in autumn. It's just how Summit Lake is. This year it is our belief that it was low in spring & came up during summer (but not much). A governing body cannot control "Mother Nature." Summit Lake & all of the surrounding lakes will come back. Those that wnat to molest a short piece of creek to satisfy their own personal enjoymnet will get caught. We cannot possibly patrol the lake & its egress 24/7.

C

APPENDIX C

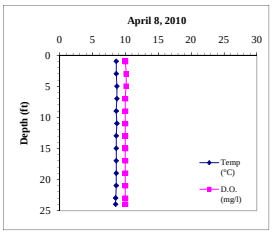
Water Quality Data

Summit Lake

Date: 04-08-10
Time: 10:22
Weather: cloudy, breezy, light rain/snow
Ent: TWH **Verf:**

Max Depth (ft): 25.9
SLS Depth (ft): 3.0
SLB Depth (ft): 24.0
Secchi Depth (ft): 4.5

Depth (ft)	Temp (°C)	D.O. (mg/l)	pH	Sp. Cond (µS/cm)
1.0	8.6	10.0	5.2	
3.0	8.6	10.1	5.1	
5.0	8.7	10.1	5.1	
7.0	8.7	10.0	5.1	
9.0	8.6	10.0	5.1	
11.0	8.7	10.0	5.1	
13.0	8.6	10.0	5.1	
15.0	8.6	10.0	5.2	
17.0	8.6	10.0	5.2	
19.0	8.6	10.0	5.2	
21.0	8.6	10.0	5.2	
23.0	8.5	10.0	5.2	
24.0	8.5	10.0	5.2	



Parameter	SLS	SLB
Total P (µg/L)	13.000	13.000
Dissolved P (µg/L)	ND	ND
Chl a (µg/L)	4.46	
TKN (µg/L	540.00	510.00
NO3+NO2-N (µg/L)	60.000	61.000
NH3-N (µg/L)	ND	ND
Total N (µg/L)	540.00	510.00
Lab Cond. (µS/cm)	31	31
Lab pH	5.24	5.25
Alkal (mg/l CaCO3)	ND	ND
Total Susp Sol (mg/l)	ND	ND
Calcium (mg/l)	1.8	

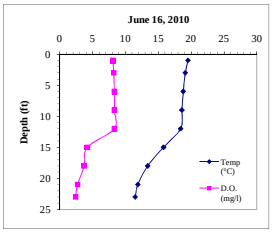
Data collected by DAC and TWH (Onterra)

Summit Lake

Date: 06-16-10
Time: 14:00
Weather: 50% sun, 65°F
Ent: TWH **Verf:**

Max Depth (ft): 25.7
SLS Depth (ft): 3.0
SLB Depth (ft): 23.0
Secchi Depth (ft): 5.9

Depth (ft)	Temp (°C)	D.O. (mg/l)	pH	Sp. Cond (µS/cm)
1.0	19.5	8.1		
3.0	19.1	8.2		
6.0	18.8	8.3		
9.0	18.6	8.3		
12.0	18.4	8.3		
15.0	15.8	4.2		
18.0	13.4	3.7		
21.0	11.9	2.7		
23.0	11.5	2.4		



Parameter	SLS	SLB
Total P (µg/L)	22.000	30.000
Dissolved P (µg/L)		
Chl a (µg/L)	2.67	
TKN (µg/L		
NO3+NO2-N (µg/L)		
NH3-N (µg/L)		
Total N (µg/L)		
Lab Cond. (µS/cm)		
Lab pH		
Alkal (mg/l CaCO3)		
Total Susp Sol (mg/l)	ND	ND
Calcium (mg/l)		

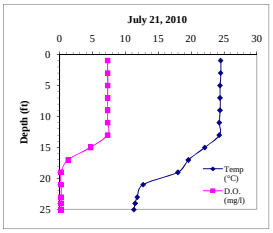
Data collected by BTB and TWH (Onterra)

Summit Lake

Date: 07-21-10
Time: 13:24
Weather: 80% sun, windy, 75°F
Ent: TWH **Verf:**

Max Depth (ft): 25.9
SLS Depth (ft): 3.0
SLB Depth (ft): 24.0
Secchi Depth (ft): 4.8

Depth (ft)	Temp (°C)	D.O. (mg/l)	pH	Sp. Cond (µS/cm)
1.0	24.5	7.3	5.1	30
3.0	24.5	7.3	5.1	30
5.0	24.4	7.3	5.1	30
7.0	24.4	7.3	5.1	30
9.0	24.4	7.3	5.1	31
11.0	24.3	7.3	5.1	31
13.0	24.3	7.3	5.1	30
15.0	22.1	4.7	4.9	31
17.0	19.6	1.3	4.8	32
19.0	18.0	0.2	5.3	33
21.0	12.7	0.2	5.5	34
23.0	11.8	0.2	5.5	35
24.0	11.5	0.2	5.6	35
25.0	11.3	0.2	5.6	36



Parameter	SLS	SLB
Total P (µg/L)	22.000	105.000
Dissolved P (µg/L)	ND	10.000
Chl a (µg/L)	4.85	
TKN (µg/L	520.00	1010.00
NO3+NO2-N (µg/L)	ND	ND
NH3-N (µg/L)	ND	369.000
Total N (µg/L)	520.00	1010.00
Lab Cond. (µS/cm)	31	37
Lab pH	5.33	5.97
Alkal (mg/l CaCO3)	ND	7
Total Susp Sol (mg/l)	ND	5
Calcium (mg/l)		

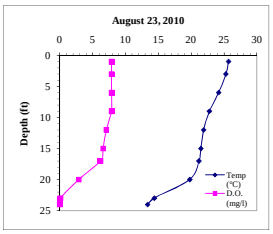
Data collected by DAC and TWH (Onterra)

Summit Lake

Date: 08-23-10
Time: 16:00
Weather: clear, breezy, 80°F
Ent: TWH **Verf:**

Max Depth (ft): 25.2
SLS Depth (ft): 3.0
SLB Depth (ft): 22.0
Secchi Depth (ft): 7.1

Depth (ft)	Temp (°C)	D.O. (mg/l)	pH	Sp. Cond (µS/cm)
1.0	25.7	7.9		
3.0	25.3	7.9		
6.0	24.2	7.9		
9.0	22.8	7.9		
12.0	21.9	7.1		
15.0	21.5	6.6		
17.0	21.2	6.2		
20.0	19.8	2.9		
23.0	14.4	0.1		
24.0	13.4	0.0		



Parameter	SLS	SLB
Total P (µg/L)	13.000	106.000
Dissolved P (µg/L)		
Chl a (µg/L)	2.07	
TKN (µg/L		
NO3+NO2-N (µg/L)		
NH3-N (µg/L)		
Total N (µg/L)		
Lab Cond. (µS/cm)		
Lab pH		
Alkal (mg/l CaCO3)		
Total Susp Sol (mg/l)	ND	3
Calcium (mg/l)		

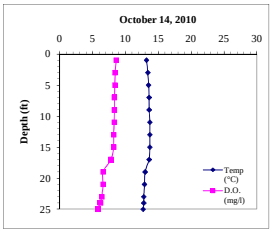
Data collected by TAH and MKH (Onterra)

Summit Lake

Date: 10-14-10
Time: 10:45
Weather: 50% sun, 50°F
Ent: TWH **Verf:**

Max Depth (ft): 26.7
SLS Depth (ft): 3.0
SLB Depth (ft): 24.0
Secchi Depth (ft): 5.1

Depth (ft)	Temp (°C)	D.O. (mg/l)	pH	Sp. Cond (µS/cm)
1.0	13.2	8.6		
3.0	13.4	8.4		
5.0	13.5	8.4		
7.0	13.6	8.3		
9.0	13.6	8.3		
11.0	13.7	8.3		
13.0	13.7	8.2		
15.0	13.7	8.2		
17.0	13.6	7.8		
19.0	13.0	6.6		
21.0	12.9	6.6		
23.0	12.8	6.4		
24.0	12.8	6.2		
25.0	12.7	5.8		



Parameter	SLS	SLB
Total P (µg/L)	22.000	21.000
Dissolved P (µg/L)		
Chl a (µg/L)	0.87	
TKN (µg/L		
NO3+NO2-N (µg/L)		
NH3-N (µg/L)		
Total N (µg/L)		
Lab Cond. (µS/cm)		
Lab pH		
Alkal (mg/l CaCO3)		
Total Susp Sol (mg/l)	ND	ND
Calcium (mg/l)		

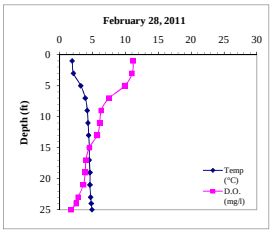
Data collected by TWH (Onterra)

Summit Lake

Date: 02-28-11
Time: 11:25
Weather: 100% sun, windy, 25°F
Ent: TWH **Verf:**

Max Depth (ft): 25.9
SLS Depth (ft): 3.0
SLB Depth (ft): 24.0
Secchi Depth (ft): 3.0

Depth (ft)	Temp (°C)	D.O. (mg/l)	pH	Sp. Cond (µS/cm)
1.0	1.9	11.2		
3.0	2.1	11.0		
5.0	3.2	9.9		
7.0	3.9	7.5		
9.0	4.2	6.3		
11.0	4.3	6.1		
13.0	4.4	5.7		
15.0	4.5	4.5		
17.0	4.5	4.0		
19.0	4.6	3.9		
21.0	4.6	3.6		
23.0	4.7	2.8		
24.0	4.8	2.5		
25.0	4.9	1.7		



Parameter	SLS	SLB
Total P (µg/L)	18.000	41.000
Dissolved P (µg/L)	ND	16.000
Chl a (µg/L)		
TKN (µg/L	560.00	740.00
NO3+NO2-N (µg/L)	61.000	75.000
NH3-N (µg/L)	49.000	160.000
Total N (µg/L)	560.00	740.00
Lab Cond. (µS/cm)		
Lab pH		
Alkal (mg/l CaCO3)		
Total Susp Sol (mg/l)	ND	ND
Calcium (mg/l)		

Data collected by DAC and TWH (Onterra) Note: Ice depth 1.7'

Water Quality Data

2010-2011	Surface		Bottom	
Parameter	Count	Mean	Count	Mean
Secchi Depth (feet)	6	5.1	NA	NA
Total P (µg/L)	6	18.3	6	52.7
Dissolved P (µg/L)	0		2	13.0
Chl a (µg/L)	5	3.0	0	
TKN (µg/L	3	540.0	3	753.3
NO3+NO2-N (µg/L)	2	60.5	2	68.0
NH3-N (µg/L)	1	49.0	2	264.5
Total N (µg/L)	3	540.0	3	753.3
Lab Cond. (µS/cm)	2	31.0	2	34.0
Lab pH	2	5.3	2	5.6
Alkal (mg/l CaCO3)	0		1	7.0
Total Susp Sol (mg/l)	0		2	4.0
Calcium (µg/L)	1	1.8	0	

Wisconsin Trophic State Index (WTSI)

Year	TP	Chla	SD
1979	53.50		57.14
2000			
2001			
2002		44.56	62.13
2003			
2004			
2005			
2006			
2007			
2008			
2009			53.67
2010	50.80	43.37	50.30
All Years (weighted)	51.32	43.84	52.28
WI Natural Lakes	53.19	54.23	47.33
Northeast Region	51.05	51.49	45.61

Morphological / Geographical Data

Parameter	Value
Acreage	282
Volume (acre-feet)	
Perimeter (miles)	
Shoreland Development	
Maximum Depth (feet)	26
County	Langlade County
WBIC	1445600
Lillie Mason Region(1983)	Northeast Region
Nichols Ecoregion(1999)	NLFF

Watershed Data

WiLMS Class	Acreage	kg/yr	lbs/yr
Forest			
Open Water			
Pasture/Grass			
Row Crops			
Urban - Rural Residential			
Wetland			

Watershed to Lake Area

	Secchi (feet)				Chlorophyll a (µg/L)				Phosphorus (µg/L)				Phosphorus (µg/L)				Nitrogen (µg/L)			
	Growing Season		Summer		Growing Season		Summer		Growing Season		Summer		Spring Turnover		Fall Turnover		Spring Turnover		Fall Turnover	
Year	Count	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean
1979	1	4.0	1	4.0					1	26.0	1	26.0								
2000																				
2001																				
2002	4	3.0	3	2.8	3	3.7	3	3.7												
2003																				
2004																				
2005																				
2006																				
2007																				
2008	1	4.0	0																	
2009	27	5.5	16	5.1																
2010	31	6.2	22	6.4	7	3.0	5	3.2	7	18.1	5	18.4								
All Years (weighted)		5.6		5.6		3.2		3.4		19.1		19.7								
WI Natural Lakes				7.9				13.4				25								
Northeast Region				8.9				9.3				19								

Summer 2010 N: 520
Summer 2010 P: 19

Summer 2010 N:P 27 :1

D

APPENDIX D

Watershed Analysis WiLMS Results

Date: 6/28/2011 Scenario: Summit wsModel, v1

Lake Id: 1445600
Watershed Id: 0

Hydrologic and Morphometric Data

Tributary Drainage Area: 3423.4 acre
Total Unit Runoff: 12 in.
Annual Runoff Volume: 3423.4 acre-ft
Lake Surface Area <As>: 280 acre
Lake Volume <V>: 2845.28 acre-ft
Lake Mean Depth <z>: 10.2 ft
Precipitation - Evaporation: 5.3 in.
Hydraulic Loading: 3547.1 acre-ft/year
Areal Water Load <qs>: 12.7 ft/year
Lake Flushing Rate <p>: 1.25 1/year
Water Residence Time: 0.80 year
Observed spring overturn total phosphorus (SPO): 13.0 mg/m^3
Observed growing season mean phosphorus (GSM): 18.1 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	438.0	0.10	0.30	0.50	26.4	18	53	89
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)	26.1	0.05	0.10	0.25	0.5	1	1	3
Wetlands	1319.0	0.10	0.10	0.10	26.5	53	53	53
Forest	1640.3	0.05	0.09	0.18	29.7	33	60	119
Lake Surface	280.0	0.10	0.30	1.00	16.9	11	34	113

POINT SOURCE DATA

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

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)	256.1	443.9	832.1	100.0
Total Loading (kg)	116.2	201.4	377.5	100.0
Areal Loading (lb/ac-year)	0.91	1.59	2.97	0.0
Areal Loading (mg/m^2-year)	102.51	177.70	333.11	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)	231.1	369.0	582.3	100.0
Total NPS Loading (kg)	104.8	167.4	264.1	100.0

Phosphorus Prediction and Uncertainty Analysis Module

Date: 6/28/2011 Scenario: 6
Observed spring overturn total phosphorus (SPO): 13.0 mg/m^3
Observed growing season mean phosphorus (GSM): 18.1 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	15	26	48	8	44
Canfield-Bachmann, 1981 Natural Lake	16	25	41	7	39
Canfield-Bachmann, 1981 Artificial Lake	15	23	35	5	28
Rechow, 1979 General	6	11	21	-7	-39
Rechow, 1977 Anoxic	21	36	68	18	99
Rechow, 1977 water load<50m/year	12	21	39	3	17
Rechow, 1977 water load>50m/year	N/A	N/A	N/A	N/A	N/A
Walker, 1977 General	15	26	49	13	100
Vollenweider, 1982 Combined OECD	13	21	35	5	32
Dillon-Rigler-Kirchner	7	13	24	0	0
Vollenweider, 1982 Shallow Lake/Res.	10	17	29	1	6
Larsen-Mercier, 1976	14	24	46	11	85
Nurnberg, 1984 Oxic	8	14	27	-4	-22

Lake Phosphorus Model	Confidence Lower Bound	Confidence Upper Bound	Parameter Fit?	Back Calculation (kg/year)	Model Type
Walker, 1987 Reservoir	16	42	FIT	0	GSM
Canfield-Bachmann, 1981 Natural Lake	8	72	FIT	1	GSM
Canfield-Bachmann, 1981 Artificial Lake	7	66	FIT	1	GSM
Rechow, 1979 General	6	19	FIT	0	GSM
Rechow, 1977 Anoxic	23	59	FIT	0	GSM
Rechow, 1977 water load<50m/year	13	35	FIT	0	GSM
Rechow, 1977 water load>50m/year	N/A	N/A	N/A	N/A	N/A
Walker, 1977 General	14	47	FIT	0	SPO
Vollenweider, 1982 Combined OECD	11	38	FIT	0	ANN
Dillon-Rigler-Kirchner	8	21	FIT	0	SPO
Vollenweider, 1982 Shallow Lake/Res.	9	30	FIT	0	ANN
Larsen-Mercier, 1976	16	39	P Pin	0	SPO
Nurnberg, 1984 Oxic	8	25	FIT	0	ANN

Water and Nutrient Outflow Module

Date: 6/28/2011 Scenario: 5
Average Annual Surface Total Phosphorus: 18.1mg/m^3
Annual Discharge: 3.55E+003 AF => 4.38E+006 m^3
Annual Outflow Loading: 167.1 LB => 75.8 kg

E

APPENDIX E

Aquatic Plant Survey Data

Point Number	Latitude	Longitude	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	Notes	Total Rake Fullness	Sparganium fluctuans	Nuphar variegata	Isoetes echinospora	Utricularia geminiscapa	Eleocharis palustris	Potamogeton epihydrus	Eriocaulon aquaticum	Nymphaea odorata	Potamogeton oakesianus	Brasenia schreberi	Dulichium arundinaceum	Myriophyllum tenellum	Aquatic Moss	Freshwater Sponge
1	45.3701022	-89.2147903	3	M	P		1	1													
2	45.36958917	-89.2147974	3	M	P		1	1			1				1						
3	45.36907615	-89.2148045	2	M	P		3	1			1									3	
4	45.36856312	-89.2148116	2	M	P	No Vegetation															
5	45.37061022	-89.21405536	1	S	P		1		1				1								
6	45.3700972	-89.21406246	5	S	P		1	1			1				1						
7	45.36958417	-89.21406957	5	S	P		1	1							1						
8	45.36907114	-89.21407667	5	S	P		2	2													
9	45.36855811	-89.21408378	5	S	P		3	3													
10	45.36804508	-89.21409088	3	S	P		2	2			1										
11	45.3777876	-89.21322791	3	M	P		1	1	1		1									1	
12	45.37727457	-89.21323503	3	M	P		1	1			1										
13	45.37676155	-89.21324214	2	M	P		2	1			2										
14	45.37624852	-89.21324926	2	M	P		2	2	1		2										
15	45.37419641	-89.21327771	1	S	P		1	1	1												
16	45.37368338	-89.21328483	2	S	P		1			1		1									
17	45.37317035	-89.21329194	2	S	P		1	1		1											
18	45.37265732	-89.21329906	3	S	P		3	3												1	
19	45.3721443	-89.21330617	2	S	P		1	1	1	1											
20	45.37163127	-89.21331328	2	S	P		1	1	1	1											
21	45.37111824	-89.21332039	2	S	P		1	1		1											
22	45.37060521	-89.21332751	5	S	P		1													1	
23	45.37009218	-89.21333462	7	M	P		1	1													
24	45.36957916	-89.21334173	6	M	P	No Vegetation															
25	45.36906613	-89.21334884	5	S	P	No Vegetation		V													
26	45.3685531	-89.21335595	4	S	P		2	2			1										
27	45.36804007	-89.21336307	3	S	P		2	2													
28	45.37778258	-89.21249997	5	S	P		1				1									1	
29	45.37726956	-89.21250709	4	M	P		3	3													
30	45.37675653	-89.21251422	3	M	P		2	2			1										
31	45.3762435	-89.21252134	2	M	P		2	1	1		2										
32	45.37470442	-89.2125427	2	S	P		1		1	1		1									
33	45.37419139	-89.21254982	5	S	P		2	2					1								
34	45.37367836	-89.21255694	5	S	P		3													3	

35	45.37316534	-89.21256406	6	S	P		3												3	
36	45.37265231	-89.21257118	6	S	P	No Vegetation														
37	45.37213928	-89.2125783				Too Deep														
38	45.37162625	-89.21258542	7	S	P		1												1	
39	45.37111323	-89.21259254	6	S	P		1												1	
40	45.3706002	-89.21259966	9	S	P	No Vegetation														
41	45.37008717	-89.21260678	8	S	P	No Vegetation														
42	45.36957414	-89.21261389	7	S	P	No Vegetation														
43	45.36906111	-89.21262101	4	S	P		2	2											1	
44	45.37777756	-89.21177203	4	S	P	No Vegetation			V											
45	45.37726453	-89.21177916	6	M	P		1												1	
46	45.37675151	-89.21178629	6	M	P		1				1								1	
47	45.37623848	-89.21179342	2	S	P		1	1	1											
48	45.3746994	-89.2118148	4	S	P		3												3	
49	45.37418637	-89.21182192	8	S	P	No Vegetation														
50	45.37367334	-89.21182905	8	S	P	No Vegetation														
51	45.37316032	-89.21183618				Too Deep														
52	45.37264729	-89.2118433				Too Deep														
53	45.37213426	-89.21185043				Too Deep														
54	45.37162123	-89.21185756				Too Deep														
55	45.3711082	-89.21186468				Too Deep														
56	45.37059518	-89.21187181	9	M	P	No Vegetation														
57	45.37008215	-89.21187893	8	S	P	No Vegetation														
58	45.36956912	-89.21188606	5	S	P		3	3												
59	45.36905609	-89.21189318	1	S	P		1	1	1	1				1						
60	45.37777254	-89.21104409	4	S	P		1		V										1	
61	45.37725951	-89.21105123	6	M	P	No Vegetation														
62	45.37674648	-89.21105836	7	M	P	No Vegetation														
63	45.37623345	-89.21106549	6	S	P		1	1			1									
64	45.37572043	-89.21107263	3	S	P		1	1	1		1								1	
65	45.3752074	-89.21107976	1	S	P		1					1		1						
66	45.37469437	-89.2110869	6	S	P		1												1	
67	45.37418135	-89.21109403				Too Deep														
68	45.37366832	-89.21110116				Too Deep														
69	45.37315529	-89.2111083				Too Deep														
70	45.37264226	-89.21111543				Too Deep														
71	45.37212924	-89.21112256				Too Deep														
72	45.37161621	-89.2111297				Too Deep														
73	45.37110318	-89.21113683	9	M	P	No Vegetation														
74	45.37059015	-89.21114396	9	S	P	No Vegetation														
75	45.37007712	-89.21115109	6	S	P		1	1											1	
76	45.3695641	-89.21115822	4	S	P		1	1	1										1	

77	45.36905107	-89.21116536	1	R	P		1			1		1		1						1	
78	45.37828053	-89.21030901	1	S	P		1			1		1		1							
79	45.3777675	-89.21031615	1	S	P		1					1									
80	45.37725448	-89.21032329	5	S	P	No Vegetation															
81	45.37674145	-89.21033043				Too Deep															
82	45.37622842	-89.21033757				Too Deep															
83	45.3757154	-89.21034471				Too Deep															
84	45.37520237	-89.21035186	7	S	P		1													1	
85	45.37468934	-89.210359				Too Deep															
86	45.37417632	-89.21036614				Too Deep															
87	45.37366329	-89.21037328				Too Deep															
88	45.37315026	-89.21038042				Too Deep															
89	45.37263723	-89.21038756				Too Deep															
90	45.37212421	-89.21039469				Too Deep															
91	45.37161118	-89.21040183				Too Deep															
92	45.37109815	-89.21040897				Too Deep															
93	45.37058512	-89.21041611	7	S	P		1													1	
94	45.3700721	-89.21042325	4	S	P		1	1	1			1									
95	45.36955907	-89.21043039	2	S	P		1		1			1									
96	45.36904604	-89.21043753				Unreachable															
97	45.37878852	-89.20957391	1	S	P		1		1	1			1								
98	45.3782755	-89.20958106	2	S	P	No Vegetation															
99	45.37776247	-89.20958821	5	S	P		1													1	
100	45.37724944	-89.20959536	5	S	P	No Vegetation															
101	45.37673642	-89.20960251				Too Deep															
102	45.37622339	-89.20960965				Too Deep															
103	45.37571036	-89.2096168				Too Deep															
104	45.37519733	-89.20962395				Too Deep															
105	45.37468431	-89.20963109				Too Deep															
106	45.37417128	-89.20963824				Too Deep															
107	45.37365825	-89.20964539				Too Deep															
108	45.37314523	-89.20965253				Too Deep															
109	45.3726322	-89.20965968				Too Deep															
110	45.37211917	-89.20966683				Too Deep															
111	45.37160614	-89.20967397				Too Deep															
112	45.37109312	-89.20968112	10	S	P	No Vegetation															
113	45.37058009	-89.20968826	6	S	P		1													1	
114	45.37006706	-89.20969541	3	S	P		1		V				1								
115	45.36955403	-89.20970255	4	S	P		1	1	1											1	
116	45.36904101	-89.2097097	4	S	P		1	1			1					1					
117	45.36852798	-89.20971684	4	S	P		1		1							1					
118	45.36801495	-89.20972399	1	S	P		1		1	1				1							

119	45.37929651	-89.20883881	2	S	P		1			1											
120	45.37878348	-89.20884596	2	S	P	No Vegetation															
121	45.37827046	-89.20885312	6	S	P	No Vegetation															
122	45.37775743	-89.20886027				Too Deep															
123	45.3772444	-89.20886742	5	R	P	No Vegetation															
124	45.37673138	-89.20887458				Too Deep															
125	45.37621835	-89.20888173				Too Deep															
126	45.37570532	-89.20888889				Too Deep															
127	45.3751923	-89.20889604	10	S	P		1														
128	45.37467927	-89.20890319	9	S	P	No Vegetation															
129	45.37416624	-89.20891035				Too Deep															
130	45.37365321	-89.2089175				Too Deep															
131	45.37314019	-89.20892465				Too Deep															
132	45.37262716	-89.20893181				Too Deep															
133	45.37211413	-89.20893896				Too Deep															
134	45.3716011	-89.20894611				Too Deep															
135	45.37108808	-89.20895326				Too Deep															
136	45.37057505	-89.20896042	8	S	P	No Vegetation															
137	45.37006202	-89.20896757	6	S	P		1	V					1								
138	45.369549	-89.20897472	4	S	P		3	3									1				
139	45.36903597	-89.20898187	4	S	P		2	1	1		2										
140	45.36852294	-89.20898902	1	S	P		1		1	1	1	1						V			
141	45.37980449	-89.20810368	2	S	P		1		1	1											
142	45.37929146	-89.20811085	6	S	P		1													1	
143	45.37877844	-89.20811801				Too Deep															
144	45.37826541	-89.20812517				Too Deep															
145	45.37775238	-89.20813233				Too Deep															
146	45.37723936	-89.20813949				Too Deep															
147	45.37672633	-89.20814665				Too Deep															
148	45.3762133	-89.20815381				Too Deep															
149	45.37570028	-89.20816097				Too Deep															
150	45.37518725	-89.20816813	10	S	P	No Vegetation															
151	45.37467422	-89.20817529	6	S	P		1													1	
152	45.3741612	-89.20818245	5	S	P		2						2								
153	45.37364817	-89.20818961				Too Deep															
154	45.37313514	-89.20819677				Too Deep															
155	45.37262212	-89.20820393				Too Deep															
156	45.37210909	-89.20821109				Too Deep															
157	45.37159606	-89.20821825				Too Deep															
158	45.37108303	-89.20822541				Too Deep															
159	45.37057001	-89.20823257	10	S	P	No Vegetation															
160	45.37005698	-89.20823973	9	S	P		1													1	

161	45.36954395	-89.20824688	3	S	P		3	3												
162	45.36903092	-89.20825404	1	R	P		1			1	1	1		1						
163	45.37979944	-89.20737572	5	S	P	No Vegetation														
164	45.37928642	-89.20738289				Too Deep														
165	45.37877339	-89.20739006				Too Deep														
166	45.37826036	-89.20739722				Too Deep														
167	45.37774734	-89.20740439				Too Deep														
168	45.37723431	-89.20741156				Too Deep														
169	45.37672128	-89.20741873				Too Deep														
170	45.37620826	-89.20742589				Too Deep														
171	45.37569523	-89.20743306				Too Deep														
172	45.3751822	-89.20744023	5	R	P		1												1	
173	45.37415615	-89.20745456	2	R	P		1					1								1
174	45.37364312	-89.20746173				Too Deep														
175	45.37313009	-89.20746889				Too Deep														
176	45.37261707	-89.20747606				Too Deep														
177	45.37210404	-89.20748322				Too Deep														
178	45.37159101	-89.20749039				Too Deep														
179	45.37107799	-89.20749756				Too Deep														
180	45.37056496	-89.20750472				Too Deep														
181	45.37005193	-89.20751189				Too Deep														
182	45.3695389	-89.20751905	4	S	P		1	1	1				1							
183	45.37979439	-89.20664775	5	S	P		1												1	
184	45.37928136	-89.20665493				Too Deep														
185	45.37876833	-89.2066621				Too Deep														
186	45.37825531	-89.20666928				Too Deep														
187	45.37774228	-89.20667645				Too Deep														
188	45.37722926	-89.20668363				Too Deep														
189	45.37671623	-89.2066908				Too Deep														
190	45.3762032	-89.20669797				Too Deep														
191	45.37569018	-89.20670515				Too Deep														
192	45.37517715	-89.20671232	10	S	P	No Vegetation														
193	45.37466412	-89.20671949	11	S	P	No Vegetation														
194	45.3741511	-89.20672667				Too Deep														
195	45.37363807	-89.20673384				Too Deep														
196	45.37312504	-89.20674101				Too Deep														
197	45.37261201	-89.20674818				Too Deep														
198	45.37209899	-89.20675536				Too Deep														
199	45.37158596	-89.20676253				Too Deep														
200	45.37107293	-89.2067697				Too Deep														
201	45.37055991	-89.20677687	9	S	P	No Vegetation														
202	45.37004688	-89.20678404	5	S	P		3												3	

203	45.36953385	-89.20679122	4	S	P		1						1								
204	45.37978933	-89.20591979	4	S	P	No Vegetation															
205	45.3792763	-89.20592697				Too Deep															
206	45.37876328	-89.20593415				Too Deep															
207	45.37825025	-89.20594133				Too Deep															
208	45.37773722	-89.20594851				Too Deep															
209	45.3772242	-89.20595569				Too Deep															
210	45.37671117	-89.20596287				Too Deep															
211	45.37619814	-89.20597005				Too Deep															
212	45.37568512	-89.20597723				Too Deep															
213	45.37517209	-89.20598441	11	S	P	No Vegetation															
214	45.37465906	-89.20599159	12	S	P	No Vegetation															
215	45.37414604	-89.20599877				Too Deep															
216	45.37363301	-89.20600595				Too Deep															
217	45.37311998	-89.20601313	9	S	P	No Vegetation															
218	45.37260696	-89.20602031	10	S	P	No Vegetation															
219	45.37209393	-89.20602749	8	S	P	No Vegetation															
220	45.3715809	-89.20603467	7	S	P		1	1												1	
221	45.37106788	-89.20604185	5	S	P		1	1													
222	45.37055485	-89.20604903	4	S	P		1	1	1												
223	45.37004182	-89.2060562	4	S	P		1	1	1	1			1								
224	45.36952879	-89.20606338	1	S	P		1		1	1			1								
225	45.37978427	-89.20519182	5	S	P		1													1	
226	45.37927124	-89.20519901				Too Deep															
227	45.37875821	-89.2052062				Too Deep															
228	45.37824519	-89.20521339				Too Deep															
229	45.37773216	-89.20522057				Too Deep															
230	45.37721913	-89.20522776				Too Deep															
231	45.37670611	-89.20523495				Too Deep															
232	45.37619308	-89.20524213				Too Deep															
233	45.37568005	-89.20524932				Too Deep															
234	45.37516703	-89.20525651	12	S	P	No Vegetation															
235	45.374654	-89.20526369	12	S	P	No Vegetation															
236	45.37414097	-89.20527088	12	S	P	No Vegetation															
237	45.37362795	-89.20527807				Too Deep															
238	45.37311492	-89.20528525	3	R	P		1													1	
239	45.37260189	-89.20529244	3	S	P	No Vegetation															
240	45.37208887	-89.20529962	2	S	P		1		1												
241	45.37157584	-89.20530681	1	S	P		1		1	1		1									
242	45.37106281	-89.20531399	2	S	P		1		1												
243	45.37054979	-89.20532118	1	R	P		1		1	1		1									
244	45.3797792	-89.20446386	4	S	P		1		1												

245	45.37926617	-89.20447105				Too Deep														
246	45.37875314	-89.20447825				Too Deep														
247	45.37824012	-89.20448544				Too Deep														
248	45.37772709	-89.20449263				Too Deep														
249	45.37721407	-89.20449983				Too Deep														
250	45.37670104	-89.20450702				Too Deep														
251	45.37618801	-89.20451422				Too Deep														
252	45.37567499	-89.20452141				Too Deep														
253	45.37516196	-89.2045286				Too Deep														
254	45.37464893	-89.20453579				Too Deep														
255	45.37413591	-89.20454299				Too Deep														
256	45.37362288	-89.20455018				Too Deep														
257	45.37310985	-89.20455737	8	S	P		3												3	
258	45.37977412	-89.20373589	4	S	P	No Vegetation			V											
259	45.3792611	-89.20374309				Too Deep														
260	45.37874807	-89.20375029				Too Deep														
261	45.37823505	-89.20375749				Too Deep														
262	45.37772202	-89.2037647				Too Deep														
263	45.37720899	-89.2037719				Too Deep														
264	45.37669597	-89.2037791				Too Deep														
265	45.37618294	-89.2037863				Too Deep														
266	45.37566991	-89.2037935				Too Deep														
267	45.37515689	-89.2038007				Too Deep														
268	45.37464386	-89.2038079				Too Deep														
269	45.37413084	-89.2038151				Too Deep														
270	45.37361781	-89.20382229	13		R	No Vegetation														
271	45.37310478	-89.20382949	8	S	P	No Vegetation														
272	45.37976905	-89.20300793	1	S	P		1					1		1						
273	45.37925602	-89.20301513	6	S	P		1												1	
274	45.37874299	-89.20302234				Too Deep														
275	45.37822997	-89.20302955				Too Deep														
276	45.37771694	-89.20303676				Too Deep														
277	45.37720392	-89.20304396				Too Deep														
278	45.37669089	-89.20305117				Too Deep														
279	45.37617786	-89.20305838				Too Deep														
280	45.37566484	-89.20306558				Too Deep														
281	45.37515181	-89.20307279				Too Deep														
282	45.37463879	-89.20308				Too Deep														
283	45.37412576	-89.2030872				Too Deep														
284	45.37361273	-89.20309441	14		R	No Vegetation														
285	45.37309971	-89.20310161	14		R	No Vegetation														
286	45.37258668	-89.20310882	5	S	P		1		1											

287	45.37925094	-89.20228718	2	S	P	No Vegetation															
288	45.37873791	-89.20229439	9	S	P	No Vegetation															
289	45.37822489	-89.2023016				Too Deep															
290	45.37771186	-89.20230882				Too Deep															
291	45.37719884	-89.20231603				Too Deep															
292	45.37668581	-89.20232325				Too Deep															
293	45.37617278	-89.20233046				Too Deep															
294	45.37565976	-89.20233767				Too Deep															
295	45.37514673	-89.20234489				Too Deep															
296	45.3746337	-89.2023521				Too Deep															
297	45.37412068	-89.20235931				Too Deep															
298	45.37360765	-89.20236652				Too Deep															
299	45.37309463	-89.20237373				Too Deep															
300	45.3725816	-89.20238095	10	S	P	No Vegetation															
301	45.37924585	-89.20155922	1	S	P		1		1										1		
302	45.37873283	-89.20156644	6	S	P		1		1												
303	45.3782198	-89.20157366				Too Deep															
304	45.37770677	-89.20158088				Too Deep															
305	45.37719375	-89.2015881				Too Deep															
306	45.37668072	-89.20159532				Too Deep															
307	45.3761677	-89.20160254				Too Deep															
308	45.37565467	-89.20160976				Too Deep															
309	45.37514164	-89.20161698				Too Deep															
310	45.37462862	-89.2016242				Too Deep															
311	45.37411559	-89.20163142				Too Deep															
312	45.37360257	-89.20163864				Too Deep															
313	45.37308954	-89.20164586				Too Deep															
314	45.37257651	-89.20165307	11	S	P	No Vegetation															
315	45.37821471	-89.20084572	9	S	P	No Vegetation															
316	45.37770168	-89.20085294				Too Deep															
317	45.37718866	-89.20086017				Too Deep															
318	45.37667563	-89.2008674				Too Deep															
319	45.37616261	-89.20087462				Too Deep															
320	45.37564958	-89.20088185				Too Deep															
321	45.37513655	-89.20088907				Too Deep															
322	45.37462353	-89.2008963				Too Deep															
323	45.3741105	-89.20090353				Too Deep															
324	45.37359748	-89.20091075	14		R	No Vegetation															
325	45.37308445	-89.20091798	13	M	P		1													1	
326	45.37257142	-89.2009252	6	S	P	No Vegetation															
327	45.37769659	-89.200125	6	S	P		1		1												
328	45.37718356	-89.20013224	14		R	No Vegetation															

329	45.37667054	-89.20013947	15		R	No Vegetation															
330	45.37615751	-89.2001467	13		R		1													1	
331	45.37564448	-89.20015394	9	S	P		1													1	
332	45.37513146	-89.20016117	11	S	P	No Vegetation															
333	45.37461843	-89.2001684	12	S	P		1													1	
334	45.37410541	-89.20017563	12	S	P	No Vegetation															
335	45.37359238	-89.20018287	12	S	P	No Vegetation															
336	45.37307935	-89.2001901	5	S	P		1						1								
337	45.37717846	-89.19940431	1	S	P	No Vegetation															
338	45.37666544	-89.19941155	9	S	P		1													1	
339	45.37615241	-89.19941879	4	S	P	No Vegetation															
340	45.37563939	-89.19942603	3	S	P		1	1					1								
341	45.37512636	-89.19943327	3	S	P		1	1													
342	45.37461333	-89.1994405	3	S	P		1		1				1								
343	45.37410031	-89.19944774	3	S	P		1						1								
344	45.37358728	-89.19945498	1	S	P		1					1		1							