

A

APPENDIX A

Public Participation Materials

**Kangaroo Lake
Management Plan Update
Kick-Off Meeting
July 9, 2016 – 9:00 AM
Baileys Harbor Town Hall
2392 County Road F, Bailys Harbor, WI 54202**

The Kangaroo Lake Association (KLA) has received a grant totaling over \$21,000 from the Wisconsin Department of Natural Resources (WDNR) to fund 67% of a project designed to update the management plan that was completed for Kangaroo Lake in 2004. The studies completed as part of the 2004 management plan were focused within the southern basin of the lake (south of County Rd. E causeway). Along with repeating and conducting new studies within the southern basin, the current project will also implement studies within the lake's northern basin, an area designated as a *wetland gem* for its ecological value and importance in maintaining Wisconsin's biodiversity.



Brenton Butterfield, an Onterra lakes ecologist, speaks to a lake group in Waushara County about a littoral habitat study conducted on their lake. Public participation will be an integral part of the Kangaroo Lake project.

The design for the planning project update 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, a shoreland health assessment survey, watershed modeling, and a stakeholder survey, and 2) the completion of a realistic management plan for Kangaroo Lake and its watershed. Studies being completed for this project have already been initiated this spring and will continue through the fall of 2016. The tasks associated with the analysis and reporting of the data will be completed during the fall and winter of 2016/17.

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, July 9th at 9:00 am at the Bailys Harbor Town Hall (2392 County Road F, Bailys Harbor, WI). In addition to this meeting as well as others, an additional opportunity for your input will be through a written stakeholder survey that will be distributed during the project.

Onterra, LLC, a lake management planning firm out of De Pere, has been hired to lead the project. During the meeting, Brenton Butterfield, a lakes ecologist with Onterra, LLC, will describe the project and its importance. The presentation will include a description of the project's components, a quick course on general lake ecology, and a breakdown of how the KLA'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.



Kangaroo Lake Association




Kangaroo Lake Comprehensive Management Plan Update
Kick-off Meeting
July 9, 2016

Brenton Butterfield
Onterra LLC
Lake Management Planning

Presentation Outline

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



Onterra LLC
Lake Management Planning

Onterra, LLC

- Founded in 2005
- Staff
 - Four lead ecologists
 - Three field technicians
 - Five summer interns
- Services
 - Science and planning
- Philosophy
 - Promote realistic planning
 - Assist, not direct



Onterra LLC
Lake Management Planning

Why create a lake management plan?

- To create a better understanding of the 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.



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Lake Management Planning

Past Planning Efforts

KANGAROO LAKE
Frank County, Missouri

**COMPREHENSIVE LAKE
MANAGEMENT PLAN**



Prepared for the
**Kangaroo Lake
Association**
July 2010

Wissamiat Lake Planning Grant: JPL-045-03 & JPL-050-01

NES Ecological Services
A Division of Robert E. Lee & Associates, Inc.

Kangaroo Lake
Frank County, Missouri

**Kangaroo Lake Bulrush
Restoration Project**
September 2008



Sponsored by
Kangaroo Lake Association
1-75-20-07

Onterra LLC

Onterra LLC
Lake Management Planning

Elements of an Effective Lake Management Planning Project

Data and Information Gathering
Environmental & Sociological


Planning Process
Brings it all together



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Lake Management Planning

Data and information gathering

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



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Lake Management Planning

Studies to also focus on northern basin

- Critical Habitat Area
- Shallow, marl lake with minimal development
- High-quality surrounding wetlands


John Gabbott


Brenton Butterfield


Arthur Morris


Brian E. Small


Robert Kirchen


Laura Erickson



Janice Stiefel



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Lake Management Planning

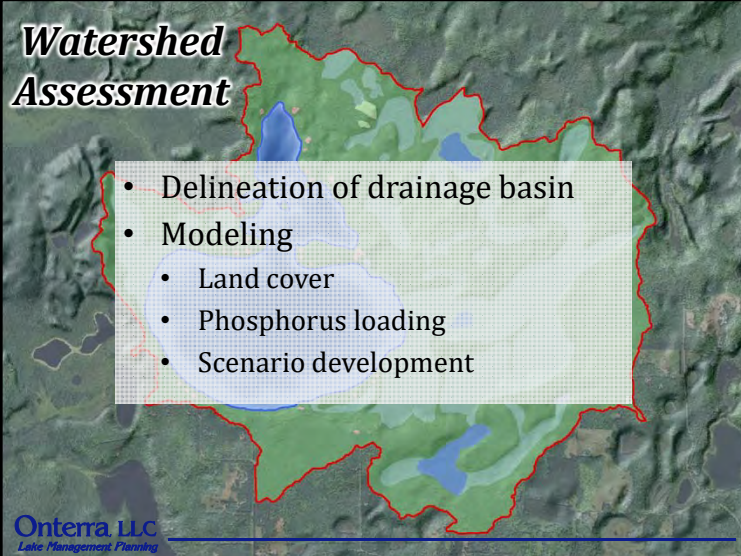
Water Quality Analysis

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



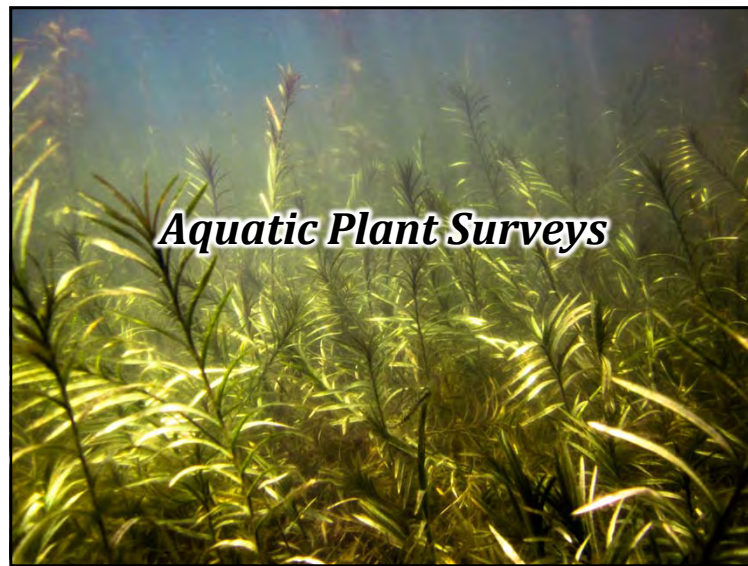
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Lake Management Planning

Watershed Assessment



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

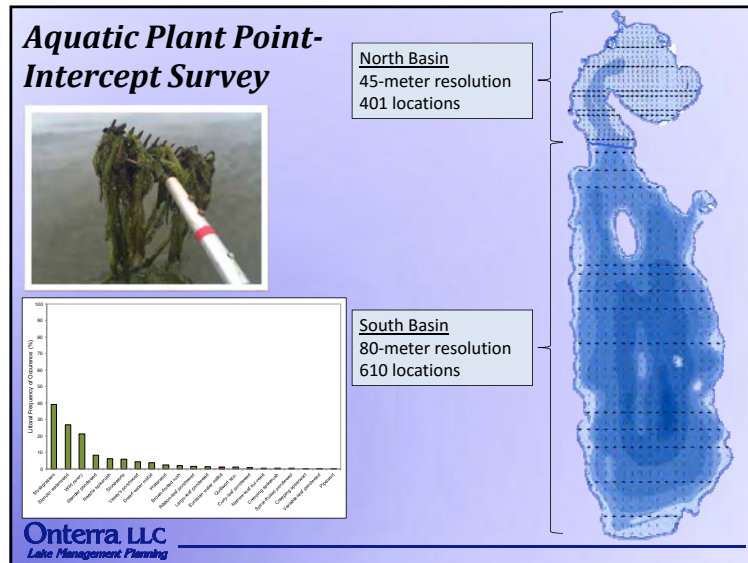
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Lake Management Planning



Aquatic Plant Surveys

- Concerned with both native and non-native plants
- Multiple surveys used in assessment
 - Early Season AIS Survey *Completed*
 - Point-intercept Survey
 - Late-Summer EWM Survey (2016 & 2017)
 - Floating-leaf and Emergent Community Mapping Survey

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Lake Management Planning



Non-native Aquatic Plants

Curly-leaf Pondweed

None Located in 2016

Onterra LLC
Lake Management Planning

Non-native Aquatic Plants

Pale Yellow Iris

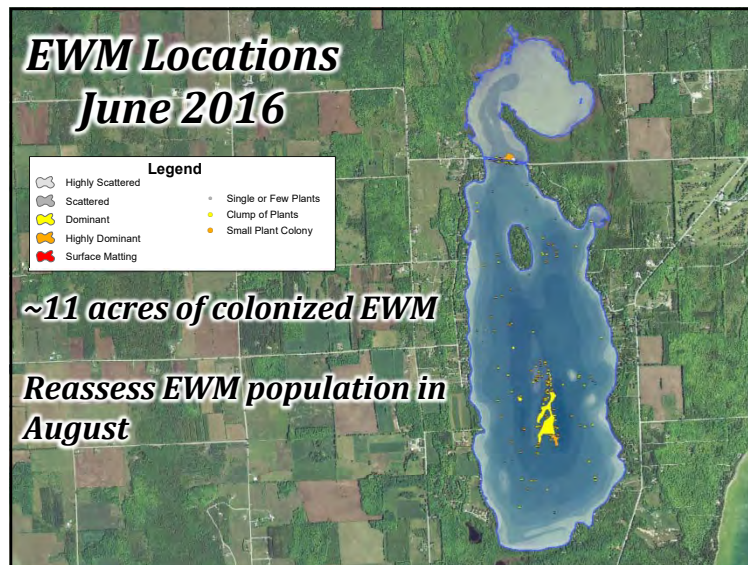
None Located in 2016

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Lake Management Planning

Non-native Aquatic Plants

Eurasian Water Milfoil (1994)

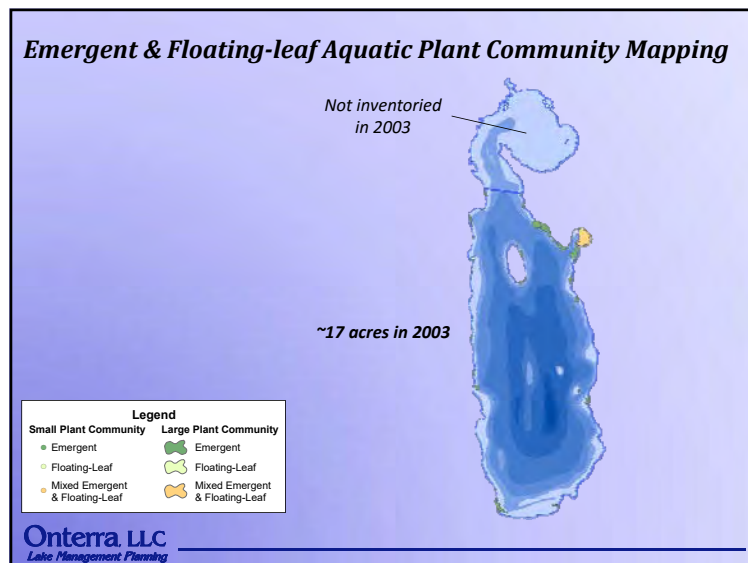
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Non-native Aquatic Plants

Purple Loosestrife & Giant Reed

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Fisheries Data Integration

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

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Stakeholder Survey

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



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Lake Management Planning

Shoreland Assessment

- Shoreland area is important for buffering runoff and provides valuable habitat for aquatic and terrestrial wildlife.
- Assessment ranks shoreland area from shoreline back 35 feet
- Assess shoreland development and habitat
 - Coarse woody habitat

Urbanized



Natural



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Lake Management Planning

Planning Process

Planning Committee Meetings

Study Results (including a stakeholder survey)
Conclusions & Initial Recommendations

Management Goals
Management Actions
Timeframe
Facilitator(s)



Implementation Plan

Onterra LLC
Lake Management Planning

Thank You

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



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Lake Management Planning

Kangaroo Lake Management Planning Project

November 2016 Update

Submitted by: Brenton Butterfield, Onterra, LLC

With a Lake Management Planning Grant totaling \$21,000 from the Wisconsin Department of Natural Resources (WDNR) awarded to the Kangaroo Lake Association (KLA), a project is underway to update Kangaroo Lake's 2004 lake management plan. The 2004 plan guided a number of the KLA's activities, including multiple bulrush restoration projects, volunteer aquatic invasive species (AIS) monitoring, implementation of a voluntary 500-foot from shore slow-no-wake zone, and course woody habitat enhancement.



Figure 1. Kangaroo Lake, Door County, Wisconsin.

In 2015, the KLA elected to update the lake's management plan, with particular attention being paid to the lake's northern basin. This area north of the County Road E causeway was not surveyed during the initial management plan development. Comprehensive studies were completed by Onterra ecologists in 2016 in an effort to reassess the health of Kangaroo Lake. In addition, an anonymous stakeholder survey was distributed in November to gauge stakeholder perceptions about the lake and obtain stakeholder input. The updated lake management plan will contain historical and current data from the lake as well as provide guidance for its management by integrating stakeholder perceptions and goals with what is ecologically beneficial for the lake.

The majority of the field studies have been completed on Kangaroo Lake with the exception of winter water quality sampling scheduled for February of 2017. This project update is intended to provide Kangaroo Lake stakeholders with a preliminary look at some of the initial observations and results from the scientific studies completed in 2016, as well as provide a timeline for the remaining actions that will be taken as part of this project. While much of the data are still being analyzed, some study highlights that are available are discussed below.

Water Quality Studies

Water quality data were collected from seven separate sampling events over the course of the 2016 growing season from April through October by both Onterra ecologists and KLA Citizen Lake Monitoring Network Volunteers. An additional water quality sampling event is scheduled for late-winter 2017 by Onterra ecologists. These data provide ecologists with a picture of what nutrient dynamics are like within the lake over the course of the year as well as what nutrients (phosphorus or nitrogen) regulate algal production. In addition, available historical data are being analyzed to determine if Kangaroo Lake's water quality has changed (for better or worse) over time. Initial results indicate that Kangaroo Lake's water quality falls into the *excellent* category for shallow, lowland drainage lakes in Wisconsin.

All of the water quality analyses are not yet complete, but preliminary results indicate that the average growing season (April-October) Secchi disk transparency, a measure of water clarity, in 2016 was the highest recorded since annual records began in 1993. The average growing season Secchi disk

transparency in 2016 was 8.3 feet compared to the historical average of 5.8 feet, and there has been an increasing trend in water clarity in Kangaroo Lake since 2012. The reason for the increase in water clarity in Kangaroo Lake is likely due to the observed decline free-floating algal abundance, measured through chlorophyll-*a* concentrations. Since 2014, growing season chlorophyll-*a* concentrations have been approximately 29% lower than the historical average.

To determine why changes have occurred in chlorophyll-*a* concentrations over time within a lake, lake managers typically look at phosphorus concentrations first. In the majority of Wisconsin's lakes, including Kangaroo Lake, phosphorus is the primary nutrient regulating algal production. If changes in phosphorus concentrations occur, usually chlorophyll-*a* concentrations respond in the same direction. In Kangaroo Lake, measured phosphorus concentrations have not declined since 2012, and in fact, have been slightly higher in 2015 and 2016 when compared to 2012-2013. The growing season phosphorus concentration in 2016 of 14.5 µg/L was nearly identical to the historical average of 14.9 µg/L. This indicates that the decline in chlorophyll-*a* concentrations and subsequent increase in water clarity in recent years are the result of another process and not the result of changes in phosphorus concentrations.

It is possible that the recent decrease in chlorophyll-*a* concentrations and increase in water clarity is the result of the relatively new invasion of the non-native zebra mussel to Kangaroo Lake. Discovered in Kangaroo Lake in 2008, populations of the filter-feeding zebra mussels have been shown to increase water clarity in lakes by decreasing the amount of suspended material within the water (i.e. algae and sediment). Zebra mussels are very efficient filter feeders, and water that has been filtered is almost entirely devoid of suspended material. Even unwanted particles, such as sediment, that pass through zebra mussels are deposited to the lake bottom. While quantitative data such as population density have not been collected for Kangaroo Lake's zebra mussel population, this is believed to be the most plausible explanation for declining chlorophyll-*a* concentrations independent of phosphorus concentrations.

Aquatic Plant Studies

Four surveys aimed at assessing Kangaroo Lake's aquatic plant community were conducted by Onterra ecologists in 2016. The first survey, the Early-Season Aquatic Invasive Species (ESAIS) Survey, is a meander-based survey completed in June where non-native aquatic plants are located and mapped visually. The primary goal of this meander-based survey is to locate occurrences of non-native plants which have the greatest probability of being located at this time of year. These include curly-leaf pondweed (CLP), which reaches its peak growth in June before naturally dying back by early July, and pale-yellow iris (PVI), which is typically in peak bloom in June. While Eurasian water milfoil (EWM) does not typically reach its peak growth until mid- to late-summer, it is also mapped during this survey as well. Fortunately, no occurrences of CLP or PVI were located in or along the shores of Kangaroo Lake in 2016. The 2016 EWM population in Kangaroo Lake is discussed in detail further in this update.

The whole-lake aquatic plant point-intercept surveys were completed on Kangaroo Lake in August. These grid-based surveys are designed to quantify the abundance of each aquatic plant species within the lake and allows for a quantitative comparison of the quality of Kangaroo Lake's native aquatic plant community to those of other lakes within the region and the state. Community mapping surveys aimed at mapping emergent and floating-leaf aquatic plants in Kangaroo Lake were also completed in August. During these surveys, a total of 26 aquatic plant species were located, only one of which is considered to be a non-native, invasive species: EWM. The southern basin contained 17 native aquatic plant species while the northern basin contained 21.

The plant communities in both the northern and southern basins were overwhelmingly dominated by muskgrasses, a group of native macroalgae which tend to be abundant in lakes like Kangaroo Lake with high concentrations of calcium carbonate. Eurasian water milfoil had a littoral frequency of occurrence of just 2.1% and 0.5% in the southern and northern basins, respectively. In the northern basin, the EWM was mainly confined in the southern area along the causeway. In the southern basin, EWM was more widespread with denser colonies occurring in the south-central portion of the lake. However, the point-intercept data indicate its occurrence in both basins is very low, and the EWM population is likely not having a significant impact ecologically or recreationally within either basin. However, Onterra ecologists will be working with the KLA Planning Committee to develop management strategies for continued monitoring and potential control of EWM in Kangaroo Lake.

Additional Lake and Lake Stakeholder Studies

In addition to water quality and aquatic plant studies, Onterra has completed surveys to assess the lake's shoreline development, examine its watershed, and evaluate fish habitat potential. Finally, an anonymous survey was sent to Kangaroo Lake stakeholders in November to assess their use of the lake, perceptions of historical and current water quality, concerns for the lake ecosystem and more. These results will be integrated into the management plan.

Remaining Steps

In summary, all project components are on schedule and proceeding as planned. Onterra is currently examining the study results in preparation for a spring meeting with the Kangaroo Lake Planning Committee. The meeting will be held to discuss the results and begin creation of management goals and actions the KLA will pursue in order to manage their lake in both a recreationally enjoyable and ecologically sound manner. These management goals and an entire project summary will be presented to the general public during a project Wrap-up meeting, likely to be held in the summer of 2016.



Kangaroo Lake Association


Kangaroo Lake Management Planning Project
Planning Meeting I
 June 28, 2017

Brenton Butterfield
 Onterra LLC
 Lake Management Planning

Presentation Outline

- Lake Management Planning Project Overview
- Study Results
 - Water Quality
 - Watershed
 - Shoreland Condition
 - Aquatic Plants
 - Fishery
- “Big Picture”
- Implementation Plan Development

Stakeholder Survey



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Management Planning Project Overview

- Collect & analyze data – completed
 - Technical & sociological
- Construct long-term & useable plan



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 Lake Management Planning

Studies to also focus on north basin

- Critical Habitat Area
- Shallow, marl lake with minimal development
- High-quality surrounding wetlands










John Gabbott
 Brenton Butterfield
 Arthur Morris
 Brian E. Small
 Robert Kirchen
 Laura Erickson
 Janice Stiefel

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Summary of Project Results

Water Quality

- Excellent for a shallow lowland drainage lake

Watershed & Immediate Shoreline

- Majority of watershed comprised of agriculture
- High degree of shoreland development in south basin; north basin largely undeveloped

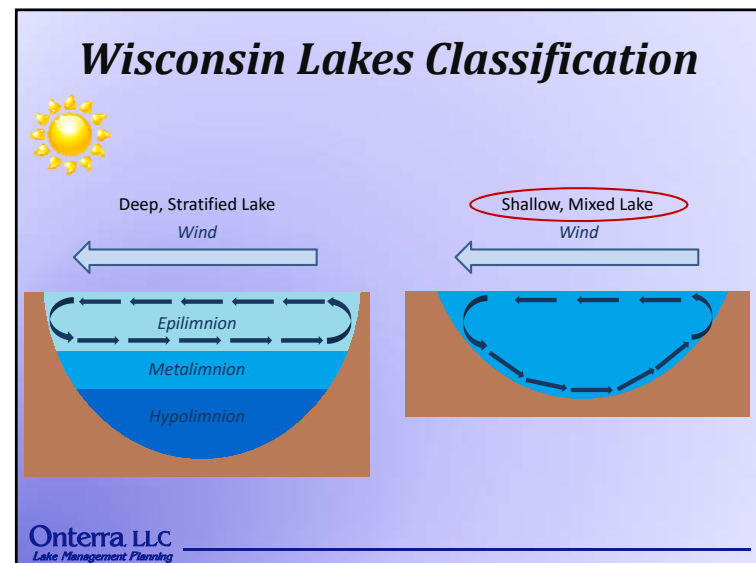
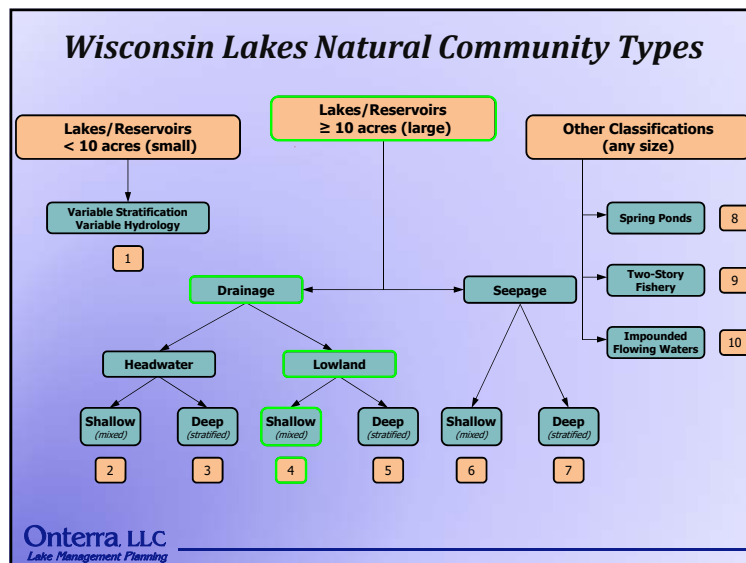
Aquatic Plant Community

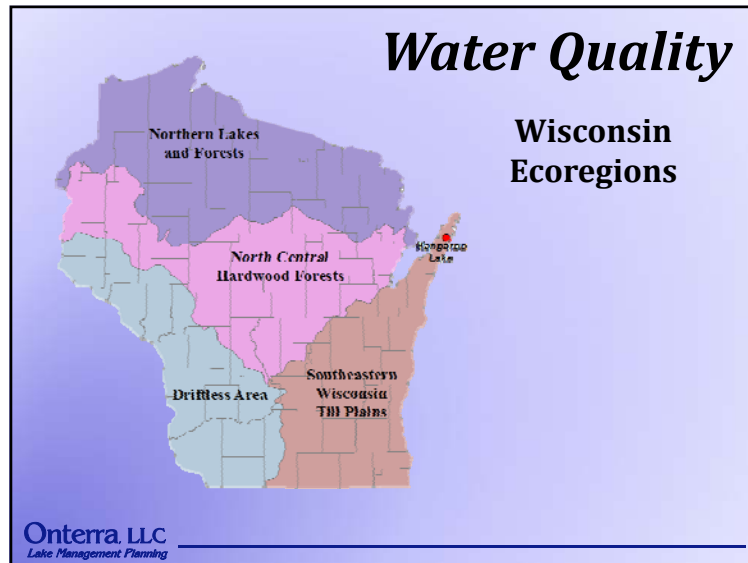
- High species richness for Southeast Wisconsin Till Plains Ecoregion
- Eurasian watermilfoil only non-native plant species located in 2016
- Hardstem bulrush community in south basin ~2.5 acres smaller than in 2003

Fisheries

- Some changes have occurred; lake shifting from walleye- to bass-dominated fishery

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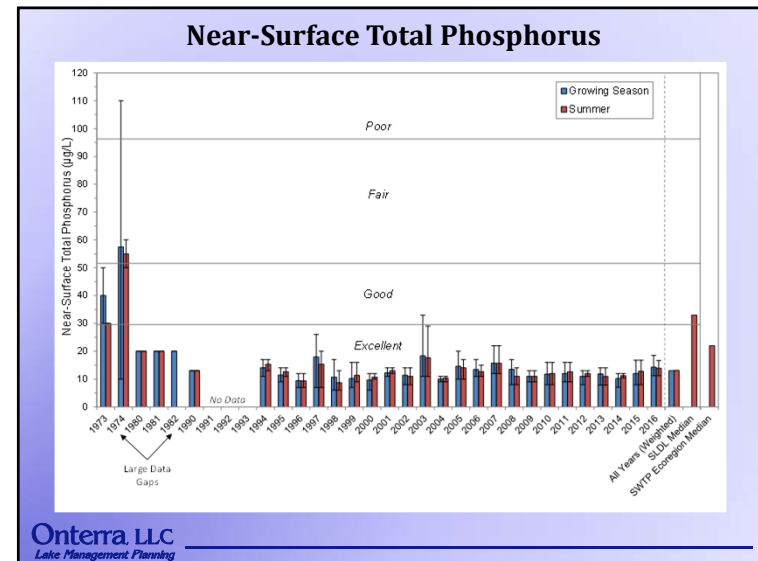
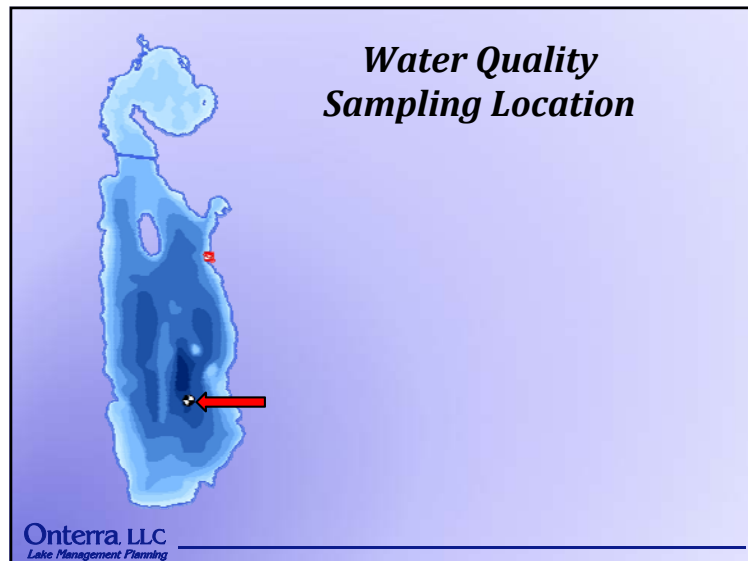


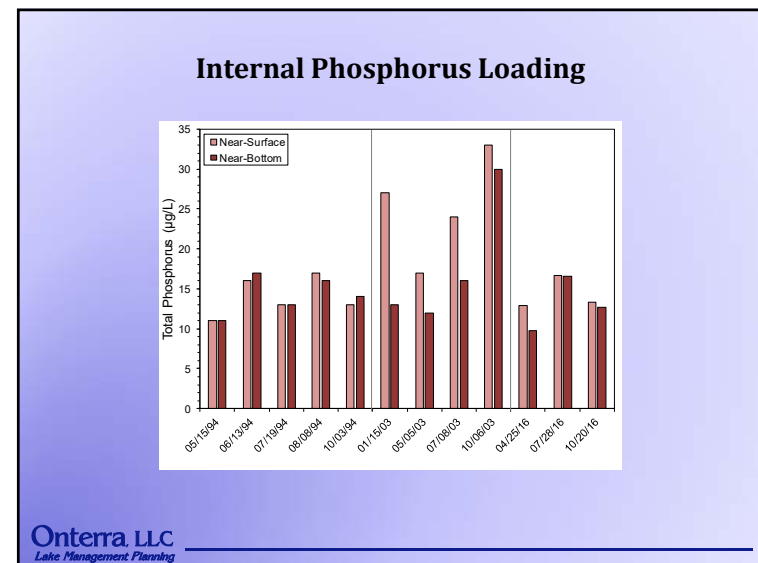
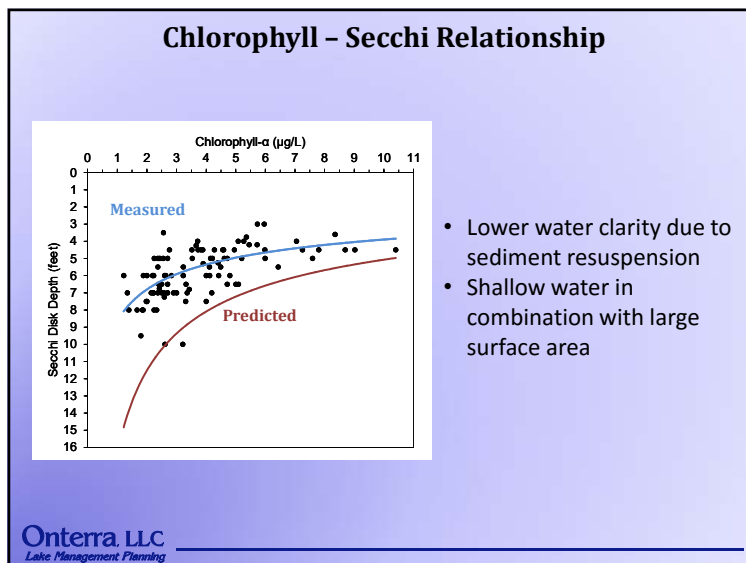
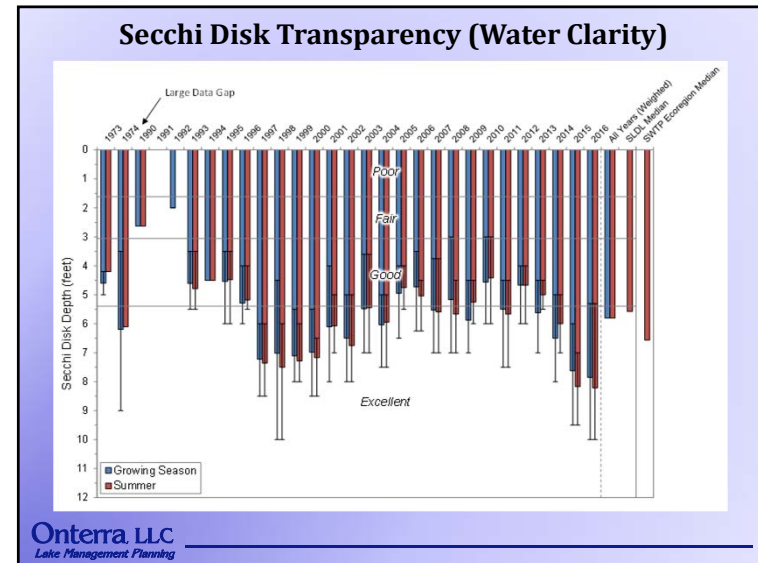
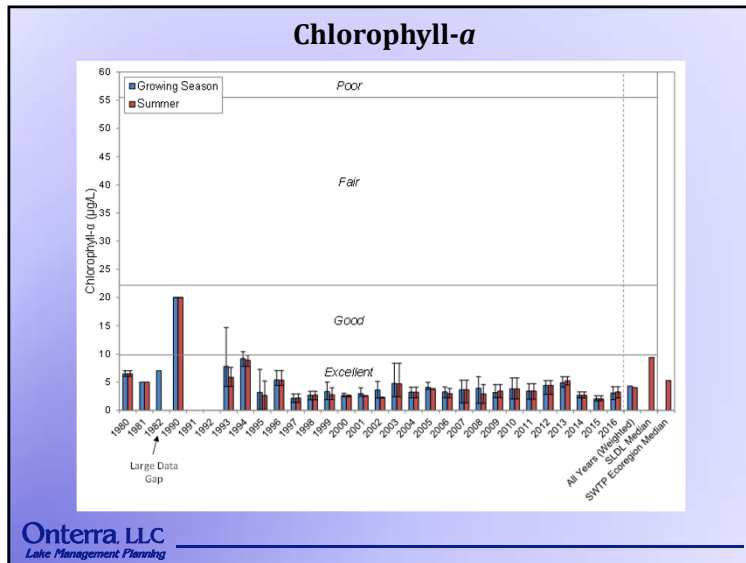


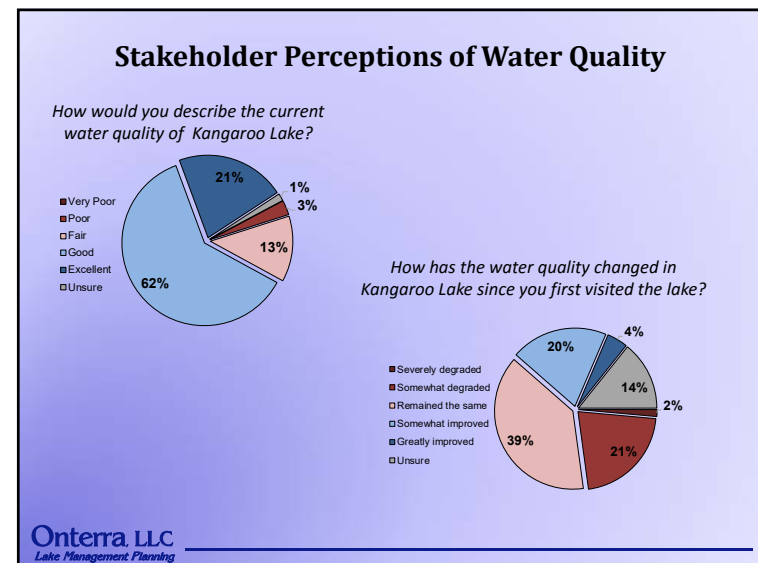
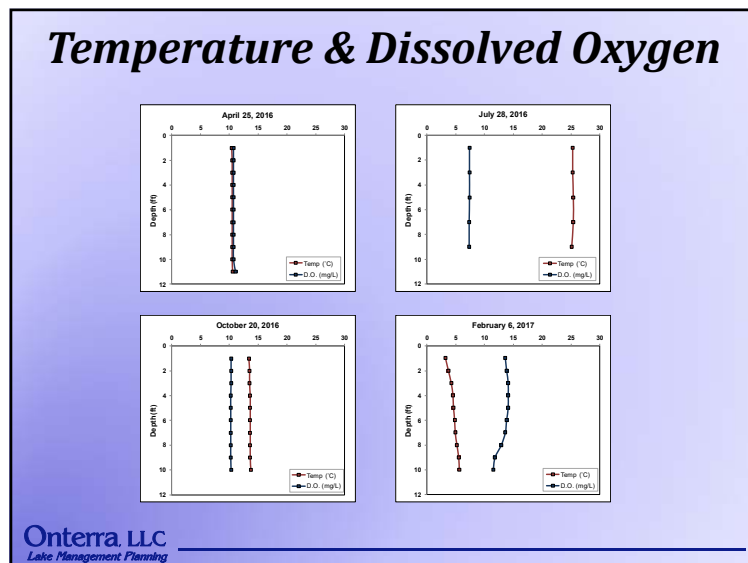
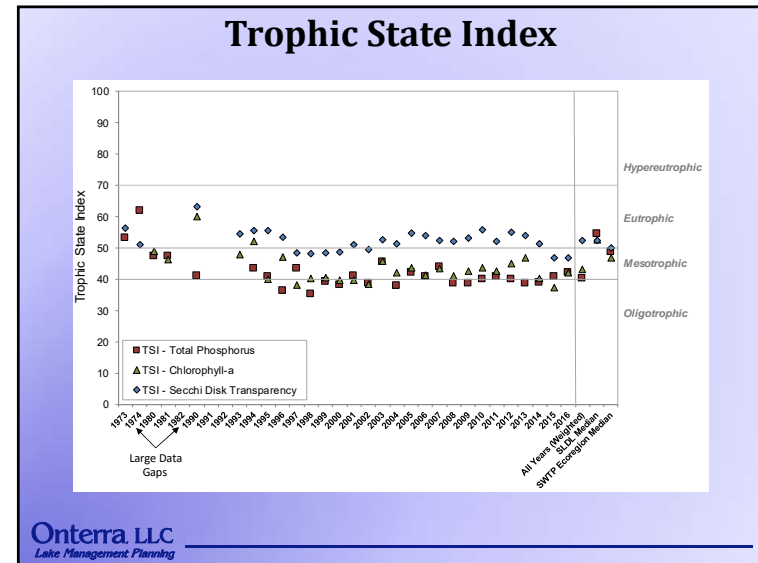
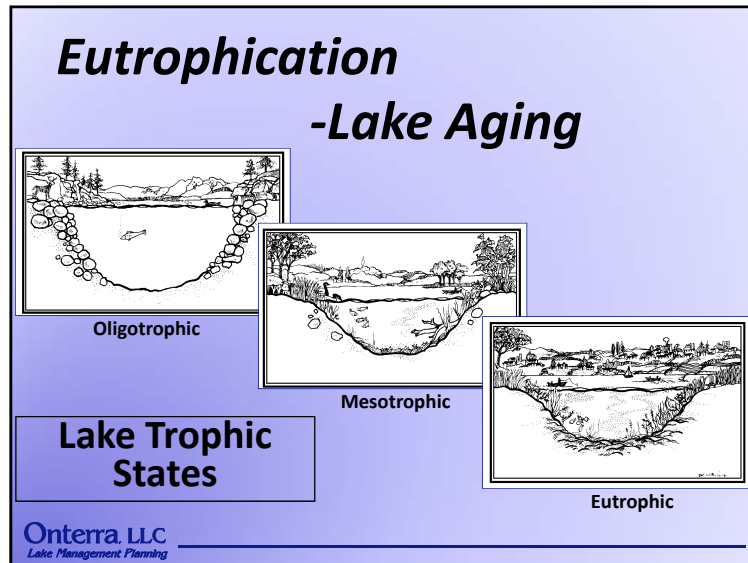
Introduction to Lake Water Quality

- ↑ **Phosphorus**
 Naturally occurring & essential for all life
 Regulates phytoplankton biomass in most WI lakes
 Most often *limiting plant nutrient* (shortest supply) **TN:TP = 42:1**
 Human development often increases P delivery to lakes
- ↑ **Chlorophyll-a**
 Pigment used in photosynthesis
 Used as surrogate for phytoplankton biomass
- ↓ **Secchi Disk Transparency**
 Measure of water clarity
 Measured using a Secchi disk

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Additional Water Quality Parameters

pH – Measure of water acidity

- 8.6 in 2016

Alkalinity – capacity to resist fluctuations in pH

- 179 as mg/CaCO₃ in 2016

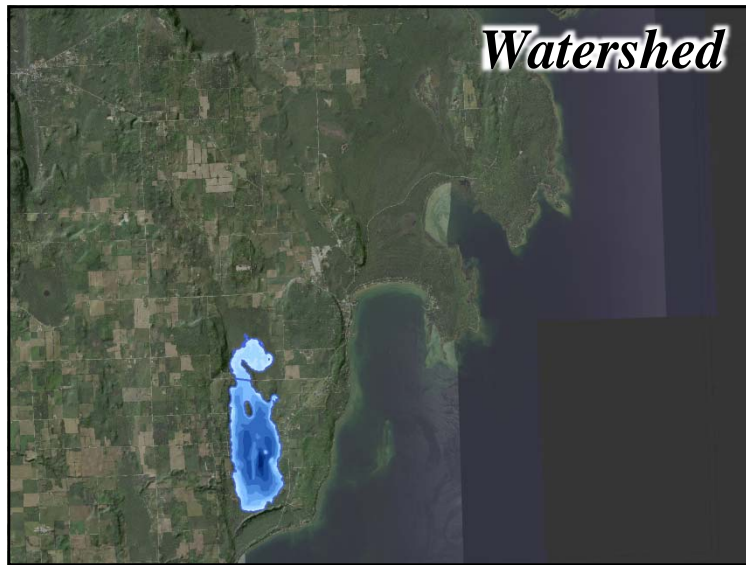
Calcium

- 42 mg/L in 2016

Environment highly suitable for zebra mussels

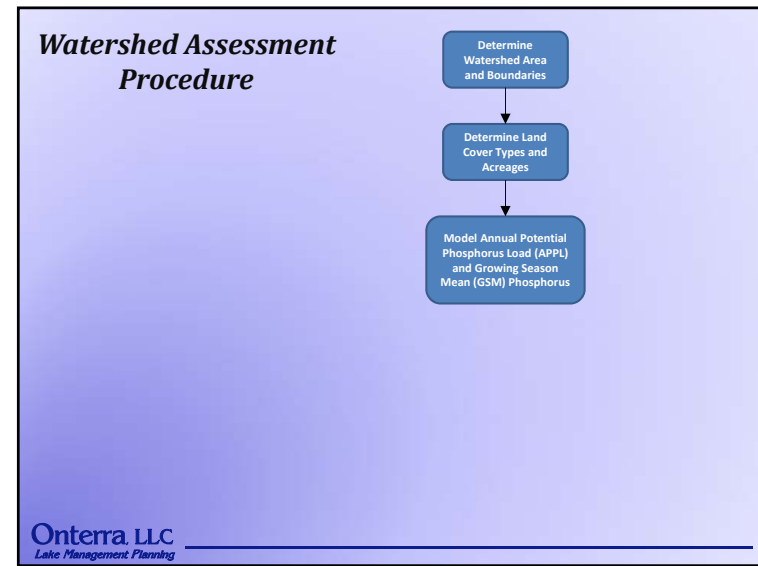
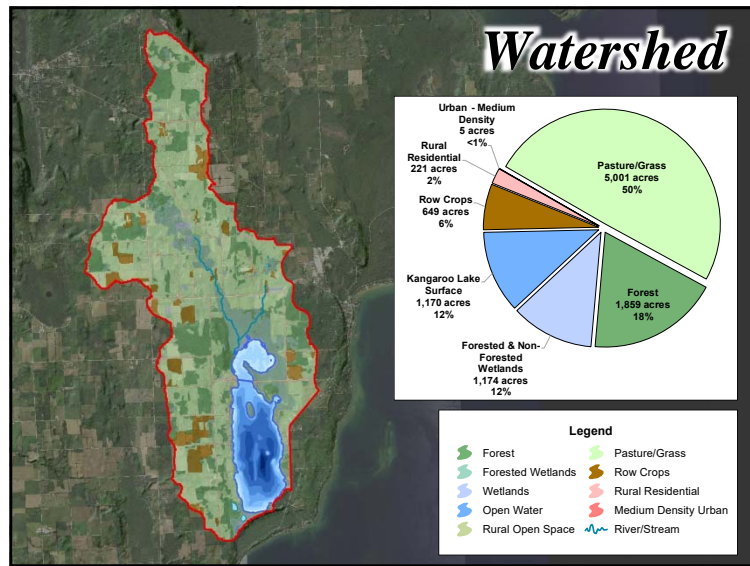
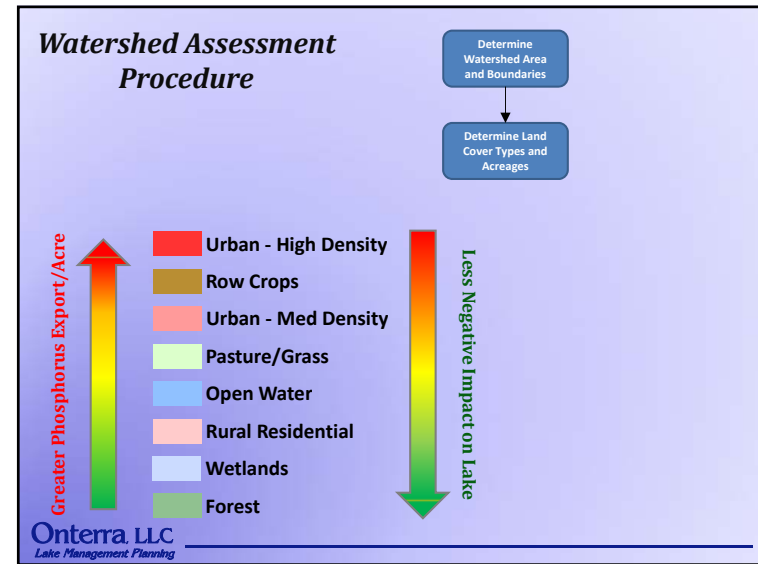
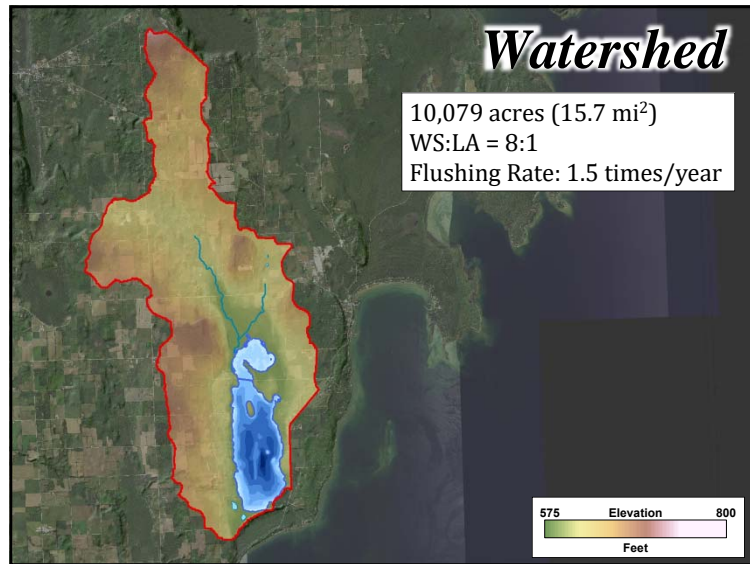
Zebra Mussels (*Dreissena polymorpha*)

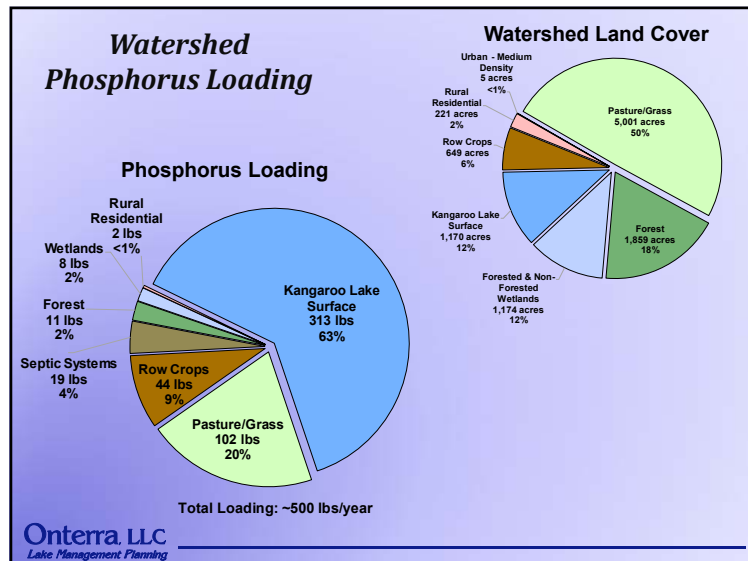
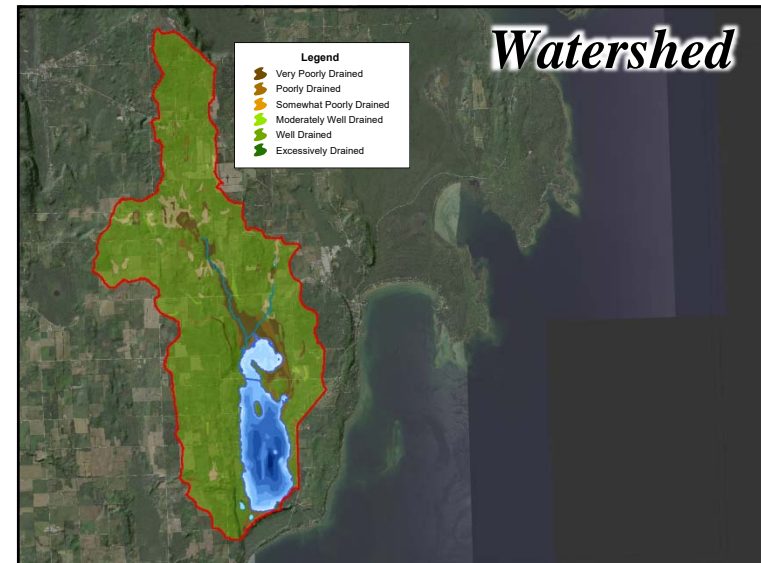
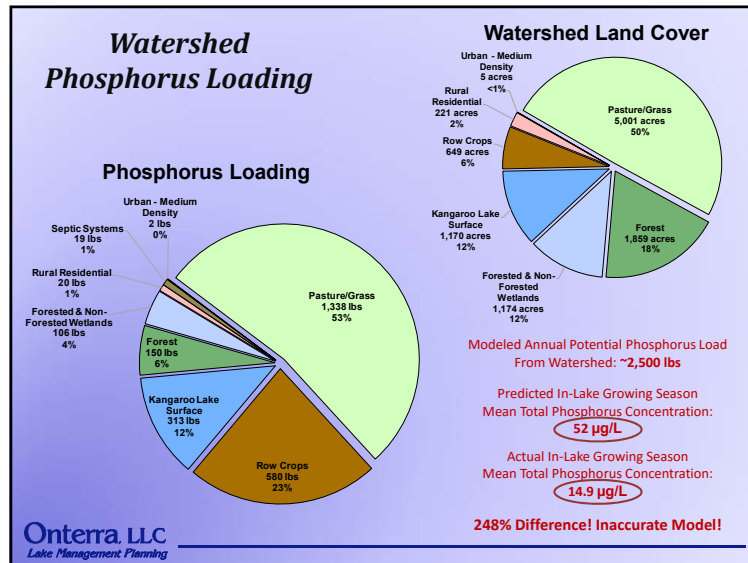
- Discovered in Kangaroo Lake in 2008
- Create host of ecological & economic impacts
 - Alterations to food web
 - Changes in water quality
 - Displacement of native mussels



Watershed Assessment Procedure

Determine Watershed Area and Boundaries





Shoreland Assessment

- Shoreland area is important for buffering runoff and provides valuable habitat for aquatic and terrestrial wildlife.
- EPA National Lakes Assessment results indicate shoreland development has greatest negative impact to health of our nation's lakes.
- It does not look at lake shoreline on a property-by-property basis.
- Assessment ranks shoreland area from shoreline back 35 feet

Urbanized



Range →


Natural













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Shoreline Assessment Category Descriptions

More Natural Habitat →

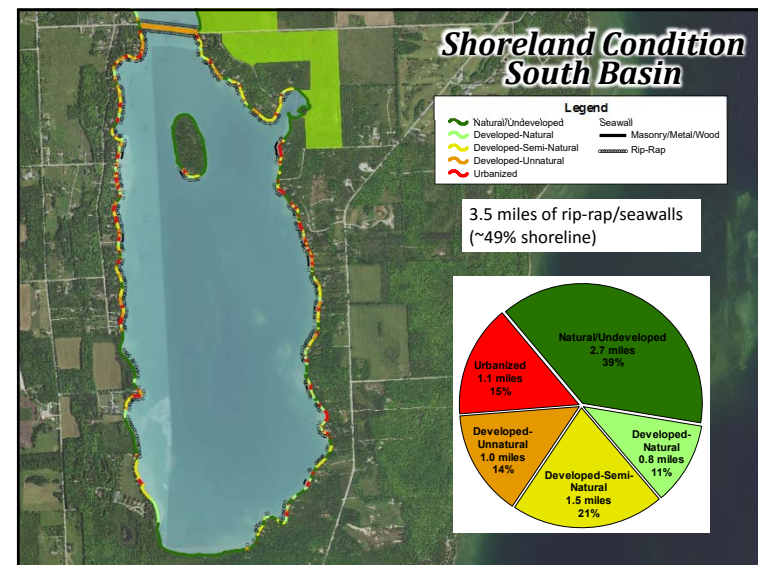
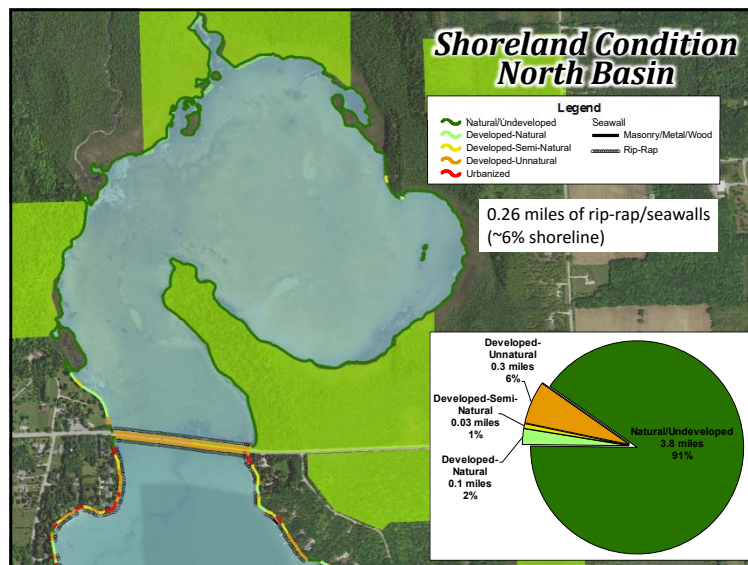


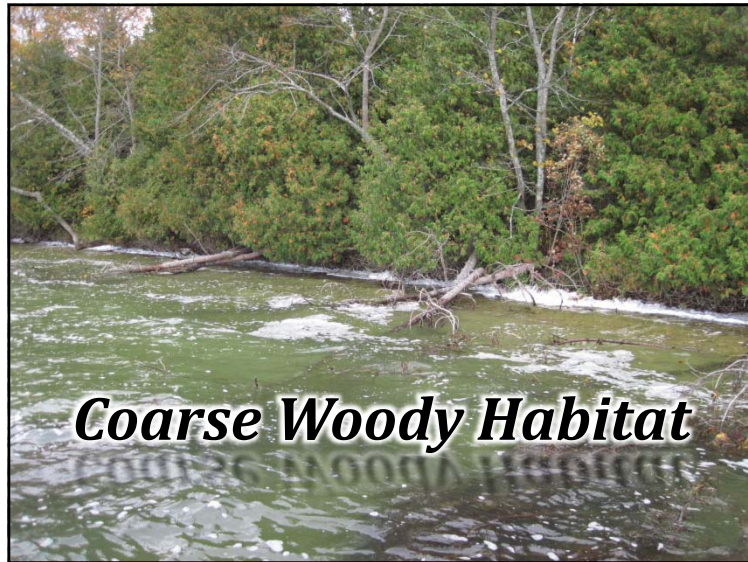
				
Urbanized	Developed-Unnatural	Developed-Semi-Natural	Developed-Natural	Natural/Undeveloped
				

← Greater Need for Restoration





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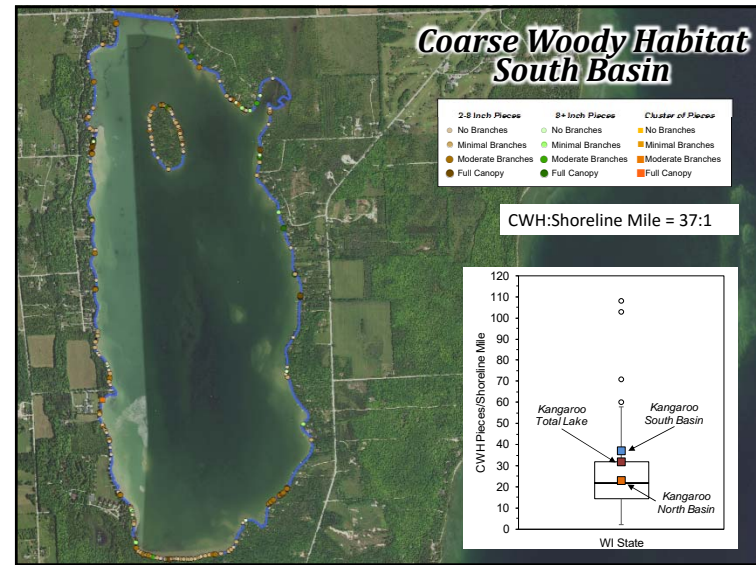
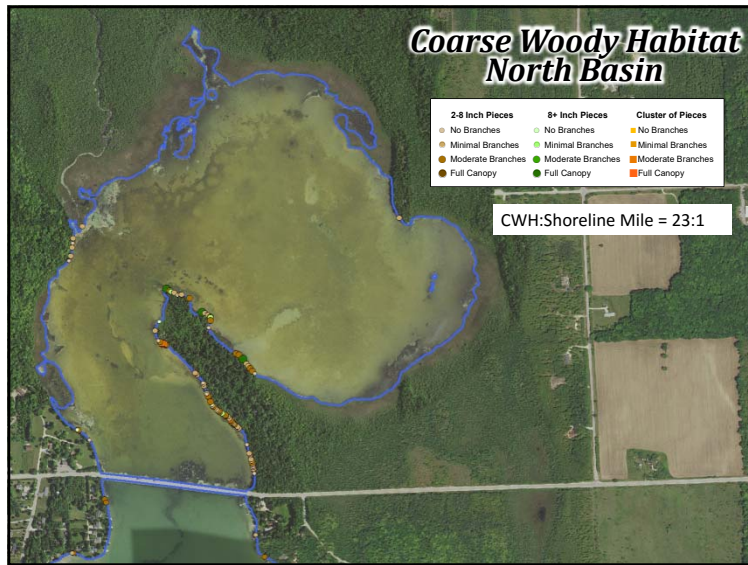


Coarse Woody Habitat

- Provides shoreland erosion control and prevents suspension of sediments.
- Preferred habitat for a variety of aquatic life.
 - Periphyton growth fed upon by insects.
 - Refuge, foraging and spawning habitat for fish.
 - Complexity of CWH important.
- Changing of logging and shoreland development practices = reduced CWH in Wisconsin lakes.
- Survey aimed at quantifying CWH in Kangaroo Lake

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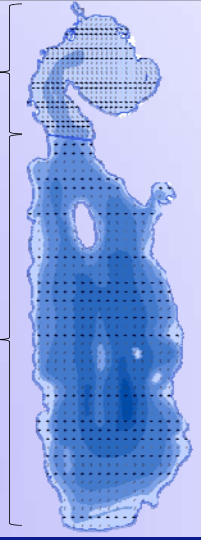
Aquatic Plant Surveys

- Assess both non-native & native species
- Four surveys completed in 2016
 - Early-Season AIS Survey
 - Whole-Lake Point-Intercept Survey
 - Emergent/Floating-Leaf Community Mapping Survey
 - Eurasian watermilfoil Peak-Biomass Survey

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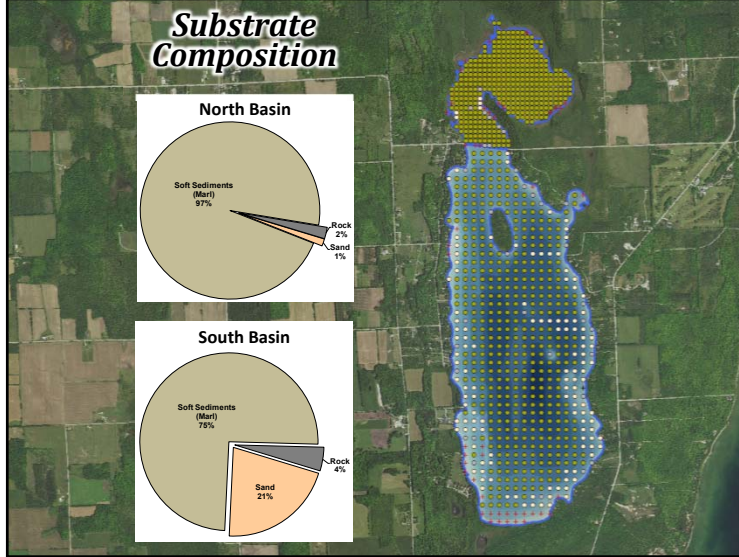
Aquatic Plant Point-Intercept Survey



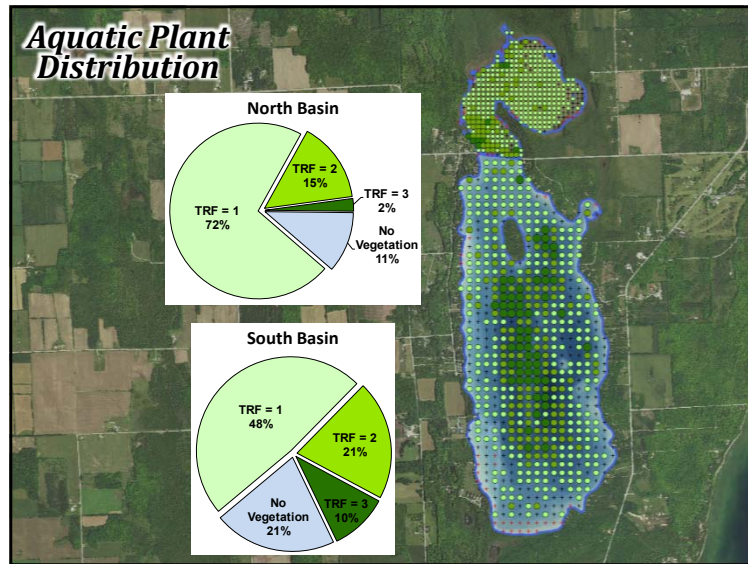
<p>North Basin 45-meter resolution 401 locations</p>	
<p>South Basin 80-meter resolution 610 locations</p>	

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Substrate Composition



<p>North Basin</p> <p>Soft Sediments (Mud) 97%</p> <p>Rock 2%</p> <p>Sand 1%</p>	
<p>South Basin</p> <p>Soft Sediments (Mud) 78%</p> <p>Sand 21%</p> <p>Rock 1%</p>	

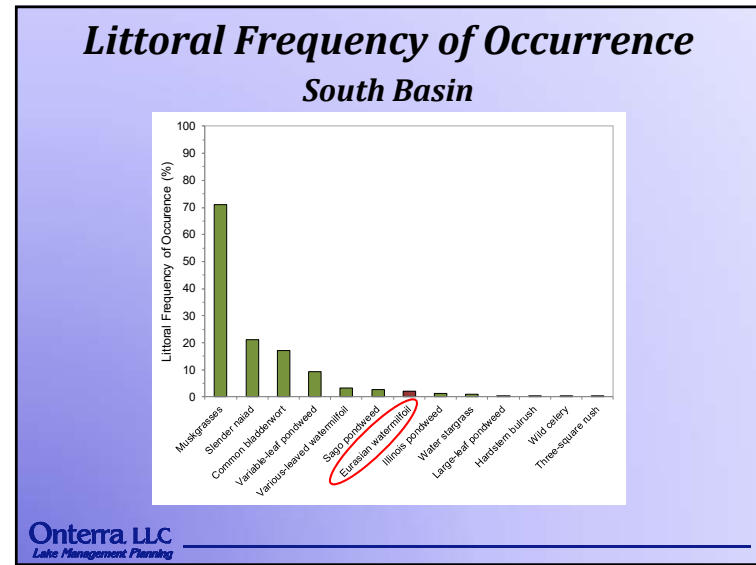
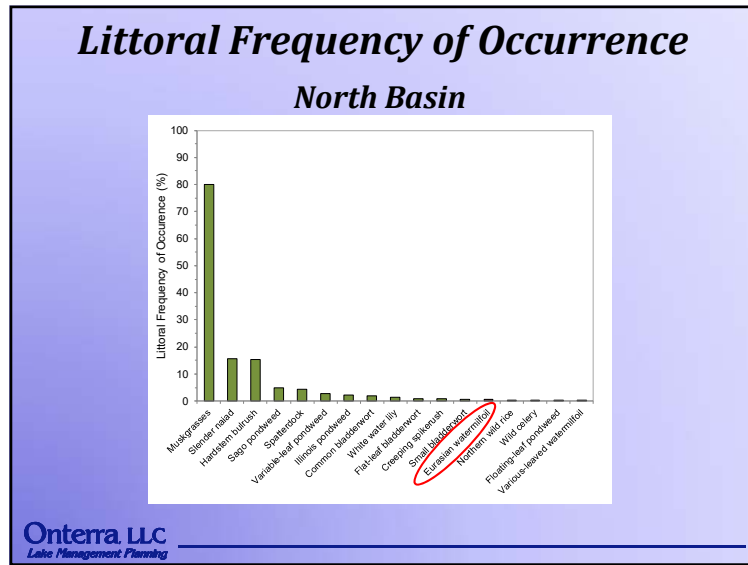


Aquatic Plant Species

- 28 species located
- 23 in North Basin (8 only found here)
- 19 in South Basin (4 only found here)
- 16 found in both basins
- 1 non-native: EWM
- Native *Phragmites* subspecies located in north basin
- Hybrid pondweed


Growth Form	Scientific Name	Common Name	Coefficient of Conservation (C)	South Basin (2016)	North Basin (2016)	North Basin (2018)	
Emergent	<i>Eleocharis palustris</i>	Creeping spikegrass	6	*	I	X	
	<i>Equisetum fluviatile</i>	Water horsetail	7	*		I	
	<i>Iris versicolor</i>	Northern blue flag	5	*	I	I	
	<i>Juncus effusus</i>	Soft rush	4	*		I	
	<i>Phragmites australis</i> subsp. <i>americanus</i>	Common reed	5	*		I	
	<i>Sagittaria latifolia</i>	Common arrowhead	3	*	I	I	
	<i>Sagittaria</i> sp. (sterile)	Arrowhead (sp. sterile)	NA			I	
	<i>Scheuchzeria palustris</i>	Hardstem bulrush	5	*	X	X	
	<i>Scheuchzeria palustris</i> var. <i>juncea</i>	Three-square rush	5	*	X	I	
	<i>Scheuchzeria palustris</i> var. <i>subversum</i>	Softstem bulrush	4	*		I	
FL	<i>Typha latifolia</i>	Broad-leaved cattail	1	*	I	I	
	<i>Zizania palustris</i>	Northern wild rice	8	*		X	
	<i>Najas verticillata</i>	Spatterdock	6	*	I	X	
	<i>Nymphaea odorata</i>	White water lily	6	*		X	
	<i>Sagittaria fluctuans</i>	Floating-leaf burdock	10	*			
	Submergent	<i>Chara</i> spp.	Meat grasses	7	*	X	X
		<i>Heteranthera dubia</i>	Water hyacinth	6	*	X	X
		<i>Myriophyllum heterophyllum</i>	Variable-leaved watermilfoil	7	*	X	X
		<i>Myriophyllum spicatum</i>	European watermilfoil	Exotic	*	X	X
		<i>Najas flexilis</i>	Slender reed	6	*	X	X
<i>Potamogeton amplifolius</i>		Large-leaf pondweed	7	*	X	X	
<i>Potamogeton filifolius</i>		Fine-leaf pondweed	8	*		I	
<i>Potamogeton gramineus</i>		Variable-leaf pondweed	7	*	X	X	
<i>Potamogeton litoreus</i>		Illinois pondweed	6	*	X	X	
<i>Potamogeton zosterifolius</i>		Variable-leaf pondweed hybrid	NA	*	X	X	
S/E	<i>Potamogeton zosterifolius</i>	Illinois pondweed	6	*	X	X	
	<i>Potamogeton zosterifolius</i> X <i>P. richardsonii</i>	Illinois x creeping-leaf pondweed hybrid	NA	*	X	X	
	<i>Potamogeton zosterifolius</i>	Floating-leaf pondweed	6	*	X	X	
	<i>Potamogeton richardsonii</i>	Creeping-leaf pondweed	5	*		X	
	<i>Scheuchzeria palustris</i>	Hardstem bulrush	5	*	X	X	
	<i>Utricularia intermedia</i>	Flat-leaf bladderwort	9	*		X	
	<i>Utricularia minor</i>	Small bladderwort	10	*		X	
	<i>Utricularia vulgaris</i>	Common bladderwort	7	*	X	X	
	<i>Valoniopsis spiralis</i>	Wild celery	6	*	X	X	
	FF	<i>Eleocharis acicularis</i>	Needle spikegrass	5	*		
<i>Lemna minor</i>		Lesser duckweed	5	*			

* = Located during 2003 surveys; X = Located on lake during 2016 point-intercept survey; I = Incidentally located during 2016 surveys
FL = Floating-leaf; S/E = Submergent & Emergent; FF = Free-floating




Kangaroo Lake Common Plants

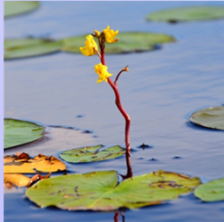
Muskgrasses
(*Chara* spp.)



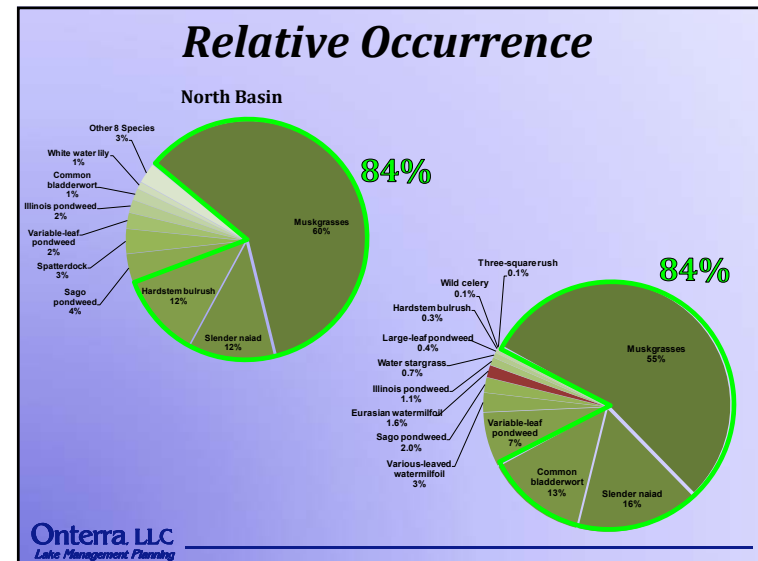
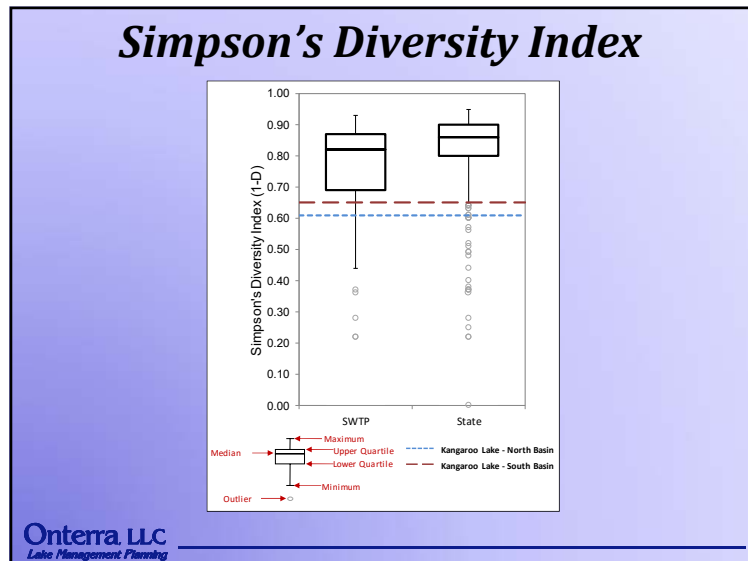
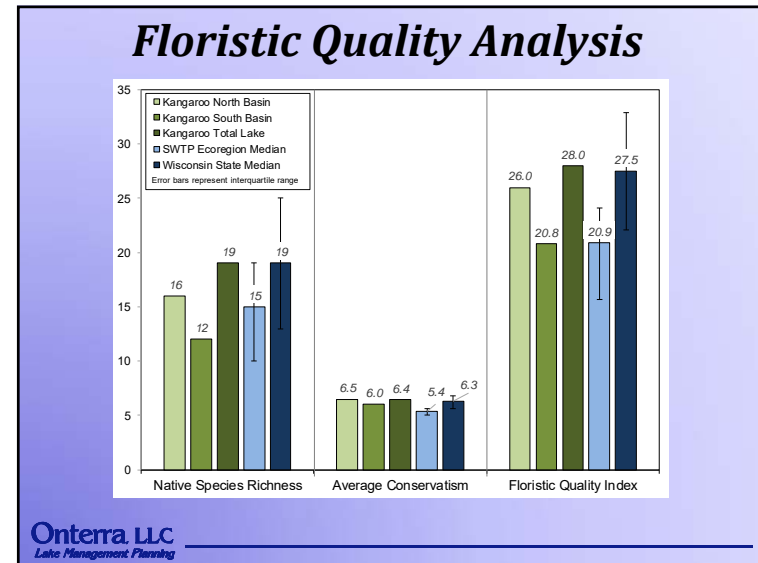
Slender Naiad
(*Najas flexilis*)

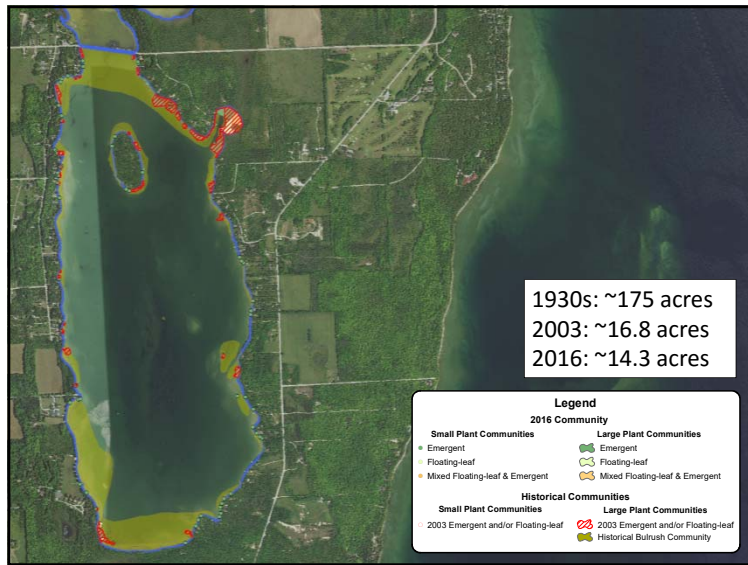
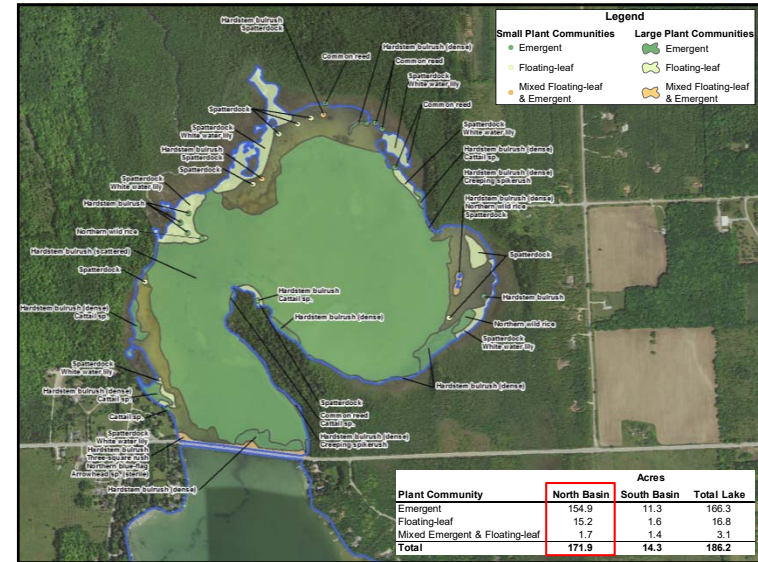


Common bladderwort
(*Utricularia vulgaris*)



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Reduction in Bulrushes


- Likely due to a combination of interacting factors
 - Changes in hydrology – dam installation in 1937
 - Increase in shoreland development
 - Increase in motorboat traffic
 - Increased herbivory? (Geese, muskrats)

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Non-Native Aquatic Plants

- Eurasian watermilfoil
 - First documented in Kangaroo Lake in 1994
 - KLA participate milfoil weevil study
 - 2007 and 2012 localized herbicide treatments near causeway
 - KLA monitoring

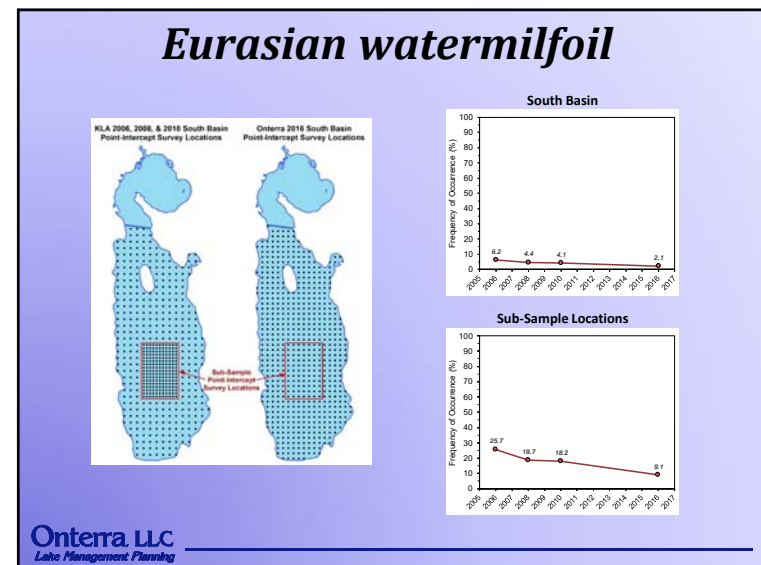
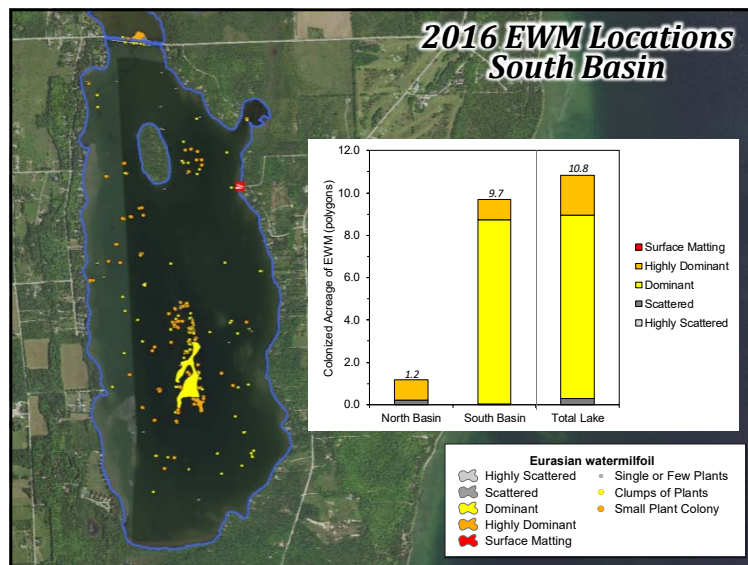
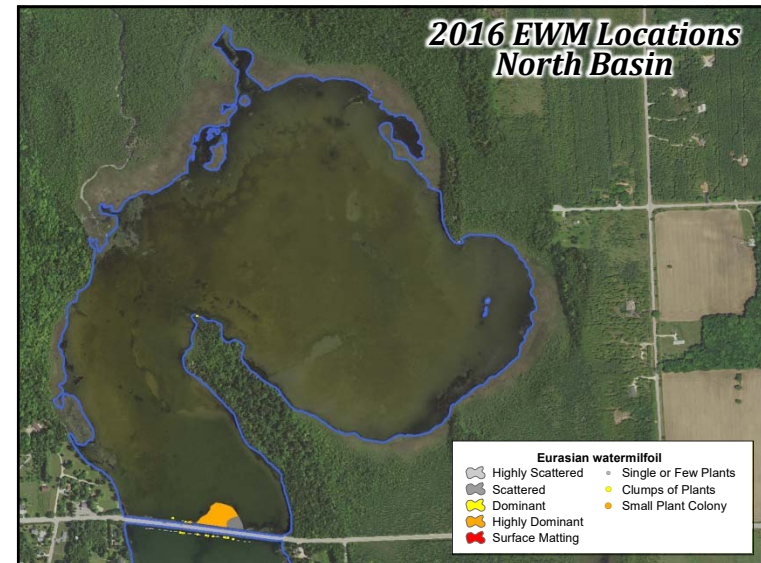
Eurasian Watermilfoil



Alternate-leaved Watermilfoil



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Conclusions

Water Quality

- Excellent for shallow lowland drainage lake
- Low phosphorus & chlorophyll-*a*
- Clarity is lower than predicted based on chlorophyll-*a* due to sediment resuspension, but is still high
- High concentration of calcium also reduces bio-available phosphorus

Watershed & Immediate Shoreland

- Despite high degree of development in watershed, not significantly impacting lake water quality
- Fast draining soils allow most precipitation to percolate into the ground
- Shoreland in north basin largely undeveloped
- High degree of development of shoreland in south basin
- Degree of CWH higher when compared to other study lakes

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Conclusions

Aquatic Plant Community

- Standard analysis indicates high-quality native community
- Low species diversity, but expected for a marl lake (dominance by muskgrasses)
- Hardstem bulrush population smaller than in 2003
- Majority of EWM population in south-central portion of south basin; overall, low abundance within the lake in 2016

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Next Time...

- **Discuss EWM Management in WI and Kangaroo Lake**
- **Fisheries Information**
- **Stakeholder Survey**
- **Develop the framework for the Implementation Plan**

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Thank You

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Kangaroo Lake
Management Planning Update Project
Wrap-Up Meeting
July 7, 2018

Tim Hoyman
Onterra LLC
Lake Management Planning

Presentation Outline

- Project Goals
- Overall Study Conclusions
- Key Study Results
- Management Goals and Actions
- Questions



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Study and Plan Goals

- Collect & Analyze Data
 - 2016/2017
- Construct Long-Term & Useable Plan
 - Planning Meetings 2017
 - Final Plan approved by WDNR in winter 2018

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Studies to also focus on north basin

- Critical Habitat Area
- Shallow, marl lake with minimal development
- High-quality surrounding wetlands



John Cabbatt



Brenton Butterfield



Arthur Morris



Brian E. Small



Robert Kirchen




Laura Erickson



Janice Stiefel

Data and information gathering

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



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Summary of Project Conclusions

Water Quality

- Excellent for a shallow lowland drainage lake

Watershed & Immediate Shoreline

- Majority of watershed comprised of agriculture, but...
- Significantly less phosphorus than predicted – quick draining soils
- High degree of shoreland development in south basin; north basin largely undeveloped

Aquatic Plant Community

- High species richness for Southeast Wisconsin Till Plains Ecoregion
- Eurasian watermilfoil only non-native plant species located in 2016
- Hardstem bulrush community in south basin ~2.5 acres smaller than in 2003

Fisheries

- Some changes have occurred; lake shifting from walleye- to bass-dominated fishery

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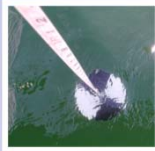


Introduction to Lake Water Quality

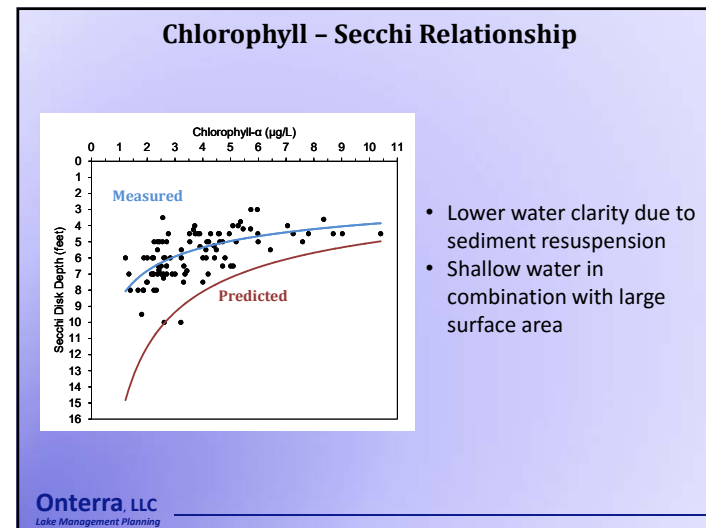
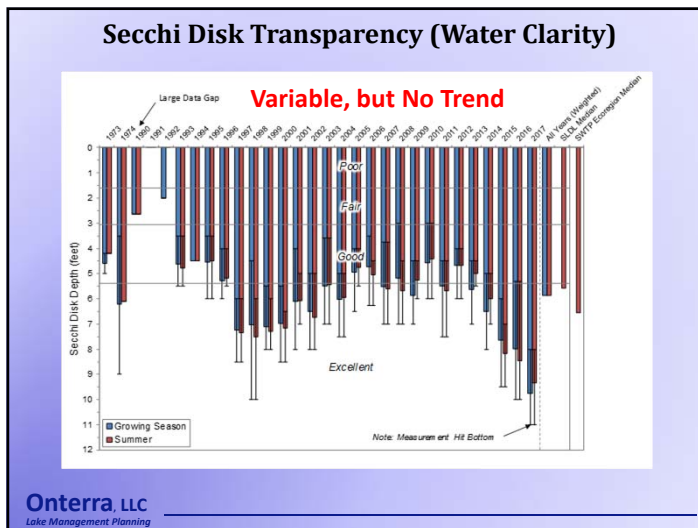
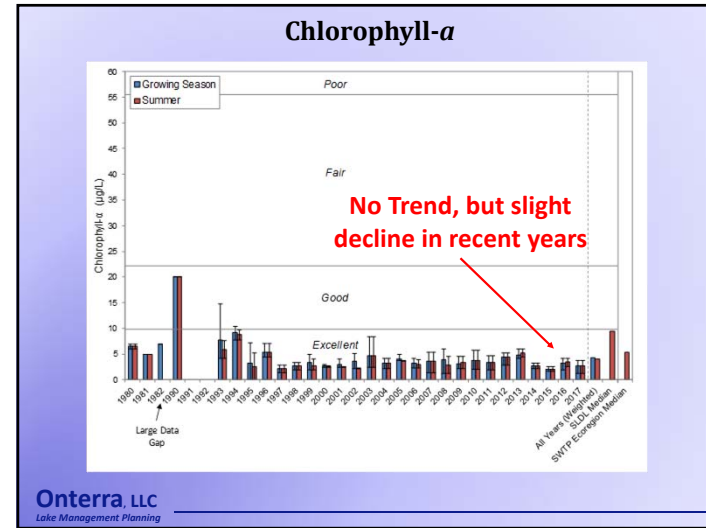
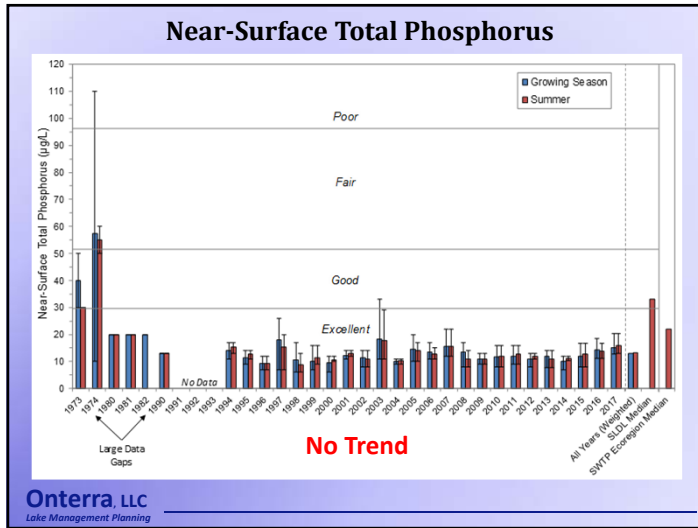
↑ Phosphorus
Naturally occurring & essential for all life
Regulates phytoplankton biomass in most WI lakes
Most often *limiting plant nutrient* (shortest supply) **TN:TP = 42:1**
Human development often increases P delivery to lakes

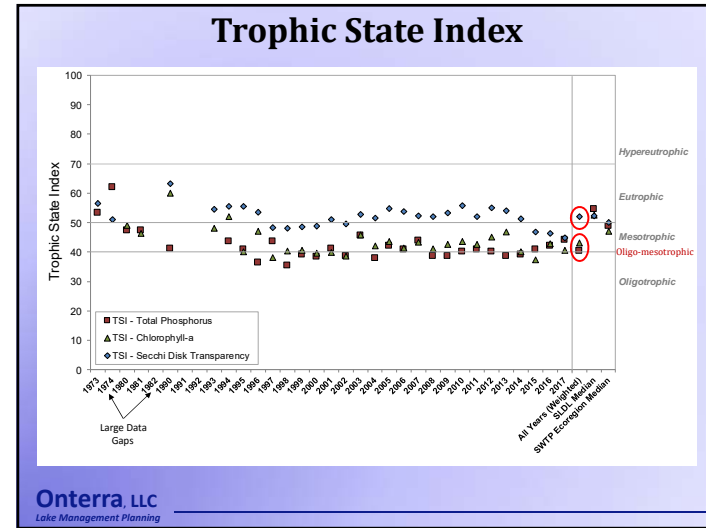
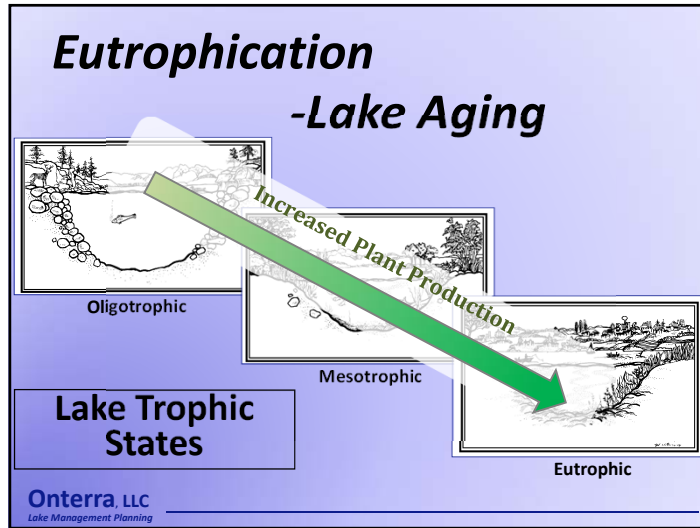
↑ Chlorophyll-a
Pigment used in photosynthesis
Used as surrogate for phytoplankton biomass

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



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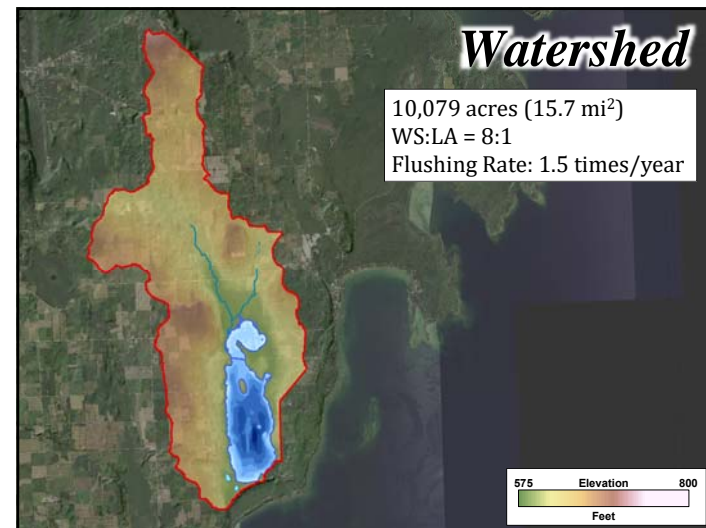


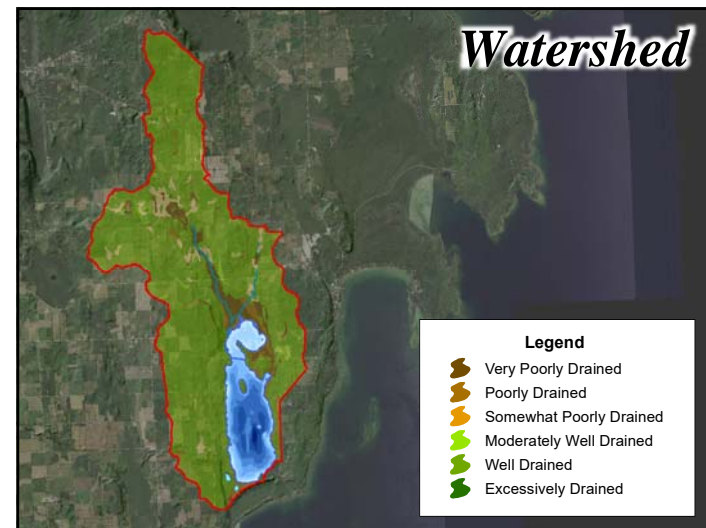
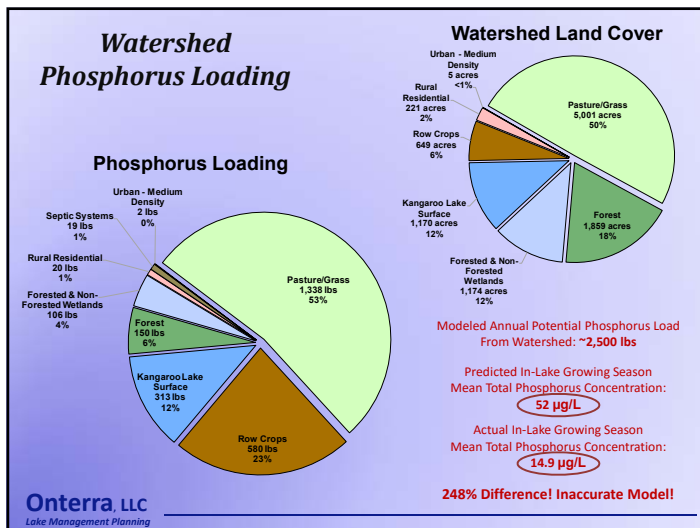
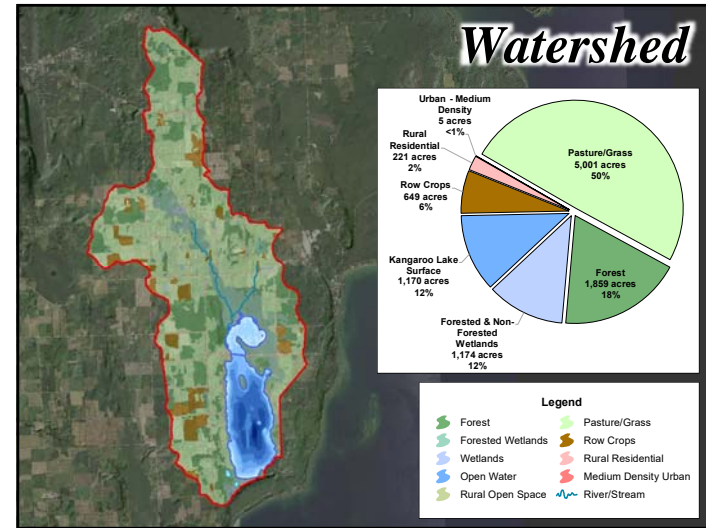
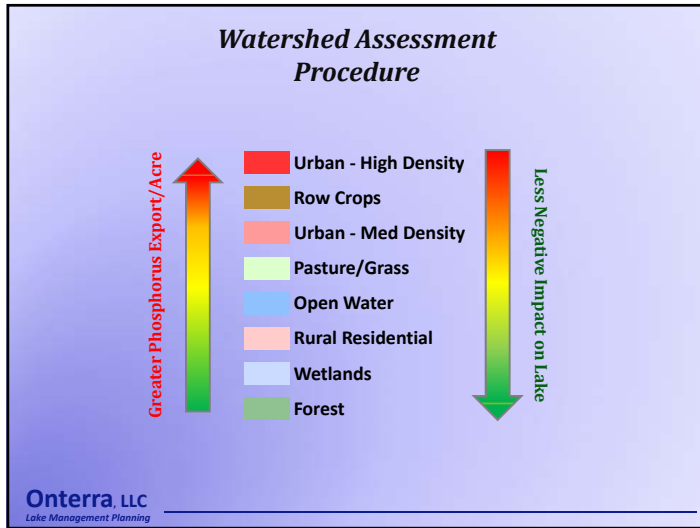


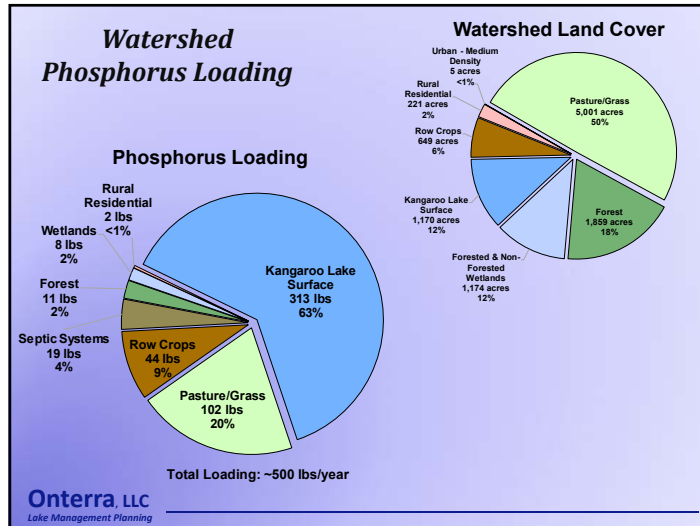
Zebra Mussels (*Dreissena polymorpha*)

- Discovered in Kangaroo Lake in 2008
- Create host of ecological & economic impacts
 - Alterations to food web
 - Changes in water quality
 - Displacement of native mussels

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Shoreland Assessment

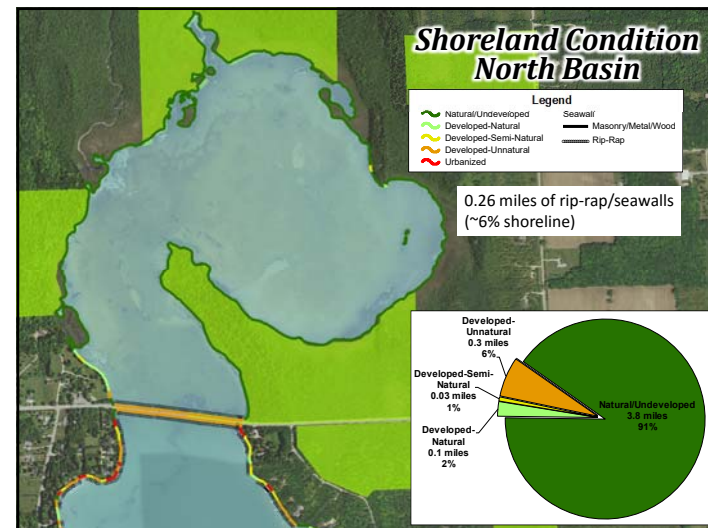
- Shoreland area is important for buffering runoff and provides valuable habitat for aquatic and terrestrial wildlife.
- EPA National Lakes Assessment results indicate shoreland development has greatest negative impact to health of our nation's lakes.
- It does not look at lake shoreline on a property-by-property basis.
- Assessment ranks shoreland area from shoreline back 35 feet

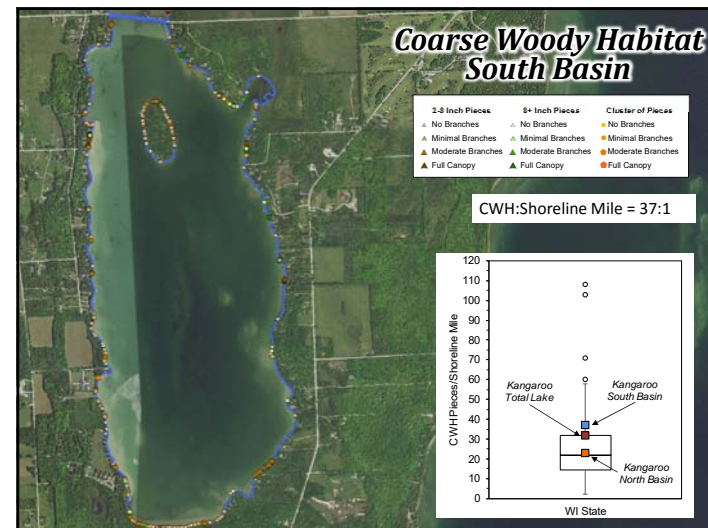
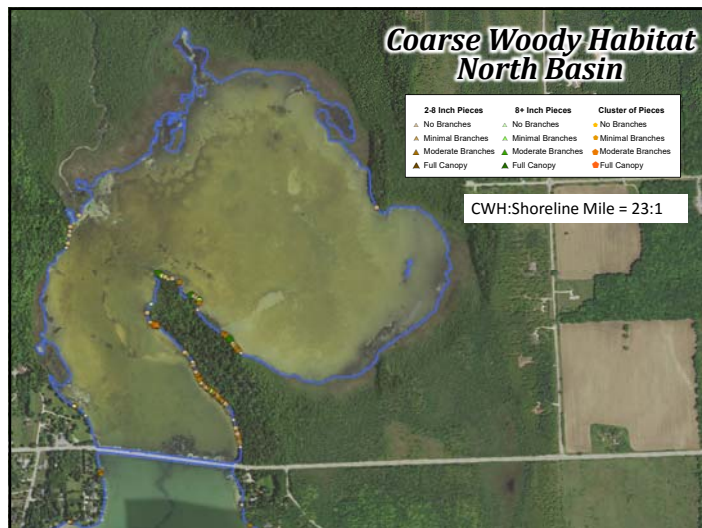
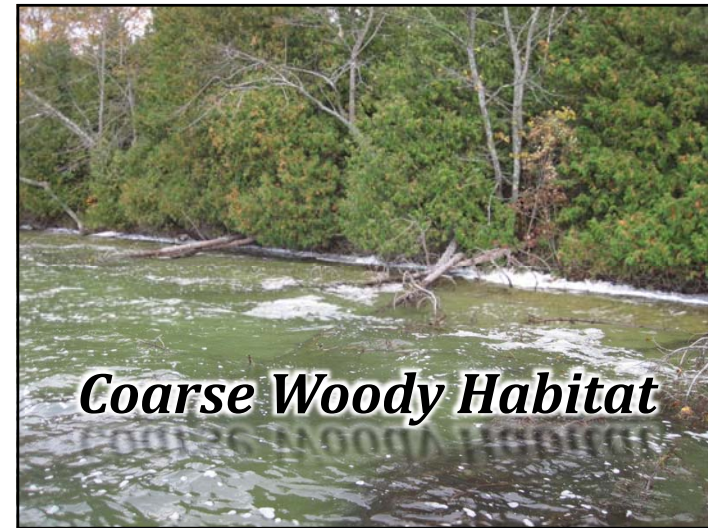
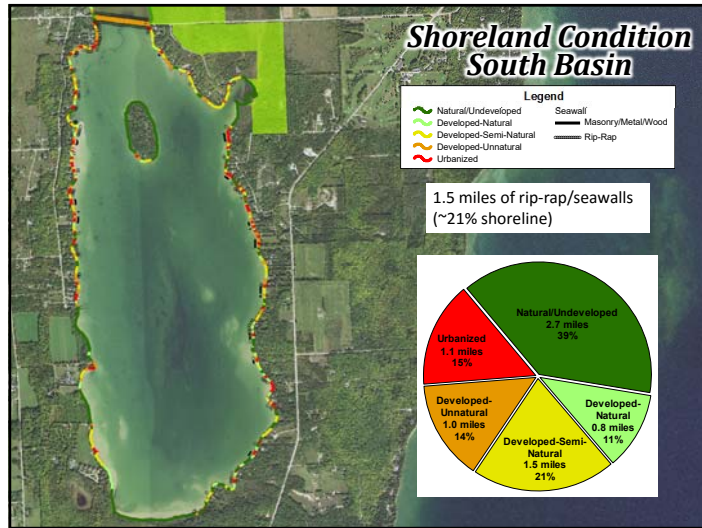
Urbanized

Range →

Natural

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Management Goal:
Maintain Current Water Quality Conditions

Management Actions

1. Continue monitoring of lakes' water quality through WDNR Citizens Lake Monitoring Network (CLMN)
2. Continue monitoring of Piel Creek water quality through the WDNR Water Action Volunteers (WAV)
Important for tracking sudden & long-term changes.
3. Preserve natural & restore highly developed shoreland areas on Kangaroo Lake to improve habitat, reduce erosion, & protect water quality.
4. Preserve natural land cover within the Kangaroo Lake watershed beyond the immediate shoreland zone.

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B

APPENDIX B

Stakeholder Survey Response Charts and Comments

Kangaroo Lake - Anonymous Stakeholder Survey

Surveys Distributed: 201
Surveys Returned: 72
Response Rate: 36%

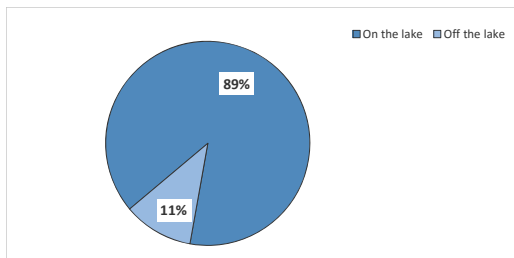
Kangaroo Lake Property

1. Do you own or rent your property on or near Kangaroo Lake? If you own more than one property, please select the type of property you have owned the longest. Please refer to this property as you answer the remaining questions in the survey. Please select one choice.

Answer Options	Response Percent	Response Count
Own	100.0%	72
Rent	0.0%	0
<i>answered question</i>		72
<i>skipped question</i>		0

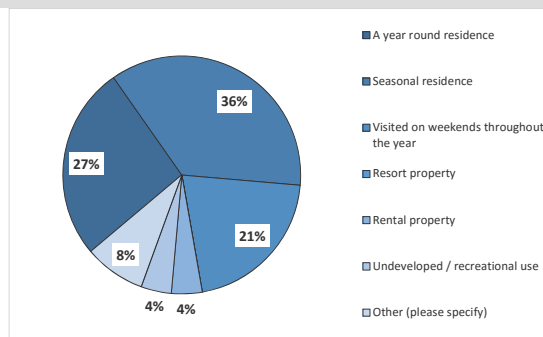
2. Is your property from Question 1 located on the lake or off the lake? Please select one choice.

Answer Options	Response Percent	Response Count
On the lake	88.9%	64
Off the lake	11.1%	8
<i>answered question</i>		72
<i>skipped question</i>		0



3. How is your property on or near Kangaroo Lake utilized? Please select one choice.

Answer Options	Response Percent	Response Count
A year round residence	26.4%	19
Seasonal residence	36.1%	26
Visited on weekends throughout the year	20.8%	15
Resort property	0.0%	0
Rental property	4.2%	3
Undeveloped / recreational use	4.2%	3
Other (please specify)	8.3%	6
<i>answered question</i>		72
<i>skipped question</i>		0

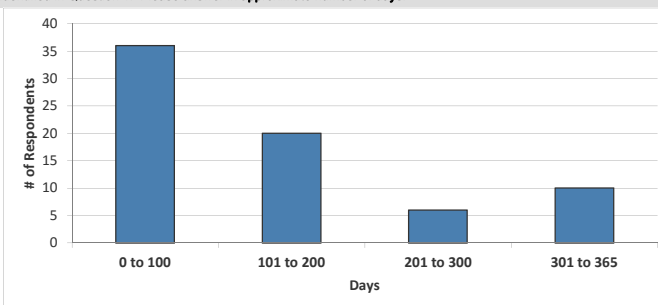


Response	Other (please specify)
1	Periodically rent a cabin on the lake.
2	Seasonal residence winterized
3	Visited as able
4	10 days per month
5	Rental/ visited on the weekends
6	Part time all season residence (approx 50% of the year)

4. How many days each year is your property used by you or others? Refer to the property identified in Question 1. Please answer in approximate number of days.

Answer Options	Response Count	
	72	
<i>answered question</i>		72
<i>skipped question</i>		0

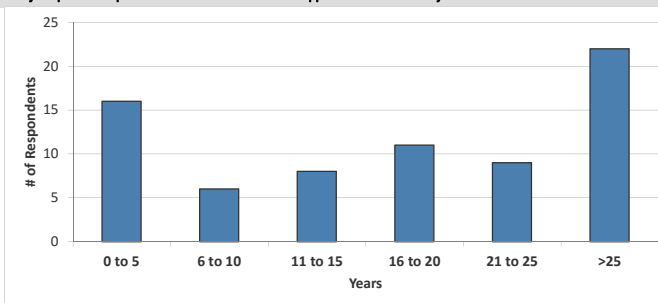
Category (# of days)	Response Count	Response Percent
0 to 100	36	50.0%
101 to 200	20	27.8%
201 to 300	6	8.3%
301 to 365	10	13.9%



5. How long have you owned or rented your property on or near Kangaroo Lake? If less than one year please respond with "1". Please answer in approximate number of years.

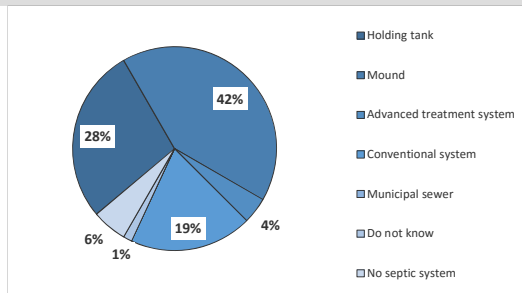
Answer Options	Response Count	
	72	
<i>answered question</i>		72
<i>skipped question</i>		0

Category (# of years)	Response Count	Response Percent
0 to 5	16	22.2%
6 to 10	6	8.3%
11 to 15	8	11.1%
16 to 20	11	15.3%
21 to 25	9	12.5%
>25	22	30.6%



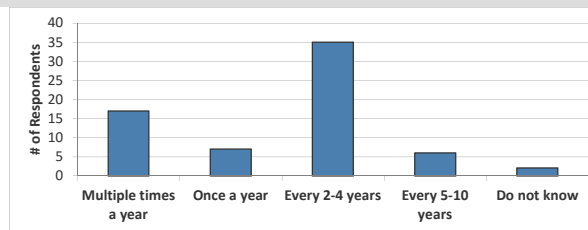
6. What type of septic system does your property utilize? Please select one choice.

Answer Options	Response Percent	Response Count
Holding tank	27.8%	20
Mound	41.7%	30
Advanced treatment system	4.2%	3
Conventional system	19.4%	14
Municipal sewer	0.0%	0
Do not know	1.4%	1
No septic system	5.6%	4
answered question		72
skipped question		0



7. How often is the septic system on your property pumped? Please select one choice.

Answer Options	Response Percent	Response Count
Multiple times a year	25.4%	17
Once a year	10.4%	7
Every 2-4 years	52.2%	35
Every 5-10 years	9.0%	6
Do not know	3.0%	2
answered question		67
skipped question		5

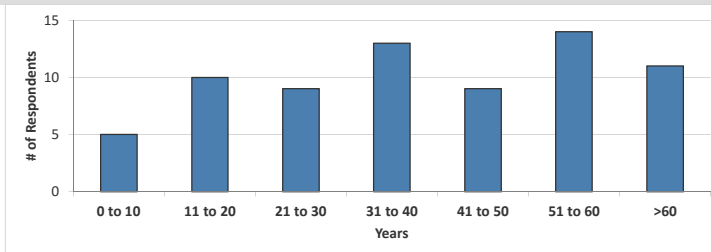


Recreational Activity on Kangaroo Lake

8. How many years ago did you first visit Kangaroo Lake? Please answer in approximate number of years. If less than 1 year please type *1*.

Answer Options	Response Count
	71
answered question	71
skipped question	1

Category (# of years)	Response Count	Response Percent
0 to 10	5	7.0%
11 to 20	10	14.1%
21 to 30	9	12.7%
31 to 40	13	18.3%
41 to 50	9	12.7%
51 to 60	14	19.7%
>60	11	15.5%



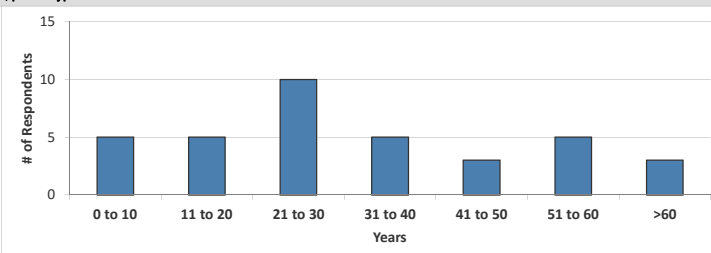
9. Have you personally fished on Kangaroo Lake in the past three years? Please select one choice.

Answer Options	Response Percent	Response Count
Yes	50.7%	36
No	49.3%	35
answered question		71
skipped question		1

10. For how many years have you fished on Kangaroo Lake? If this is your first year, please type *1*.

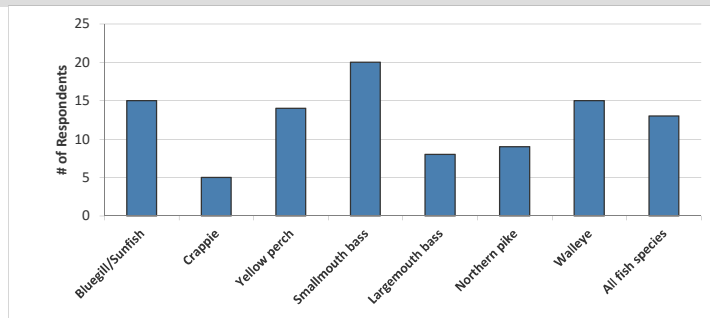
Answer Options	Response Count
	36
answered question	36
skipped question	36

Category (# of years)	Response Count	Response Percent
0 to 10	5	13.9%
11 to 20	5	13.9%
21 to 30	10	27.8%
31 to 40	5	13.9%
41 to 50	3	8.3%
51 to 60	5	13.9%
>60	3	8.3%



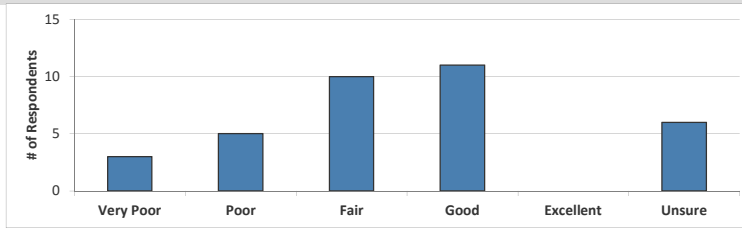
11. What species of fish do you like to catch on Kangaroo Lake? Please select all that apply.

Answer Options	Response Percent	Response Count
Bluegill/Sunfish	41.7%	15
Crappie	13.9%	5
Yellow perch	38.9%	14
Smallmouth bass	55.6%	20
Largemouth bass	22.2%	8
Northern pike	25.0%	9
Walleye	41.7%	15
All fish species	36.1%	13
Other (please specify)	0.0%	0
answered question		36
skipped question		36



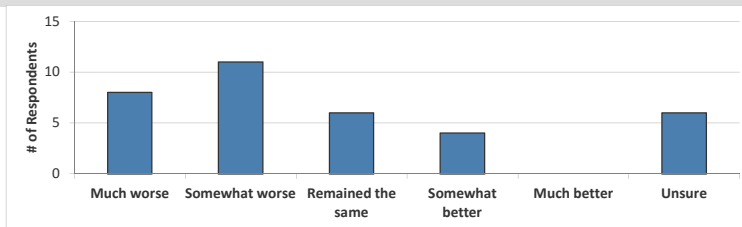
12. How would you describe the current quality of panfish (i.e. bluegill, crappie, perch) fishing on Kangaroo Lake? Please select one choice.

Answer Options	Very Poor	Poor	Fair	Good	Excellent	Unsure	Rating Average	Response Count
	3	5	10	11	0	6	2.49	35
							<i>answered question</i>	35
							<i>skipped question</i>	37



13. How has the quality of panfish (i.e. bluegill, crappie, perch) fishing changed on Kangaroo Lake since you have started fishing the lake? Please select one choice.

Answer Options	Much worse	Somewhat worse	Remained the same	Somewhat better	Much better	Unsure	Rating Average	Response Count
	8	11	6	4	0	6	1.83	35
							<i>answered question</i>	35
							<i>skipped question</i>	37



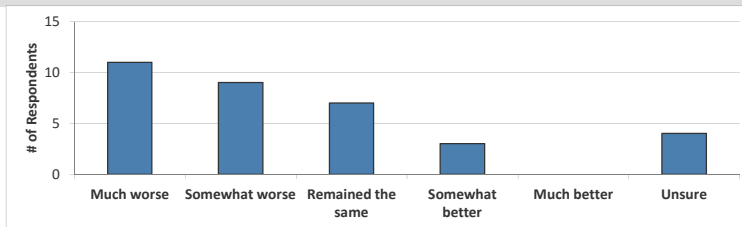
14. How would you describe the current quality of game fish (i.e. bass, walleye, northern pike) fishing on Kangaroo Lake? Please select one choice.

Answer Options	Very Poor	Poor	Fair	Good	Excellent	Unsure	Rating Average	Response Count
	3	11	12	4	0	4	2.26	34
							<i>answered question</i>	34
							<i>skipped question</i>	38



15. How has the quality of game fish (i.e. bass, walleye, northern pike) fishing changed on Kangaroo Lake since you have started fishing the lake? Please select one choice.

Answer Options	Much worse	Somewhat worse	Remained the same	Somewhat better	Much better	Unsure	Rating Average	Response Count
	11	9	7	3	0	4	1.82	34
							<i>answered question</i>	34
							<i>skipped question</i>	38



16. Are you aware of the fish sticks program on Kangaroo Lake? Please circle one answer.

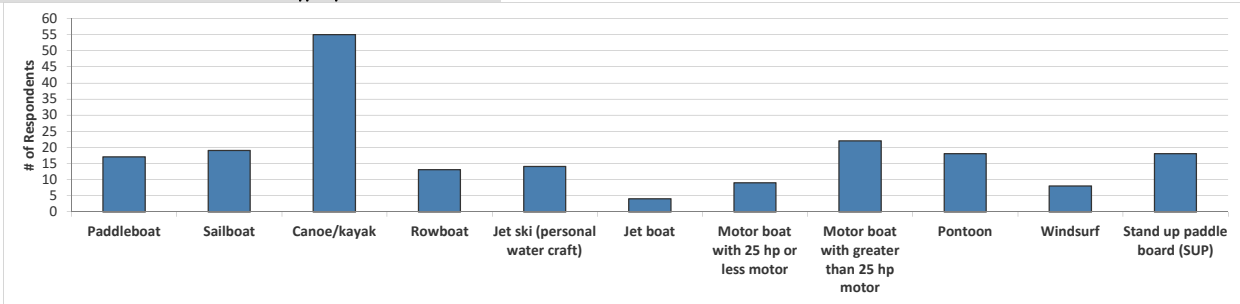
Answer Options	Response Percent	Response Count
Definitely yes	94.4%	67
I think so but can't be certain	4.2%	3
No	1.4%	1
	<i>answered question</i>	71
	<i>skipped question</i>	1

17. Have you been informed of the benefits of the fish sticks program on Kangaroo Lake? Please select one answer.

Answer Options	Response Percent	Response Count
Yes	97.1%	67
I can't recall	2.9%	2
No	0.0%	0
	<i>answered question</i>	69
	<i>skipped question</i>	3

18. What types of watercraft do you currently use on Kangaroo Lake? Please select all that apply.

Answer Options	Response Percent	Response Count
Paddleboat	23.9%	17
Sailboat	26.8%	19
Canoe/kayak	77.5%	55
Rowboat	18.3%	13
Jet ski (personal water craft)	19.7%	14
Jet boat	5.6%	4
Motor boat with 25 hp or less motor	12.7%	9
Motor boat with greater than 25 hp motor	31.0%	22
Pontoon	25.4%	18
Windsurf	11.3%	8
Stand up paddle board (SUP)	25.4%	18
Do not use watercraft on Kangaroo Lake	2.8%	2
Do not use watercraft on any waters	1.4%	1
<i>answered question</i>		71
<i>skipped question</i>		1



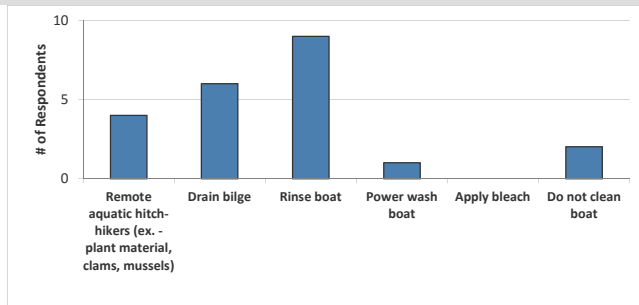
19. Do you use your watercraft on waters other than Kangaroo Lake?

Answer Options	Response Percent	Response Count
Yes	24.3%	17
No	75.7%	53
<i>answered question</i>		70
<i>skipped question</i>		2

20. What is your typical cleaning routine after using your watercraft on waters other than Kangaroo Lake? Please check all that apply.

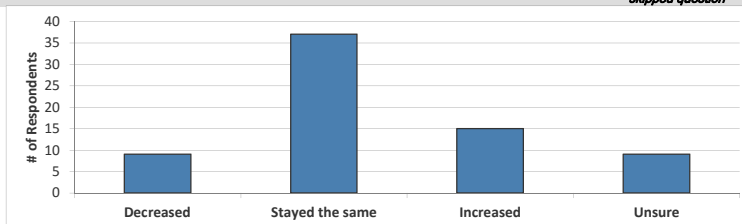
Answer Options	Response Percent	Response Count
Remote aquatic hitch-hikers (ex. - plant material, clams, mussels)	23.5%	4
Drain bilge	35.3%	6
Rinse boat	52.9%	9
Power wash boat	5.9%	1
Apply bleach	0.0%	0
Do not clean boat	11.8%	2
Other (please specify)	23.5%	4
<i>answered question</i>		17
<i>skipped question</i>		55

Response	Other (please specify)
1	STAYS ON LAKE
2	boat completely dries between uses
3	Use a hydro hoist to lift the boat out of the water on a dock.
4	dont use anywhere else



21. How has the level of boat traffic changed on Kangaroo Lake since you first visited the lake? Please select one choice on the scale below.

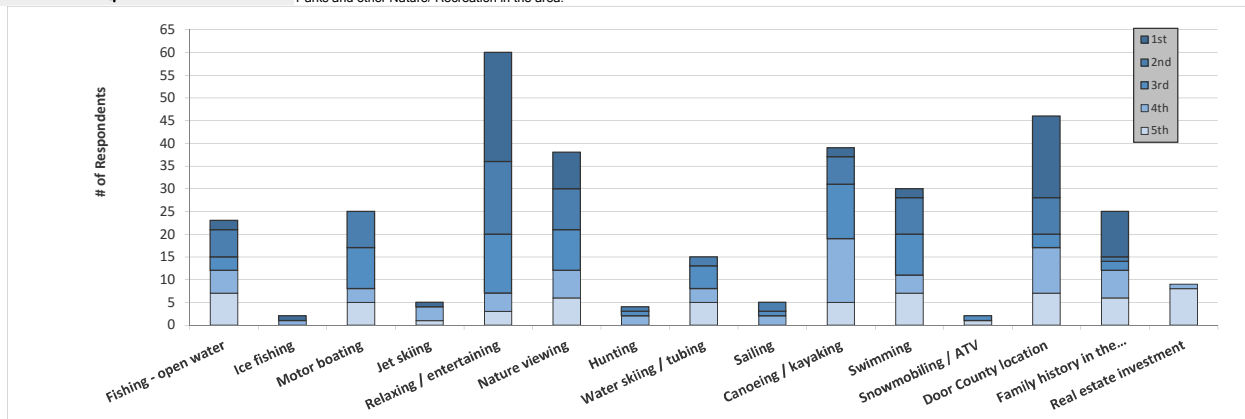
Answer Options	Decreased	Stayed the same	Increased	Unsure	Rating Average	Response Count
	9	37	15	9	1.83	70
					<i>answered question</i>	70
					<i>skipped question</i>	2



22. Please rank up to five activities that are important reasons for owning your property on or near Kangaroo Lake. Please select the top five activities below with 1 being most important.

Answer Options	1st	2nd	3rd	4th	5th	Rating Average	Response Count
Fishing - open water	2	6	3	5	7	3.39	23
Ice fishing	1	0	0	1	0	2.50	2
Motor boating	0	8	3	3	5	3.20	25
Jet skiing	1	0	0	3	1	3.60	5
Relaxing / entertaining	24	16	13	4	3	2.10	60
Nature viewing	8	9	9	6	6	2.82	38
Hunting	0	1	1	2	0	3.25	4
Water skiing / tubing	0	2	5	3	5	3.73	15
Sailing	0	2	1	2	0	3.00	5
Canoeing / kayaking	2	6	12	14	5	3.36	39
Swimming	2	8	9	4	7	3.20	30
Snowmobiling / ATV	0	0	1	0	1	4.00	2
Door County location	18	8	3	10	7	2.57	46
Family history in the area	10	1	2	6	6	2.88	25
Real estate investment	0	0	0	1	8	4.89	9
None of these activities are important to me	0	0	0	1	0	4.00	1
Other (please specify below)	1	1	0	2	0	2.75	4
Please specify "Other" response here							4
<i>answered question</i>							71
<i>skipped question</i>							1

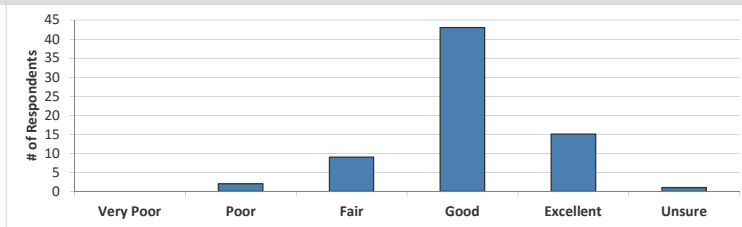
Response	Please specify "Other" response here
1	We live here.
2	Kangaroo Lake Dunes Conservation and protection
3	Farming
4	Parks and other Nature/ Recreation in the area.



Kangaroo Lake Current and Historic Condition, Health, and Management

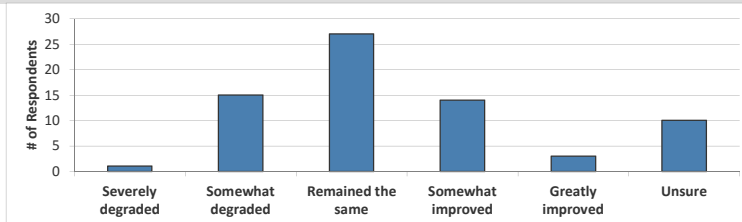
23. How would you describe the current water quality of Kangaroo lake? Please select one choice.

Answer Options	Very Poor	Poor	Fair	Good	Excellent	Unsure	Rating Average	Response Count
	0	2	9	43	15	1	3.97	70
<i>answered question</i>								70
<i>skipped question</i>								2



24. How has the current water quality changed in Kangaroo Lake since you first visited the lake? Please select one choice.

Answer Options	Severely degraded	Somewhat degraded	Remained the same	Somewhat improved	Greatly improved	Unsure	Rating Average	Response Count
	1	15	27	14	3	10	2.61	70
<i>answered question</i>								70
<i>skipped question</i>								2



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

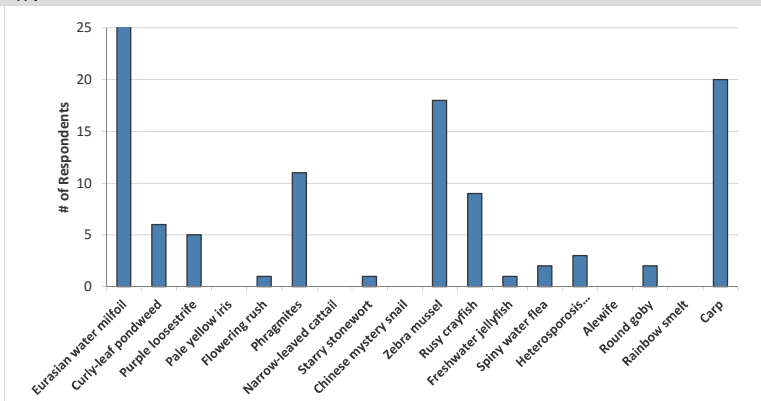
Answer Options	Response Percent	Response Count
Yes	98.6%	70
No	1.4%	1
answered question		71
skipped question		1

26. Do you believe aquatic invasive species are present within Kangaroo Lake? Please select one answer.

Answer Options	Response Percent	Response Count
Definitely yes	65.2%	45
I think so but I'm not certain	34.8%	24
No	0.0%	0
answered question		69
skipped question		3

27. Which aquatic invasive species do you believe are in Kangaroo Lake? Please select all that apply.

Answer Options	Response Percent	Response Count
Eurasian water milfoil	78.3%	54
Curly-leaf pondweed	8.7%	6
Purple loosestrife	7.2%	5
Pale yellow iris	0.0%	0
Flowering rush	1.4%	1
Phragmites	15.9%	11
Narrow-leaved cattail	0.0%	0
Starry stonewort	1.4%	1
Chinese mystery snail	0.0%	0
Zebra mussel	26.1%	18
Rusky crayfish	13.0%	9
Freshwater jellyfish	1.4%	1
Spiny water flea	2.9%	2
Heterosporosis (Yellow perch parasite)	4.3%	3
Alewife	0.0%	0
Round goby	2.9%	2
Rainbow smelt	0.0%	0
Carp	29.0%	20
Unsure, but I believe AIS are present	26.1%	18
Other (please specify)	0.0%	0
answered question		69
skipped question		3

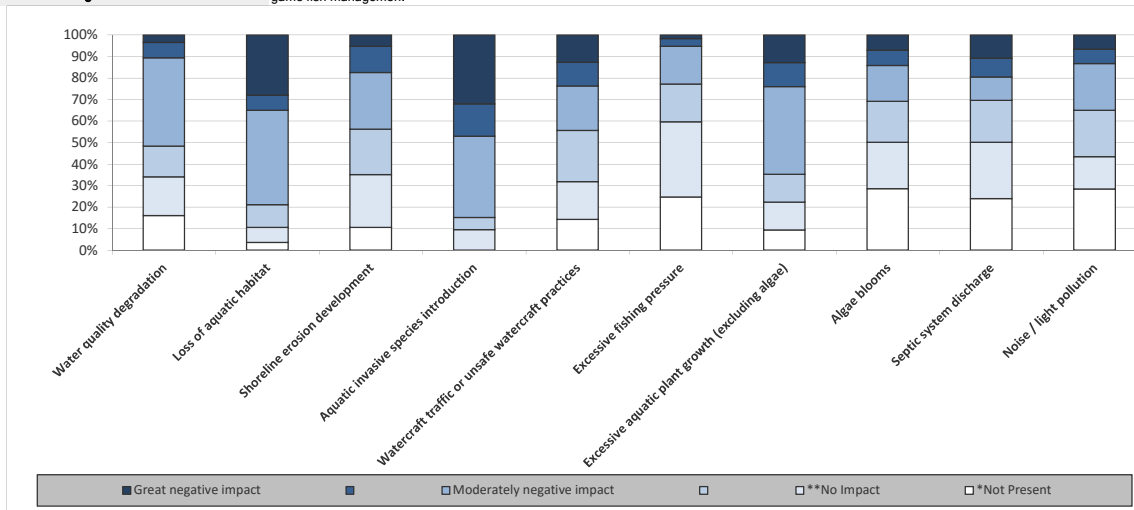


28. Below is a list of possible impacts to Wisconsin lakes. To what level do you believe each of the following factors may currently be negatively impacting Kangaroo Lake? Please select only one choice for each impact description.

* Not Present means that you believe the issue does not exist on Kangaroo Lake.
** No Impact means that the issue may exist on Kangaroo Lake but it is not negatively impacting the lake.

Answer Options	*Not Present	**No Impact	Moderately negative impact	Great negative impact	Unsure: Need more information	Rating Average	Response Count
Water quality degradation	9	10	8	23	4	1.10	67
Loss of aquatic habitat	2	4	6	25	4	1.94	68
Shoreline erosion development	6	14	12	15	7	1.14	66
Aquatic invasive species introduction	0	5	3	20	8	2.05	66
Watercraft traffic or unsafe watercraft practices	9	11	15	13	7	1.36	69
Excessive fishing pressure	14	20	10	10	2	0.59	68
Excessive aquatic plant growth (excluding algae)	5	7	7	22	6	1.45	67
Algae blooms	12	9	8	7	3	0.66	65
Septic system discharge	11	12	9	5	4	0.76	67
Noise / light pollution	17	9	13	13	4	0.99	68
Other (please specify)							5
answered question							70
skipped question							2

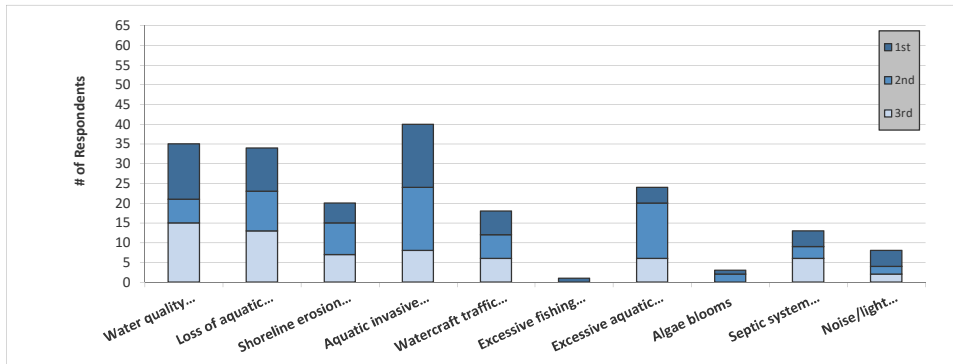
Response	Other (please specify)
1	swimmer's itch
2	People removing bullrushes and removing rocks
3	Jet skis quieter, no longer so near shore
4	Loss of Bull Rush
5	game fish management



29. From the list below, please rank your top three concerns regarding Kangaroo Lake, with 1 being your greatest concern. Enter a 1, 2 and 3 by your top concerns below.

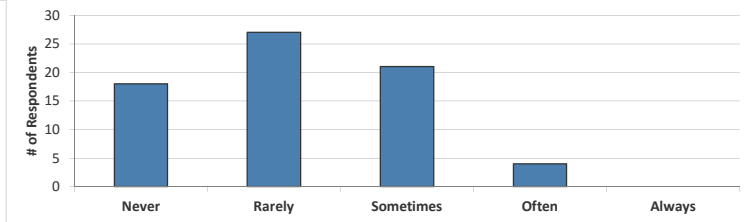
Answer Options	1st	2nd	3rd	Response Count
Water quality degradation	14	6	15	35
Loss of aquatic habitat	11	10	13	34
Shoreline erosion or development	5	8	7	20
Aquatic invasive species introduction	16	16	8	40
Watercraft traffic or unsafe watercraft practices	6	6	6	18
Excessive fishing pressure	1	0	0	1
Excessive aquatic plant growth (excluding algae)	4	14	6	24
Algae blooms	1	2	0	3
Septic system discharge	4	3	6	13
Noise/light pollution	4	2	2	8
Other (please specify)	1	0	1	2
Please specify "Other" response here				7
<i>answered question</i>				68
<i>skipped question</i>				4

Response	Please specify "Other" response here
1	Lack of quality game fish, walleye, Northern Pike etc.
2	To much regulation
3	removal of rocks and bullrushes
4	Swimmer's itch
5	Loss of Bullrush
6	Lake level one day lowers
7	Limiting recreational use of the lake



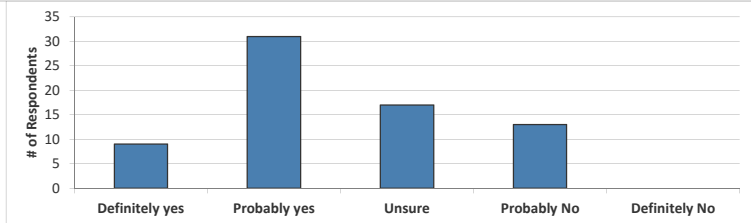
30. During open water season how often does aquatic plant growth, including algae, negatively impact your enjoyment of Kangaroo Lake? Please select one choice.

Answer Options	Never	Rarely	Sometimes	Often	Always	Rating Average	Response Count
	18	27	21	4	0	2.16	70
<i>answered question</i>							70
<i>skipped question</i>							2



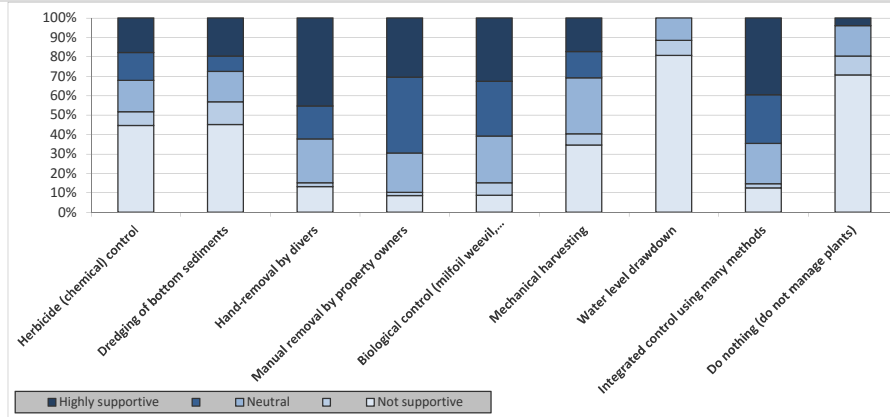
31. Considering your answer to the question above, do you believe aquatic plant control is needed on Kangaroo Lake? Please select one choice.

Answer Options	Definitely yes	Probably yes	Unsure	Probably No	Definitely No	Rating Average	Response Count
	9	31	17	13	0	2.49	70
<i>answered question</i>							70
<i>skipped question</i>							2



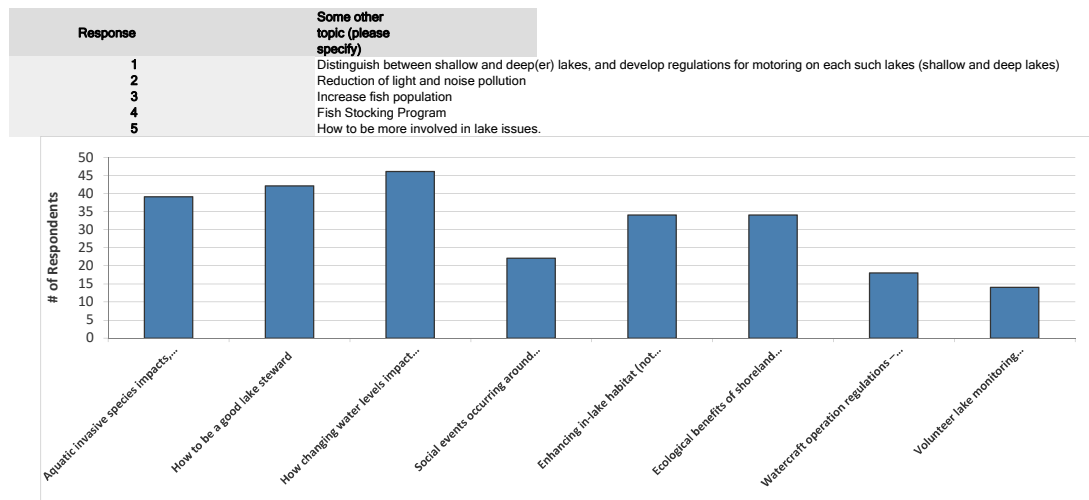
32. Aquatic plants can be managed using many techniques. What is your level of support for the responsible use of the following techniques on Kangaroo Lake? If you require more information to respond, indicate "U" for Unsure.

Answer Options	Not supportive		Neutral		Highly supportive	Unsure: Need more information	Rating Average	Response Count
Herbicide (chemical) control	25	4	9	8	10	13	2.06	69
Dredging of bottom sediments	23	6	8	4	10	16	1.87	67
Hand-removal by divers	7	1	12	9	24	13	3.05	66
Manual removal by property owners	5	1	11	23	18	10	3.26	69
Biological control (milfoil weevil, loosestrife beetle,	4	3	12	13	15	21	2.54	67
Mechanical harvesting	18	3	15	7	9	17	2.06	69
Water level drawdown	42	4	6	0	0	14	1.03	66
Integrated control using many methods	6	1	10	12	19	20	2.66	68
Do nothing (do not manage plants)	36	5	8	0	2	9	1.33	60
<i>answered question</i>								70
<i>skipped question</i>								2



33. Stakeholder education is an important component of every lake management planning effort. Which of these subjects would you like to learn more about? Please select all that apply.

Answer Options	Response Percent	Response Count
Aquatic invasive species impacts, means of transport, identification, control options, etc.	56.5%	39
How to be a good lake steward	60.9%	42
How changing water levels impact Kangaroo Lake	66.7%	46
Social events occurring around Kangaroo Lake	31.9%	22
Enhancing in-lake habitat (not shoreland or adjacent wetlands) for aquatic species	49.3%	34
Ecological benefits of shoreland restoration and preservation	49.3%	34
Watercraft operation regulations - lake specific, local and statewide	26.1%	18
Volunteer lake monitoring opportunities (Clean Boats Clean Waters, Citizens Lake Monitoring Network, Loon Watch, KLA programs, etc.)	20.3%	14
Not interested in learning more on any of these subjects	5.8%	4
Some other topic (please specify)	7.2%	5
<i>answered question</i>		69
<i>skipped question</i>		3



Kangaroo Lake Association

34. Before receiving this mailing, have you ever heard of the KLA?

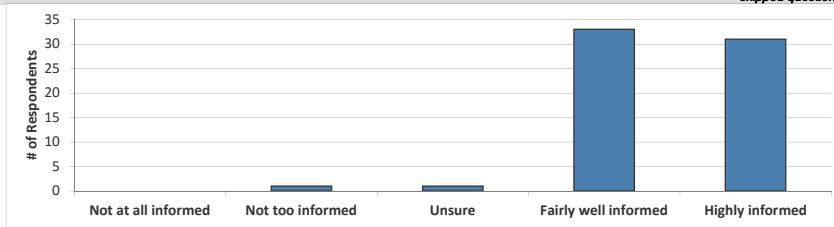
Answer Options	Response Percent	Response Count
Yes	100.0%	70
No	0.0%	0
<i>answered question</i>		70
<i>skipped question</i>		2

35. What is your membership status with the KLA?

Answer Options	Response Percent	Response Count
Current member	87.3%	62
Former member	5.6%	4
Never been a member	7.0%	5
<i>answered question</i>		71
<i>skipped question</i>		1

36. How informed has (or had) the KLA kept you regarding issues with Kangaroo Lake and its management? Please select one choice.

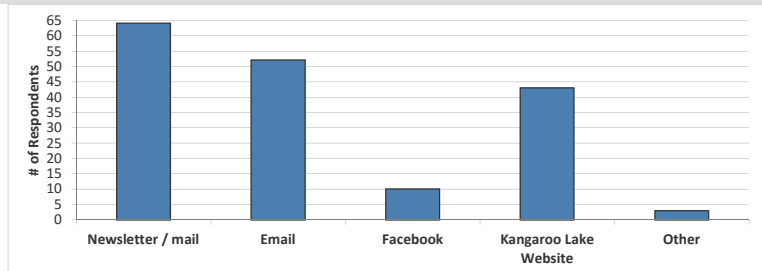
Answer Options	Not at all informed	Not too informed	Unsure	Fairly well informed	Highly informed	Rating Average	Response Count	
	0	1	1	33	31	4.42	66	
							<i>answered question</i>	66
							<i>skipped question</i>	6



37. From the list below, please select all methods which would be acceptable ways for you to receive information from the KLA. Please select all that apply.

Answer Options	Response Percent	Response Count
Newsletter / mail	90.1%	64
Email	73.2%	52
Facebook	14.1%	10
Kangaroo Lake Website	60.6%	43
Other	4.2%	3
Other (please specify)	4.2%	3
		<i>answered question</i>
		71
		<i>skipped question</i>
		1

Response	Other (please specify)
1	Annual Meetings
2	Member meetings
3	Informational meetings.



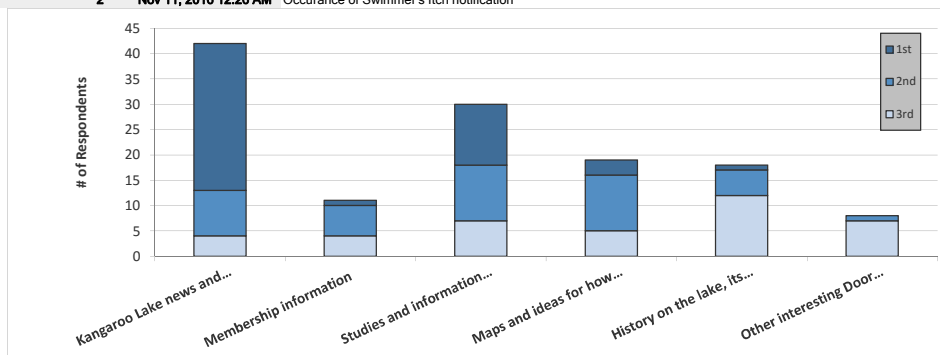
38. Have you ever visited the Kangaroo Lake website (www.kangaroolake.org)?

Answer Options	Response Percent	Response Count
Yes	70.0%	49
No	30.0%	21
		<i>answered question</i>
		70
		<i>skipped question</i>
		2

39. From the list below, please rank the top three areas of the website you use most often. Please enter your selection below with 1 being your top use. If there is other information you would like to see hosted on KLA's website, please explain in the comments section at the end of this survey.

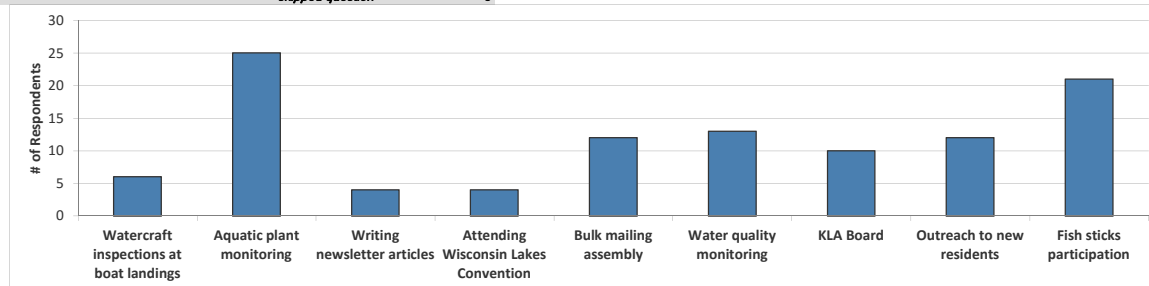
Answer Options	1st	2nd	3rd	Response Count
Kangaroo Lake news and notices	29	9	4	42
Membership information	1	6	4	11
Studies and information on lake ecology (including fishing information)	12	11	7	30
Maps and ideas for how to explore the lake and its surroundings	3	11	5	19
History on the lake, its inhabitants	1	5	12	18
Other interesting Door County information and sites / Door County general information	0	1	7	8
Other (please specify)	1	0	1	2
Please specify "Other" response here				2
				<i>answered question</i>
				47
				<i>skipped question</i>
				25

Number	Response Date	Please specify "Other" response here	Categories
1	Nov 23, 2016 3:38 PM	Rarely use website	
2	Nov 11, 2016 12:26 AM	Occurance of Swimmer's Itch notification	



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

Answer Options	Response Percent	Response Count
Watercraft inspections at boat landings	8.7%	6
Aquatic plant monitoring	36.2%	25
Writing newsletter articles	5.8%	4
Attending Wisconsin Lakes Convention	5.8%	4
Bulk mailing assembly	17.4%	12
Water quality monitoring	18.8%	13
KLA Board	14.5%	10
Outreach to new residents	17.4%	12
Fish sticks participation	30.4%	21
I do not wish to volunteer	37.7%	26
answered question		69
skipped question		3



41. Please feel free to provide written comments concerning Kangaroo Lake, its current and/or historic condition, and its management.

Answer Options	Response Count
	22
answered question	22
skipped question	50

Number	Response Date	Response Text	Categories
1	Dec 12, 2016 3:04 PM	If this survey is anonymous why do you have a unique ID on the front page	
2	Dec 6, 2016 4:17 PM	I do not understand why septic issues were listed as a problem. for some years now, there has been aggressive program by D.C. Sanitary to eliminate failing system. Since these recent years, whether or not that is an issue, Kangaroo Lake quality has gradually improved over 11-15 years. Also, fishing has clearly improved. I wonder whether prop boats or jet boats, and skis, are more problematic. You did not ask about schistosomiasis. It is a problem at a certain water temperature.	
3	Dec 5, 2016 6:07 PM	I think there should be more open conversation with new owners. Ie just suggestions, outboards are better than io as lake is shallow etc as example	
4	Dec 2, 2016 6:07 PM	Motor boats are always at the top of KLA's concerns - on the 4th of July weekend there was a maximum of 4- 5 boats on the lake at one time. The lake is to be used and enjoyed. The DNR has strict guidelines. KLA should respect those guidelines and stay out other rules - it just turns neighbor against neighbor	
5	Nov 29, 2016 8:32 PM	KLA is doing an excellent job.	
6	Nov 28, 2016 11:34 PM	Thank you for keeping the KLA members informed. Not sure of the appropriateness of invasive plant species being used for fish sticks. The trees were free from the Nature Cons. who was removing non-native species - why would they be used to possibly "contaminate" the lake area with non-native species?	
7	Nov 28, 2016 9:41 AM	Although we grew up in Wisconsin and often vacationed in Door County with rental cabins on Kangaroo Lake, we now live in Tulsa, OK. We still own land near KL and visit Door County every few years, which we always find relaxing and attractive. Keeping Kangaroo Lake in pristine condition would seem to be a priority to us.	
8	Nov 28, 2016 4:10 PM	We're very happy with the work of KLA and other agencies in managing out lake.	
9	Nov 28, 2016 12:21 AM	My biggest concerns are stopping the spread of the invasive milfoil and developing a strategy to make Kangaroo Lake a decent game fishing lake once again.	
10	Nov 27, 2016 8:11 PM	I believe there are inconsistencies in the enforcement of rules and laws governing the preservation of Kangaroo Lake	
11	Nov 27, 2016 2:23 PM	Great lake	
12	Nov 26, 2016 6:25 PM	KLA is a fabulous organization which educates regularly. If I have answered incorrectly it is my fault!	
13	Nov 26, 2016 2:54 PM	need more fish	
14	Nov 25, 2016 10:35 PM	We have concern about the excessive plant growth on the north side of the causeway.	
15	Nov 23, 2016 3:24 PM	Although I am not a fisherman, members of my family are both skilled and enthusiastic fishermen. They no longer waste time trying to fish on our lake - they go elsewhere. Our lake will never be a great fishing lake. Kangaroo Lake is a "puddle" - a much beloved puddle, but a small, shallow lake. I believe it is a waste of time trying to make it into something it never was and never will be. I believe the clarity of the lake water is very good. When I first came, I recall it being quite good also, but there was a period where the lake was very cloudy, so things have improved. I believe efforts to curb powerboat traffic have gone far enough. Burdening all with restrictions when only a few cause problems is inappropriate. There are two properties on the lake with two jet skis. The owners/guests of those two places abuse the lake by doing substantial figure-8s and wheelies. Settle them down, don't restrict all because of the misdeeds of a few. I catch all the fish I want to at the Cornerstone Pub on Friday night, and the hot German Potato salad is great. I will look forward to seeing some of my comment in the survey - in past surveys my comments never seem to make the final cut.	
16	Nov 22, 2016 11:06 PM	The KLA has significantly helped us know and care for our lake. The website has excellent information. Volunteer efforts are increasing. KLA needs to expand outreach efforts to non-members and members to increase awareness of concerns and proactive ways of protecting the lake. Current members should celebrate our achievements and be grateful to our leaders over the years. We are a leader in the state but we can improve our efforts through greater involvement and participation. We applaud the partnerships with WDNR, The Nature Conservancy, Town of Baileys Harbor, The Ridges Sanctuary, Door County, etc.	
17	Nov 22, 2016 12:22 AM	Our cottage was built by my grandparents when I was 7 years old and our family has enjoyed it ever since. It would be nice to have some walleyes, perch planted as we enjoy fishing and it has really declined in recent years.	
18	Nov 16, 2016 7:51 PM	Boats are getting bigger on the lake with greater hp. There should be done kind of limits imposed and monitored at the boat launch	
19	Nov 16, 2016 2:49 PM	I have been a life long advocate proposing county wide protection of all Door County Lakes, marshes, and watersheds with specifically an emphasises on sand dunes, myself having put a Conservation Easement through the Nature Conservancy on the deed of my property. The Kangaroo, Clarke, and Europe Lakes dunes and water sheds are all of the most intricate protective part in the life of the lake and should all be treated and protected with the HIGHEST of regard involving county zoning and protection. The KLA has done virtually NOTHING for the past 20 years regarding this situation and that is why I am no longer a member. Every property owner with environmentally sensitive property should be contacted with a recommendation of Conservation Easement involving protection of said wetlands, dunes, Heins Creek and watersheds found involving the tail of the Kangaroo swamps. At Whitefish Dunes State Park you are not allowed to step off the wooden walkways where in as much at Kangaroo Lake Dunes, which are no lesser the value, your allowed to build on them and run your sewage through them no questions asked. You all know who I am and I would be more than willing to talk to someone....anyone regarding this coarse of action and the necessity involving it. J.M.N.	
20	Nov 15, 2016 12:55 AM	Thank you for coordinating this important fact finding survey.	
21	Nov 12, 2016 3:56 PM	My family has been on the lake for 134 years and there has been changes but overall I believe people here really care about the health and environment of our lake.	
22	Nov 11, 2016 7:56 PM	I wish Baileys Harbor would extend the sewage system to include Kangaroo Lake to protect the land and lake. Not sure if landowners septic systems are effecting the lake!	

C

APPENDIX C

Water Quality Data

Water Quality Data

Parameter	Surface		Bottom	
	Count	Mean	Count	Mean
Secchi Depth (feet)	4	7.2	NA	NA
Total P (µg/L)	6	14.9	4	12.6
Dissolved P (µg/L)	2	1.8	2	1.7
Chl a (µg/L)	5	3.3	0	NA
TKN (µg/L)	2	774.5	2	536.5
NO ₂ +NO ₃ -N (µg/L)	2	256.0	2	308.5
NH ₃ -N (µg/L)	2	67.6	2	48.5
Total N (µg/L)	5	826.0	2	845.0
Lab Cond. (µS/cm)	2	360.0	2	360.0
Alkal (mg/l CaCO ₃)	2	178.5	2	178.0
Total Susp. Solids (mg/l)	2	2.6	2	2.9
Calcium (mg/L)	1	42.4	0	NA
Magnesium (mg/L)	1	26.9	0	NA
Hardness (mg/L)	1	217.0	0	NA
Color (SU)	2	5.0	0	NA
Turbidity (NTU)	0	NA	0	NA

Trophic State Index (TSI)

Year	TP	Chl-a	Secchi
1973	53.2		56.4
1974	61.9		51.1
1980	47.3	49.0	
1981	47.3	46.4	
1982			
1990	41.1	60.0	63.2
1991			
1992			
1993		47.9	54.5
1994	43.5	52.0	55.4
1995	40.8	40.1	55.5
1996	36.4	47.1	53.4
1997	43.5	38.2	48.4
1998	35.3	40.4	48.1
1999	39.2	40.5	48.5
2000	38.3	39.7	48.7
2001	41.1	39.8	51.1
2002	38.7	38.5	49.6
2003	45.5	45.8	52.7
2004	37.8	42.0	51.4
2005	42.2	43.6	54.7
2006	40.8	41.3	53.8
2007	43.8	43.3	52.3
2008	38.7	41.1	52.1
2009	38.7	42.6	53.2
2010	40.0	43.7	55.7
2011	40.8	42.6	52.1
2012	40.0	45.1	54.9
2013	38.6	46.8	53.9
2014	39.0	40.2	51.3
2015	40.9	37.5	46.9
2016	42.1	42.8	46.4
2017	44.0	40.6	44.9
All Years (Weighted)	40.4	43.0	51.9
SLDL Median	54.6	52.6	52.4
SWTP Ecoregion Median	48.7	47.0	50.0

Year	Secchi (feet)				Chlorophyll-a (µg/L)				Total Phosphorus (µg/L)			
	Growing Season		Summer		Growing Season		Summer		Growing Season		Summer	
	Count	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean
1973	2	4.6	1	4.2			2	40.0	1	40.0	1.0	30.0
1974	3	6.2	1	6.1			4	57.5	2	55.0	2.0	55.0
1980					2	6.5	2	6.5	1	20.0	1.0	20.0
1981					2	5.0	1	5.0	2	20.0	1.0	20.0
1982					1	7.0	0		1	20.0	0.0	
1990	1	2.6	1	2.6	1	20.0	1	20.0	1	13.0	1.0	13.0
1991	0		0		0		0		0		0.0	
1992	1	2.0	0		0		0		0		0.0	
1993	7	4.6	6	4.8	6	7.8	4	5.9	0		0.0	
1994	5	4.5	3	4.5	5	9.1	3	8.9	5	14.0	3.0	15.3
1995	19	4.5	14	4.5	7	3.2	3	2.6	7	11.4	3.0	12.7
1996	13	5.3	7	5.2	5	5.4	3	5.4	5	9.4	3.0	9.3
1997	11	7.2	7	7.4	4	2.1	3	2.2	4	18.0	3.0	15.3
1998	14	7.0	6	7.5	4	2.7	3	2.7	6	10.7	3.0	8.7
1999	14	7.1	7	7.3	4	3.3	3	2.7	5	10.2	3.0	11.3
2000	12	7.0	6	7.2	4	2.6	3	2.5	5	9.6	3.0	10.7
2001	14	6.1	7	6.1	4	3.0	2	2.6	4	12.3	2.0	13.0
2002	12	6.5	6	6.8	4	3.6	2	2.2	5	11.4	2.0	11.0
2003	41	5.5	23	5.4	9	4.8	6	4.7	12	18.3	8.0	17.6
2004	14	6.0	10	6.0	3	3.2	3	3.2	4	10.0	3.0	10.3
2005	10	5.0	6	4.8	4	4.1	3	3.8	5	14.6	3.0	14.0
2006	12	4.7	7	5.0	4	3.3	3	3.0	5	13.4	3.0	12.7
2007	10	5.5	8	5.6	3	3.7	3	3.7	3	15.7	3.0	15.7
2008	9	5.2	6	5.7	3	3.9	2	2.9	4	13.5	2.0	11.0
2009	4	5.9	2	5.3	3	3.1	2	3.4	4	11.0	2.0	11.0
2010	4	4.6	3	4.4	3	3.8	3	3.8	4	11.8	3.0	12.0
2011	4	5.5	3	5.7	3	3.4	3	3.4	4	12.0	3.0	12.7
2012	3	4.7	3	4.7	3	4.4	3	4.4	4	11.0	3.0	12.0
2013	4	5.6	2	5.0	3	4.9	2	5.2	4	11.8	2.0	10.9
2014	4	6.5	3	6.0	3	2.7	3	2.7	4	10.2	3.0	11.2
2015	4	7.6	3	8.2	3	2.0	3	2.0	4	12.0	3.0	12.8
2016	7	8.0	5	8.5	6	3.2	4	3.5	8	14.3	5.0	13.9
2017	4	9.8	3	9.3	3	2.8	3	2.8	4	15.1	3.0	15.9
All Years (Weighted)		5.9		5.9		4.3		4.0		13.1		13.2
SLDL Median				5.6				9.4				33.0
SWTP Ecoregion Median				6.6				5.3				22.0

D

APPENDIX D

Watershed Analysis WiLMS Results

Date: 2/16/2017 Scenario: Kangaroo Lake Direct Watershed Current

Lake Id: Kangaroo Lake

Watershed Id: 0

Hydrologic and Morphometric Data

Tributary Drainage Area: 8907.0 acre

Total Unit Runoff: 9.00 in.

Annual Runoff Volume: 6680.3 acre-ft

Lake Surface Area <As>: 1170.0 acre

Lake Volume <V>: 7107.0 acre-ft

Lake Mean Depth <z>: 6.1 ft

Precipitation - Evaporation: 3.9 in.

Hydraulic Loading: 7060.5 acre-ft/year

Areal Water Load <qs>: 6.0 ft/year

Lake Flushing Rate <p>: 0.99 1/year

Water Residence Time: 1.01 year

Observed spring overturn total phosphorus (SPO): 12.6 mg/m³

Observed growing season mean phosphorus (GSM): 14.9 mg/m³

% NPS Change: 0%

% PS Change: 0%

NON-POINT SOURCE DATA

Land Use	Acre (ac)	Low	Most Likely	High	Loading %	Low	Most Likely	High	
		Loading (kg/ha-year)				Loading (kg/year)			
Row Crop AG	312.0	0.50	1.00	3.00	23.9	63	126	379	
Mixed AG	0.0	0.30	0.80	1.40	0.0	0	0	0	
Pasture/Grass	1606.0	0.10	0.30	0.50	37.0	65	195	325	
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)	111.0	0.05	0.10	0.25	0.9	2	4	11	
Wetlands	518.0	0.10	0.10	0.10	4.0	21	21	21	
Forest	816.0	0.05	0.09	0.18	5.6	17	30	59	
Lake Surface	1170.0	0.10	0.30	1.00	26.9	47	142	473	

POINT SOURCE DATA

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

SEPTIC TANK DATA

Description	Low	Most Likely	High	Loading %
Septic Tank Output (kg/capita-year)	0.30	0.50	0.80	
# capita-years		175.0		
% Phosphorus Retained by Soil	98.0	90.0	80.0	
Septic Tank Loading (kg/year)	1.05	8.75	28.00	1.7

TOTALS DATA

Description	Low	Most Likely	High	Loading %
Total Loading (lb)	476.7	1162.3	2859.2	100.0
Total Loading (kg)	216.2	527.2	1296.9	100.0
Areal Loading (lb/ac-year)	0.41	0.99	2.44	
Areal Loading (mg/m ² -year)	45.67	111.35	273.91	
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)	370.0	829.9	1753.6	98.3
Total NPS Loading (kg)	167.8	376.4	795.4	98.3

Phosphorus Prediction and Uncertainty Analysis Module

Date: 2/16/2017 Scenario: 62

Observed spring overturn total phosphorus (SPO): 12.6 mg/m³Observed growing season mean phosphorus (GSM): 14.9 mg/m³Back calculation for SPO total phosphorus: 0.0 mg/m³Back calculation GSM phosphorus: 0.0 mg/m³

% Confidence Range: 70%

Nuremberg Model Input - Est. Gross Int. Loading: 0 kg

Lake Phosphorus Model	Low	Most Likely	High	Predicted	% Dif.
	Total P	Total P	Total P	-Observed	
	(mg/m ³)	(mg/m ³)	(mg/m ³)	(mg/m ³)	
Walker, 1987 Reservoir	14	35	86	20	134
Canfield-Bachmann, 1981 Natural Lake	15	29	57	14	94
Canfield-Bachmann, 1981 Artificial Lake	14	27	47	12	81
Rechow, 1979 General	3	8	20	-7	-47
Rechow, 1977 Anoxic	19	47	114	32	215
Rechow, 1977 water load<50m/year	10	23	57	8	54
Rechow, 1977 water load>50m/year	N/A	N/A	N/A	N/A	N/A
Walker, 1977 General	14	33	82	20	159
Vollenweider, 1982 Combined OECD	12	25	53	11	80
Dillon-Rigler-Kirchner	6	15	37	2	16
Vollenweider, 1982 Shallow Lake/Res.	9	20	45	6	44
Larsen-Mercier, 1976	12	30	74	17	135
Nurnberg, 1984 Oxidic	6	15	36	0	0

Lake Phosphorus Model	Confidence		Parameter	Back	Model
	Lower	Upper			
	Bound	Bound	Fit?	Calculation	Type
				(kg/year)	
Walker, 1987 Reservoir	19	69	FIT	0	GSM
Canfield-Bachmann, 1981 Natural Lake	9	84	FIT	1	GSM
Canfield-Bachmann, 1981 Artificial Lake	8	78	FIT	1	GSM
Rechow, 1979 General	4	16	FIT	0	GSM
Rechow, 1977 Anoxic	26	91	FIT	0	GSM
Rechow, 1977 water load<50m/year	12	46	FIT	0	GSM
Rechow, 1977 water load>50m/year	N/A	N/A	N/A	N/A	N/A
Walker, 1977 General	16	69	FIT	0	SPO
Vollenweider, 1982 Combined OECD	12	49	FIT	0	ANN
Dillon-Rigler-Kirchner	8	29	FIT	0	SPO
Vollenweider, 1982 Shallow Lake/Res.	9	40	FIT	0	ANN
Larsen-Mercier, 1976	17	58	P Pin	0	SPO
Nurnberg, 1984 Oxidic	7	30	FIT	0	ANN

Water and Nutrient Outflow Module

Date: 2/16/2017 Scenario: 33

Average Annual Surface Total Phosphorus: 14.9mg/m³

Annual Discharge: 7.06E+003 AF => 8.71E+006 m³

Annual Outflow Loading: 273.6 LB => 124.1 kg

E

APPENDIX E

Aquatic Plant Survey Data

Point Number	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	ID	Lake Name	County	Date	Field Crew	Point Number	Depth (ft)	Sediment	Pole/Rope	Comments	Notes	Nuisance	Total Rake Fullness	Myriophyllum spicatum	Chara spp.	Heteranthera dubia	Myriophyllum heterophyllum	Najas flexilis	Potamogeton amplifolius	Potamogeton gramineus	Potamogeton illinoensis	Schoenoplectus acutus	Schoenoplectus pungens	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana	Freshwater sponge	Filamentous algae		
1	45.048150	-87.163991	105	Kangaroo Lake	Door	8/11/2016	TWH & CJF	1	0			NONNAVIGABLE (PLANTS)																				
2	45.047405	-87.163012	104	Kangaroo Lake	Door	8/11/2016	TWH & CJF	2	5	Muck	Pole	SAMPLED			1	1											1					
3	45.047380	-87.161998	103	Kangaroo Lake	Door	8/11/2016	TWH & CJF	3	5	Muck	Pole	SAMPLED			1	1						1										
4	45.047355	-87.160983	102	Kangaroo Lake	Door	8/11/2016	TWH & CJF	4	5	Muck	Pole	SAMPLED			1							1										
5	45.047330	-87.159968	101	Kangaroo Lake	Door	8/11/2016	TWH & CJF	5	5	Muck	Pole	SAMPLED			2	2											1					
6	45.047304	-87.158954	100	Kangaroo Lake	Door	8/11/2016	TWH & CJF	6	2	Sand	Pole	SAMPLED			1	1																
7	45.046686	-87.163048	95	Kangaroo Lake	Door	8/11/2016	TWH & CJF	7	5	Muck	Pole	SAMPLED			1								1									
8	45.046661	-87.162033	96	Kangaroo Lake	Door	8/11/2016	TWH & CJF	8	5	Muck	Pole	SAMPLED			2	2							1				1		1			
9	45.046636	-87.161019	97	Kangaroo Lake	Door	8/11/2016	TWH & CJF	9	5	Muck	Pole	SAMPLED			2	1				1		2										
10	45.046610	-87.160004	98	Kangaroo Lake	Door	8/11/2016	TWH & CJF	10	5	Muck	Pole	SAMPLED			1	1																
11	45.046585	-87.158990	99	Kangaroo Lake	Door	8/11/2016	TWH & CJF	11	2	Sand	Pole	SAMPLED			1	1																
12	45.046017	-87.165113	94	Kangaroo Lake	Door	8/11/2016	TWH & CJF	12	3	Sand	Pole	SAMPLED			2	2				1												
13	45.045992	-87.164098	93	Kangaroo Lake	Door	8/11/2016	TWH & CJF	13	3	Rock	Pole	SAMPLED			0																	
14	45.045967	-87.163084	92	Kangaroo Lake	Door	8/11/2016	TWH & CJF	14	6	Muck	Pole	SAMPLED			1							1										
15	45.045942	-87.162069	91	Kangaroo Lake	Door	8/11/2016	TWH & CJF	15	6	Muck	Pole	SAMPLED			1	1				1												
16	45.045916	-87.161054	90	Kangaroo Lake	Door	8/11/2016	TWH & CJF	16	5	Muck	Pole	SAMPLED			1	1				1												
17	45.045891	-87.160040	89	Kangaroo Lake	Door	8/11/2016	TWH & CJF	17	5	Muck	Pole	SAMPLED			1	1				1												
18	45.045866	-87.159025	88	Kangaroo Lake	Door	8/11/2016	TWH & CJF	18	5	Muck	Pole	SAMPLED			3	1	1			1		1										
19	45.045841	-87.158011	87	Kangaroo Lake	Door	8/11/2016	TWH & CJF	19	1	Rock	Pole	SAMPLED			1	1																
20	45.045323	-87.166163	79	Kangaroo Lake	Door	8/11/2016	TWH & CJF	20	2	Sand	Pole	SAMPLED			1					1				1								
21	45.045298	-87.165148	78	Kangaroo Lake	Door	8/11/2016	TWH & CJF	21	5	Muck	Pole	SAMPLED			1	1				1												
22	45.045273	-87.164134	80	Kangaroo Lake	Door	8/11/2016	TWH & CJF	22	6	Muck	Pole	SAMPLED			1	1				1												
23	45.045248	-87.163119	81	Kangaroo Lake	Door	8/11/2016	TWH & CJF	23	6	Muck	Pole	SAMPLED			0																	
24	45.045222	-87.162105	82	Kangaroo Lake	Door	8/11/2016	TWH & CJF	24	6	Muck	Pole	SAMPLED			1	1						1										
25	45.045197	-87.161090	83	Kangaroo Lake	Door	8/11/2016	TWH & CJF	25	5	Muck	Pole	SAMPLED			1	1											1					
26	45.045172	-87.160075	84	Kangaroo Lake	Door	8/11/2016	TWH & CJF	26	5	Muck	Pole	SAMPLED			1	1				1												
27	45.045147	-87.159061	85	Kangaroo Lake	Door	8/11/2016	TWH & CJF	27	5	Muck	Pole	SAMPLED			1	1						1										
28	45.045121	-87.158046	86	Kangaroo Lake	Door	8/11/2016	TWH & CJF	28	4	Muck	Pole	SAMPLED			1	1																
29	45.044579	-87.165184	77	Kangaroo Lake	Door	8/11/2016	TWH & CJF	29	5	Muck	Pole	SAMPLED			1	1																
30	45.044554	-87.164169	76	Kangaroo Lake	Door	8/11/2016	TWH & CJF	30	6	Muck	Pole	SAMPLED			1	1				1												
31	45.044528	-87.163155	75	Kangaroo Lake	Door	8/11/2016	TWH & CJF	31	6	Muck	Pole	SAMPLED			1					1		1										
32	45.044503	-87.162140	74	Kangaroo Lake	Door	8/11/2016	TWH & CJF	32	6	Muck	Pole	SAMPLED			1	1				1												
33	45.044478	-87.161126	73	Kangaroo Lake	Door	8/11/2016	TWH & CJF	33	5	Muck	Pole	SAMPLED			1	1						1										
34	45.044453	-87.160111	72	Kangaroo Lake	Door	8/11/2016	TWH & CJF	34	5	Muck	Pole	SAMPLED			1	1				1												
35	45.044427	-87.159096	71	Kangaroo Lake	Door	8/11/2016	TWH & CJF	35	5	Muck	Pole	SAMPLED			1	1				1						1			1			
36	45.044402	-87.158082	70	Kangaroo Lake	Door	8/11/2016	TWH & CJF	36	5	Muck	Pole	SAMPLED			1	1						1										
37	45.044377	-87.157067	68	Kangaroo Lake	Door	8/11/2016	TWH & CJF	37	2	Rock	Pole	SAMPLED			0																	
38	45.044352	-87.156053	69	Kangaroo Lake	Door	8/11/2016	TWH & CJF	38	0			SHALLOW	ROCKS																			
39	45.043860	-87.165219	58	Kangaroo Lake	Door	8/11/2016	TWH & CJF	39	5	Muck	Pole	SAMPLED			1	1				1												
40	45.043834	-87.164205	59	Kangaroo Lake	Door	8/11/2016	TWH & CJF	40	7	Muck	Pole	SAMPLED			1					1												
41	45.043809	-87.163190	60	Kangaroo Lake	Door	8/11/2016	TWH & CJF	41	7	Muck	Pole	SAMPLED			1	1																
42	45.043784	-87.162176	61	Kangaroo Lake	Door	8/11/2016	TWH & CJF	42	6	Muck	Pole	SAMPLED			1	1						1										
43	45.043759	-87.161161	62	Kangaroo Lake	Door	8/11/2016	TWH & CJF	43	5	Muck	Pole	SAMPLED			1	1																
44	45.043733	-87.160147	63	Kangaroo Lake	Door	8/11/2016	TWH & CJF	44	5	Muck	Pole	SAMPLED			1	1																
45	45.043708	-87.159132	64	Kangaroo Lake	Door	8/11/2016	TWH & CJF	45	5	Muck	Pole	SAMPLED			1	1																
46	45.043683	-87.158117	65	Kangaroo Lake	Door	8/11/2016	TWH & CJF	46	6	Muck	Pole	SAMPLED			1	1																

Point Number	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	ID	Lake Name	County	Date	Field Crew	Point Number	Depth (ft)	Sediment	Pole/Rope	Comments	Notes	Nuisance	Total Rake Fullness	Myriophyllum spicatum	Chara spp.	Heteranthera dubia	Myriophyllum heterophyllum	Najas flexilis	Potamogeton amplifolius	Potamogeton gramineus	Potamogeton illinoensis	Schoenoplectus acutus	Schoenoplectus pungens	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana	Freshwater sponge	Filamentous algae	
47	45.043658	-87.157103	66	Kangaroo Lake	Door	8/11/2016	TWH & CJF	47	6	Muck	Pole	SAMPLED			1	1															
48	45.043632	-87.156088	67	Kangaroo Lake	Door	8/11/2016	TWH & CJF	48	4	Rock	Pole	SAMPLED			0																
49	45.043506	-87.151016	46	Kangaroo Lake	Door	8/11/2016	TWH & CJF	49	4	Muck	Pole	SAMPLED			1								1								
50	45.043480	-87.150001	45	Kangaroo Lake	Door	8/11/2016	TWH & CJF	50	0			NONNAVIGABLE (PLANTS)																			
51	45.043140	-87.165255	57	Kangaroo Lake	Door	8/11/2016	TWH & CJF	51	5	Muck	Pole	SAMPLED			1	1			1												
52	45.043115	-87.164240	56	Kangaroo Lake	Door	8/11/2016	TWH & CJF	52	7	Muck	Pole	SAMPLED			1				1												
53	45.043090	-87.163226	55	Kangaroo Lake	Door	8/11/2016	TWH & CJF	53	7	Muck	Pole	SAMPLED			1	1			1			1									
54	45.043065	-87.162211	54	Kangaroo Lake	Door	8/11/2016	TWH & CJF	54	6	Muck	Pole	SAMPLED			2	2			1												
55	45.043039	-87.161197	53	Kangaroo Lake	Door	8/11/2016	TWH & CJF	55	5	Muck	Pole	SAMPLED			1	1											1				
56	45.043014	-87.160182	52	Kangaroo Lake	Door	8/11/2016	TWH & CJF	56	4	Muck	Pole	SAMPLED			2	1			2			1				1					
57	45.042989	-87.159168	51	Kangaroo Lake	Door	8/11/2016	TWH & CJF	57	5	Muck	Pole	SAMPLED			1	1			1												
58	45.042964	-87.158153	50	Kangaroo Lake	Door	8/11/2016	TWH & CJF	58	6	Muck	Pole	SAMPLED			1	1															
59	45.042938	-87.157139	49	Kangaroo Lake	Door	8/11/2016	TWH & CJF	59	6	Muck	Pole	SAMPLED			1	1															
60	45.042913	-87.156124	48	Kangaroo Lake	Door	8/11/2016	TWH & CJF	60	6	Muck	Pole	SAMPLED			1	1															
61	45.042888	-87.155109	47	Kangaroo Lake	Door	8/11/2016	TWH & CJF	61	4	Rock	Pole	SAMPLED			0																
62	45.042812	-87.152066	43	Kangaroo Lake	Door	8/11/2016	TWH & CJF	62	1	Rock	Pole	SAMPLED			0																
63	45.042787	-87.151051	44	Kangaroo Lake	Door	8/11/2016	TWH & CJF	63	3	Muck	Pole	SAMPLED			2			1					2								
64	45.042421	-87.165290	106	Kangaroo Lake	Door	8/11/2016	TWH & CJF	64	5	Muck	Pole	SAMPLED			1	1			1												
65	45.042396	-87.164276	107	Kangaroo Lake	Door	8/11/2016	TWH & CJF	65	7	Muck	Pole	SAMPLED			0																
66	45.042371	-87.163261	108	Kangaroo Lake	Door	8/11/2016	TWH & CJF	66	7	Muck	Pole	SAMPLED			1	1			1												
67	45.042345	-87.162247	109	Kangaroo Lake	Door	8/11/2016	TWH & CJF	67	6	Muck	Pole	SAMPLED			1	1			1												
68	45.042320	-87.161232	110	Kangaroo Lake	Door	8/11/2016	TWH & CJF	68	2	Rock	Pole	SAMPLED			0																
69	45.042270	-87.159203	36	Kangaroo Lake	Door	8/11/2016	TWH & CJF	69	5	Muck	Pole	SAMPLED			1	1	1			1											
70	45.042244	-87.158189	37	Kangaroo Lake	Door	8/11/2016	TWH & CJF	70	6	Muck	Pole	SAMPLED			1	1			1												
71	45.042219	-87.157174	38	Kangaroo Lake	Door	8/11/2016	TWH & CJF	71	7	Muck	Pole	SAMPLED			1				1												
72	45.042194	-87.156160	39	Kangaroo Lake	Door	8/11/2016	TWH & CJF	72	7	Muck	Pole	SAMPLED			1	1											1			1	
73	45.042169	-87.155145	40	Kangaroo Lake	Door	8/11/2016	TWH & CJF	73	7	Muck	Pole	SAMPLED			1	1			1				1								
74	45.042143	-87.154131	41	Kangaroo Lake	Door	8/11/2016	TWH & CJF	74	4	Sand	Pole	SAMPLED			0																
75	45.042093	-87.152102	42	Kangaroo Lake	Door	8/11/2016	TWH & CJF	75	6	Muck	Pole	SAMPLED			1				1												
76	45.041727	-87.166341	115	Kangaroo Lake	Door	8/11/2016	TWH & CJF	76	2	Muck	Pole	SAMPLED			0																
77	45.041702	-87.165326	114	Kangaroo Lake	Door	8/11/2016	TWH & CJF	77	4	Muck	Pole	SAMPLED			2	2			1												
78	45.041677	-87.164311	113	Kangaroo Lake	Door	8/11/2016	TWH & CJF	78	7	Muck	Pole	SAMPLED			0																
79	45.041651	-87.163297	112	Kangaroo Lake	Door	8/11/2016	TWH & CJF	79	7	Muck	Pole	SAMPLED			1				1			1									
80	45.041626	-87.162282	111	Kangaroo Lake	Door	8/11/2016	TWH & CJF	80	6	Muck	Pole	SAMPLED			2	1			1								1				
81	45.041525	-87.158224	35	Kangaroo Lake	Door	8/11/2016	TWH & CJF	81	6	Muck	Pole	SAMPLED			1	1			1							1					
82	45.041500	-87.157210	34	Kangaroo Lake	Door	8/11/2016	TWH & CJF	82	7	Muck	Pole	SAMPLED			1	1			1												
83	45.041475	-87.156195	33	Kangaroo Lake	Door	8/11/2016	TWH & CJF	83	7	Muck	Pole	SAMPLED			3	3			1												
84	45.041449	-87.155181	32	Kangaroo Lake	Door	8/11/2016	TWH & CJF	84	7	Muck	Pole	SAMPLED			2	2															
85	45.041424	-87.154166	31	Kangaroo Lake	Door	8/11/2016	TWH & CJF	85	7	Muck	Pole	SAMPLED			1	1															
86	45.041399	-87.153152	30	Kangaroo Lake	Door	8/11/2016	TWH & CJF	86	6	Muck	Pole	SAMPLED			1	1															
87	45.041373	-87.152137	29	Kangaroo Lake	Door	8/11/2016	TWH & CJF	87	4	Sand	Pole	SAMPLED			1	1								1							
88	45.040982	-87.165362	116	Kangaroo Lake	Door	8/11/2016	TWH & CJF	88	0			SHALLOW																			
89	45.040957	-87.164347	117	Kangaroo Lake	Door	8/11/2016	TWH & CJF	89	6	Muck	Pole	SAMPLED			0																
90	45.040932	-87.163333	118	Kangaroo Lake	Door	8/11/2016	TWH & CJF	90	7	Muck	Pole	SAMPLED			1	1			1												
91	45.040907	-87.162318	119	Kangaroo Lake	Door	8/11/2016	TWH & CJF	91	7	Muck	Pole	SAMPLED			1	1			1			1				1					
92	45.040806	-87.158260	22	Kangaroo Lake	Door	8/11/2016	TWH & CJF	92	6	Muck	Pole	SAMPLED			2	2			1												

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93	45.040781	-87.157246	23	Kangaroo Lake	Door	8/11/2016	TWH & CJF	93	7	Muck	Pole	SAMPLED			3	1	3													
94	45.040755	-87.156231	24	Kangaroo Lake	Door	8/11/2016	TWH & CJF	94	8	Muck	Pole	SAMPLED			3	2		1				1								
95	45.040730	-87.155217	25	Kangaroo Lake	Door	8/11/2016	TWH & CJF	95	7	Muck	Pole	SAMPLED			2	2										1				
96	45.040705	-87.154202	26	Kangaroo Lake	Door	8/11/2016	TWH & CJF	96	7	Muck	Pole	SAMPLED			1	1														
97	45.040679	-87.153188	27	Kangaroo Lake	Door	8/11/2016	TWH & CJF	97	7	Muck	Pole	SAMPLED			1	1														
98	45.040654	-87.152173	28	Kangaroo Lake	Door	8/11/2016	TWH & CJF	98	2	Sand	Pole	SAMPLED			1	1														
99	45.040263	-87.165397	124	Kangaroo Lake	Door	8/11/2016	TWH & CJF	99	2	Sand	Pole	SAMPLED			0															
100	45.040238	-87.164383	123	Kangaroo Lake	Door	8/11/2016	TWH & CJF	100	6	Muck	Pole	SAMPLED			1	1				1										
101	45.040213	-87.163368	122	Kangaroo Lake	Door	8/11/2016	TWH & CJF	101	7	Muck	Pole	SAMPLED			1	1				1										
102	45.040188	-87.162354	121	Kangaroo Lake	Door	8/11/2016	TWH & CJF	102	7	Muck	Pole	SAMPLED			2	2				1										
103	45.040162	-87.161339	120	Kangaroo Lake	Door	8/11/2016	TWH & CJF	103	4	Sand	Pole	SAMPLED			1	1														
104	45.040087	-87.158296	21	Kangaroo Lake	Door	8/11/2016	TWH & CJF	104	5	Muck	Pole	SAMPLED			0															
105	45.040061	-87.157281	20	Kangaroo Lake	Door	8/11/2016	TWH & CJF	105	7	Muck	Pole	SAMPLED			2	2														
106	45.040036	-87.156267	19	Kangaroo Lake	Door	8/11/2016	TWH & CJF	106	8	Muck	Pole	SAMPLED			3	3														
107	45.040011	-87.155252	18	Kangaroo Lake	Door	8/11/2016	TWH & CJF	107	8	Muck	Pole	SAMPLED			3	3														
108	45.039985	-87.154238	17	Kangaroo Lake	Door	8/11/2016	TWH & CJF	108	7	Muck	Pole	SAMPLED			1	1														1
109	45.039960	-87.153223	16	Kangaroo Lake	Door	8/11/2016	TWH & CJF	109	7	Muck	Pole	SAMPLED			1	1				1							1			
110	45.039935	-87.152209	15	Kangaroo Lake	Door	8/11/2016	TWH & CJF	110	2	Sand	Pole	SAMPLED			1	1														
111	45.039569	-87.166447	126	Kangaroo Lake	Door	8/11/2016	TWH & CJF	111	0			SHALLOW	Sand bar																	
112	45.039544	-87.165433	125	Kangaroo Lake	Door	8/11/2016	TWH & CJF	112	3	Sand	Pole	SAMPLED			1	1														
113	45.039519	-87.164418	127	Kangaroo Lake	Door	8/11/2016	TWH & CJF	113	6	Muck	Pole	SAMPLED			2	1				1							1			
114	45.039494	-87.163404	128	Kangaroo Lake	Door	8/11/2016	TWH & CJF	114	7	Muck	Pole	SAMPLED			1	1				1										
115	45.039468	-87.162389	129	Kangaroo Lake	Door	8/11/2016	TWH & CJF	115	7	Muck	Pole	SAMPLED			1	1						1								
116	45.039443	-87.161375	130	Kangaroo Lake	Door	8/11/2016	TWH & CJF	116	6	Muck	Pole	SAMPLED			1	1				1		1				1				
117	45.039367	-87.158331	8	Kangaroo Lake	Door	8/11/2016	TWH & CJF	117	6	Sand	Pole	SAMPLED			1					1										
118	45.039342	-87.157317	9	Kangaroo Lake	Door	8/11/2016	TWH & CJF	118	8	Muck	Pole	SAMPLED			1	1				1		1								
119	45.039317	-87.156302	10	Kangaroo Lake	Door	8/11/2016	TWH & CJF	119	8	Muck	Pole	SAMPLED			2	2				1							1			
120	45.039291	-87.155288	11	Kangaroo Lake	Door	8/11/2016	TWH & CJF	120	8	Muck	Pole	SAMPLED			3	3														
121	45.039266	-87.154273	12	Kangaroo Lake	Door	8/11/2016	TWH & CJF	121	8	Muck	Pole	SAMPLED			1	1														
122	45.039241	-87.153259	13	Kangaroo Lake	Door	8/11/2016	TWH & CJF	122	7	Muck	Pole	SAMPLED			1	1														
123	45.039216	-87.152244	14	Kangaroo Lake	Door	8/11/2016	TWH & CJF	123	1	Rock	Pole	SAMPLED			1										1					
124	45.038850	-87.166483	137	Kangaroo Lake	Door	8/11/2016	TWH & CJF	124	0			SHALLOW	Sandbar																	
125	45.038825	-87.165468	136	Kangaroo Lake	Door	8/11/2016	TWH & CJF	125	3	Sand	Pole	SAMPLED			1	1														
126	45.038799	-87.164454	135	Kangaroo Lake	Door	8/11/2016	TWH & CJF	126	6	Muck	Pole	SAMPLED			1	1				1										
127	45.038774	-87.163439	134	Kangaroo Lake	Door	8/11/2016	TWH & CJF	127	7	Muck	Pole	SAMPLED			1	1				1										
128	45.038749	-87.162425	133	Kangaroo Lake	Door	8/11/2016	TWH & CJF	128	7	Muck	Pole	SAMPLED			2	2														
129	45.038724	-87.161410	132	Kangaroo Lake	Door	8/11/2016	TWH & CJF	129	7	Muck	Pole	SAMPLED			1					1		1								
130	45.038699	-87.160396	131	Kangaroo Lake	Door	8/11/2016	TWH & CJF	130	5	Muck	Pole	SAMPLED			2	2														
131	45.038673	-87.159381	7	Kangaroo Lake	Door	8/11/2016	TWH & CJF	131	3	Rock	Pole	SAMPLED			0															
132	45.038648	-87.158367	6	Kangaroo Lake	Door	8/11/2016	TWH & CJF	132	7	Muck	Pole	SAMPLED			1	1				1										
133	45.038623	-87.157352	5	Kangaroo Lake	Door	8/11/2016	TWH & CJF	133	8	Muck	Pole	SAMPLED			1							1								
134	45.038598	-87.156338	4	Kangaroo Lake	Door	8/11/2016	TWH & CJF	134	8	Sand	Pole	SAMPLED			1	1				1		1								
135	45.038572	-87.155324	3	Kangaroo Lake	Door	8/11/2016	TWH & CJF	135	8	Sand	Pole	SAMPLED			2	2				1										
136	45.038547	-87.154309	2	Kangaroo Lake	Door	8/11/2016	TWH & CJF	136	7	Sand	Pole	SAMPLED			1	1														
137	45.038522	-87.153295	1	Kangaroo Lake	Door	8/11/2016	TWH & CJF	137	6	Sand	Pole	SAMPLED	8-11-16		1	1														
138	45.038105	-87.165504	138	Kangaroo Lake	Door	8/11/2016	TWH & CJF	138	3	Sand	Pole	SAMPLED			1	1														

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139	45.038080	-87.164489	139	Kangaroo Lake	Door	8/11/2016	TWH & CJF	139	7	Muck	Pole	SAMPLED			1	1															
140	45.038055	-87.163475	140	Kangaroo Lake	Door	8/11/2016	TWH & CJF	140	7	Muck	Pole	SAMPLED			1	1						1									
141	45.038030	-87.162460	141	Kangaroo Lake	Door	8/11/2016	TWH & CJF	141	7	Muck	Pole	SAMPLED			1	1			1												
142	45.038005	-87.161446	142	Kangaroo Lake	Door	8/11/2016	TWH & CJF	142	8	Muck	Pole	SAMPLED			2	2						1									
143	45.037979	-87.160431	143	Kangaroo Lake	Door	8/11/2016	TWH & CJF	143	7	Muck	Pole	SAMPLED			0																
144	45.037954	-87.159417	144	Kangaroo Lake	Door	8/11/2016	TWH & CJF	144	7	Muck	Pole	SAMPLED			1	1			1												
145	45.037929	-87.158403	145	Kangaroo Lake	Door	8/11/2016	TWH & CJF	145	8	Muck	Pole	SAMPLED			2							2									
146	45.037904	-87.157388	146	Kangaroo Lake	Door	8/11/2016	TWH & CJF	146	8	Muck	Pole	SAMPLED			1	1			1								1				
147	45.037878	-87.156374	147	Kangaroo Lake	Door	8/11/2016	TWH & CJF	147	8	Muck	Pole	SAMPLED			3	2			1								2	1			
148	45.037853	-87.155359	148	Kangaroo Lake	Door	8/11/2016	TWH & CJF	148	8	Muck	Pole	SAMPLED			2	2			2												
149	45.037828	-87.154345	149	Kangaroo Lake	Door	8/11/2016	TWH & CJF	149	8	Muck	Pole	SAMPLED			1	1															
150	45.037802	-87.153330	150	Kangaroo Lake	Door	8/11/2016	TWH & CJF	150	7	Muck	Pole	SAMPLED			1				1												
151	45.037386	-87.165539	164	Kangaroo Lake	Door	8/11/2016	TWH & CJF	151	4	Sand	Pole	SAMPLED			1	1															
152	45.037361	-87.164525	163	Kangaroo Lake	Door	8/11/2016	TWH & CJF	152	6	Muck	Pole	SAMPLED			1	1			1		1										
153	45.037336	-87.163510	162	Kangaroo Lake	Door	8/11/2016	TWH & CJF	153	7	Muck	Pole	SAMPLED			2	1			2												
154	45.037311	-87.162496	161	Kangaroo Lake	Door	8/11/2016	TWH & CJF	154	7	Muck	Pole	SAMPLED			2	2			1												
155	45.037285	-87.161481	160	Kangaroo Lake	Door	8/11/2016	TWH & CJF	155	7	Muck	Pole	SAMPLED			3	3			1												
156	45.037260	-87.160467	159	Kangaroo Lake	Door	8/11/2016	TWH & CJF	156	7	Muck	Pole	SAMPLED			3	3	1														
157	45.037235	-87.159453	158	Kangaroo Lake	Door	8/11/2016	TWH & CJF	157	8	Muck	Pole	SAMPLED			2	2			1								1				
158	45.037210	-87.158438	157	Kangaroo Lake	Door	8/11/2016	TWH & CJF	158	8	Muck	Pole	SAMPLED			2	1			1								1				
159	45.037184	-87.157424	156	Kangaroo Lake	Door	8/11/2016	TWH & CJF	159	8	Muck	Pole	SAMPLED			3	3															
160	45.037159	-87.156409	155	Kangaroo Lake	Door	8/11/2016	TWH & CJF	160	8	Muck	Pole	SAMPLED			3	3											1				
161	45.037134	-87.155395	154	Kangaroo Lake	Door	8/11/2016	TWH & CJF	161	8	Muck	Pole	SAMPLED			3	3			1								1				
162	45.037108	-87.154380	153	Kangaroo Lake	Door	8/11/2016	TWH & CJF	162	8	Muck	Pole	SAMPLED			2	2											1				
163	45.037083	-87.153366	152	Kangaroo Lake	Door	8/11/2016	TWH & CJF	163	7	Muck	Pole	SAMPLED			0																
164	45.037058	-87.152352	151	Kangaroo Lake	Door	8/11/2016	TWH & CJF	164	5	Sand	Pole	SAMPLED			1	1															
165	45.036692	-87.166589	165	Kangaroo Lake	Door	8/11/2016	TWH & CJF	165	2	Sand	Pole	SAMPLED			1	1															
166	45.036667	-87.165575	166	Kangaroo Lake	Door	8/11/2016	TWH & CJF	166	5	Muck	Pole	SAMPLED			1	1															
167	45.036642	-87.164560	167	Kangaroo Lake	Door	8/11/2016	TWH & CJF	167	7	Muck	Pole	SAMPLED			1	1						1									
168	45.036616	-87.163546	168	Kangaroo Lake	Door	8/11/2016	TWH & CJF	168	7	Muck	Pole	SAMPLED			0																
169	45.036591	-87.162532	169	Kangaroo Lake	Door	8/11/2016	TWH & CJF	169	8	Muck	Pole	SAMPLED			2	1						1					2				
170	45.036566	-87.161517	170	Kangaroo Lake	Door	8/11/2016	TWH & CJF	170	8	Muck	Pole	SAMPLED			3	3															
171	45.036541	-87.160503	171	Kangaroo Lake	Door	8/11/2016	TWH & CJF	171	8	Muck	Pole	SAMPLED			2	2															
172	45.036516	-87.159488	172	Kangaroo Lake	Door	8/11/2016	TWH & CJF	172	8	Muck	Pole	SAMPLED			3	3															
173	45.036490	-87.158474	173	Kangaroo Lake	Door	8/11/2016	TWH & CJF	173	8	Muck	Pole	SAMPLED			2	2															
174	45.036465	-87.157459	174	Kangaroo Lake	Door	8/11/2016	TWH & CJF	174	8	Muck	Pole	SAMPLED			2	1											2				
175	45.036440	-87.156445	175	Kangaroo Lake	Door	8/11/2016	TWH & CJF	175	8	Muck	Pole	SAMPLED			2	2											1				
176	45.036414	-87.155431	176	Kangaroo Lake	Door	8/11/2016	TWH & CJF	176	8	Muck	Pole	SAMPLED			2	2															
177	45.036389	-87.154416	177	Kangaroo Lake	Door	8/11/2016	TWH & CJF	177	8	Muck	Pole	SAMPLED			2	1			1												
178	45.036364	-87.153402	178	Kangaroo Lake	Door	8/11/2016	TWH & CJF	178	7	Muck	Pole	SAMPLED			0																
179	45.036339	-87.152387	179	Kangaroo Lake	Door	8/11/2016	TWH & CJF	179	6	Sand	Pole	SAMPLED			0																
180	45.036313	-87.151373	180	Kangaroo Lake	Door	8/11/2016	TWH & CJF	180	3	Sand	Pole	SAMPLED			0																
181	45.035948	-87.165610	195	Kangaroo Lake	Door	8/11/2016	TWH & CJF	181	5	Muck	Pole	SAMPLED			2	1			1								1				
182	45.035922	-87.164596	194	Kangaroo Lake	Door	8/11/2016	TWH & CJF	182	7	Muck	Pole	SAMPLED			1				1			1									
183	45.035897	-87.163582	193	Kangaroo Lake	Door	8/11/2016	TWH & CJF	183	7	Muck	Pole	SAMPLED			0																
184	45.035872	-87.162567	192	Kangaroo Lake	Door	8/11/2016	TWH & CJF	184	7	Muck	Pole	SAMPLED			2	2			1												

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185	45.035847	-87.161553	191	Kangaroo Lake	Door	8/11/2016	TWH & CJF	185	8	Muck	Pole	SAMPLED			3	3															
186	45.035822	-87.160538	190	Kangaroo Lake	Door	8/11/2016	TWH & CJF	186	8	Muck	Pole	SAMPLED			3	3															
187	45.035796	-87.159524	189	Kangaroo Lake	Door	8/11/2016	TWH & CJF	187	8	Muck	Pole	SAMPLED			3	3															
188	45.035771	-87.158509	188	Kangaroo Lake	Door	8/11/2016	TWH & CJF	188	8	Muck	Pole	SAMPLED			2	1						1					1				
189	45.035746	-87.157495	187	Kangaroo Lake	Door	8/11/2016	TWH & CJF	189	8	Muck	Pole	SAMPLED			2	2															
190	45.035720	-87.156481	186	Kangaroo Lake	Door	8/11/2016	TWH & CJF	190	8	Muck	Pole	SAMPLED			3	3				1											
191	45.035695	-87.155466	185	Kangaroo Lake	Door	8/11/2016	TWH & CJF	191	8	Muck	Pole	SAMPLED			2	2															
192	45.035670	-87.154452	184	Kangaroo Lake	Door	8/11/2016	TWH & CJF	192	8	Muck	Pole	SAMPLED			1	1															
193	45.035645	-87.153437	183	Kangaroo Lake	Door	8/11/2016	TWH & CJF	193	8	Muck	Pole	SAMPLED			0																
194	45.035619	-87.152423	182	Kangaroo Lake	Door	8/11/2016	TWH & CJF	194	7	Muck	Pole	SAMPLED			1			1													
195	45.035594	-87.151409	181	Kangaroo Lake	Door	8/11/2016	TWH & CJF	195	6	Sand	Pole	SAMPLED			2	2		1									1				
196	45.035228	-87.165646	196	Kangaroo Lake	Door	8/11/2016	TWH & CJF	196	5	Muck	Pole	SAMPLED			1	1															
197	45.035203	-87.164631	197	Kangaroo Lake	Door	8/11/2016	TWH & CJF	197	7	Muck	Pole	SAMPLED			2					1		1						1			
198	45.035178	-87.163617	198	Kangaroo Lake	Door	8/11/2016	TWH & CJF	198	7	Muck	Pole	SAMPLED			0																
199	45.035153	-87.162603	199	Kangaroo Lake	Door	8/11/2016	TWH & CJF	199	8	Muck	Pole	SAMPLED			3	3															
200	45.035127	-87.161588	200	Kangaroo Lake	Door	8/11/2016	TWH & CJF	200	9	Muck	Pole	SAMPLED			3	3												2			
201	45.035102	-87.160574	201	Kangaroo Lake	Door	8/11/2016	TWH & CJF	201	9	Muck	Pole	SAMPLED			3	3											1				
202	45.035077	-87.159559	202	Kangaroo Lake	Door	8/11/2016	TWH & CJF	202	9	Muck	Pole	SAMPLED			3	3				1											
203	45.035052	-87.158545	203	Kangaroo Lake	Door	8/11/2016	TWH & CJF	203	8	Muck	Pole	SAMPLED			2	2															
204	45.035026	-87.157531	204	Kangaroo Lake	Door	8/11/2016	TWH & CJF	204	8	Muck	Pole	SAMPLED			2	1			1		1						1				
205	45.035001	-87.156516	205	Kangaroo Lake	Door	8/11/2016	TWH & CJF	205	8	Muck	Pole	SAMPLED			2	2				1							1				
206	45.034976	-87.155502	206	Kangaroo Lake	Door	8/11/2016	TWH & CJF	206	9	Muck	Pole	SAMPLED			1	1				1											
207	45.034951	-87.154487	207	Kangaroo Lake	Door	8/11/2016	TWH & CJF	207	9	Muck	Pole	SAMPLED			1	1											1				
208	45.034925	-87.153473	208	Kangaroo Lake	Door	8/11/2016	TWH & CJF	208	8	Muck	Pole	SAMPLED			2	1				1							1				
209	45.034900	-87.152459	209	Kangaroo Lake	Door	8/11/2016	TWH & CJF	209	8	Muck	Pole	SAMPLED			1	1															
210	45.034875	-87.151444	210	Kangaroo Lake	Door	8/11/2016	TWH & CJF	210	7	Muck	Pole	SAMPLED			1	1		1													
211	45.034849	-87.150430	211	Kangaroo Lake	Door	8/11/2016	TWH & CJF	211	2	Sand	Pole	SAMPLED			1	1															
212	45.034509	-87.165681	227	Kangaroo Lake	Door	8/11/2016	TWH & CJF	212	5	Muck	Pole	SAMPLED			1	1															
213	45.03448387	-87.16466701	226	Kangaroo Lake	Door	8/11/2016	TWH & CJF	213	7	Muck	Pole	SAMPLED			0																
214	45.03445866	-87.16365262	225	Kangaroo Lake	Door	8/11/2016	TWH & CJF	214	8	Muck	Pole	SAMPLED			0																
215	45.03443344	-87.16263822	224	Kangaroo Lake	Door	8/11/2016	TWH & CJF	215	8	Muck	Pole	SAMPLED			2	1						1						1			
216	45.03440821	-87.16162383	223	Kangaroo Lake	Door	8/11/2016	TWH & CJF	216	9	Muck	Pole	SAMPLED			3	2												2			
217	45.03438298	-87.16060944	222	Kangaroo Lake	Door	8/11/2016	TWH & CJF	217	9	Muck	Pole	SAMPLED			3	3												1			
218	45.03435773	-87.15959505	221	Kangaroo Lake	Door	8/11/2016	TWH & CJF	218	8	Muck	Pole	SAMPLED			3	3															
219	45.03433248	-87.15858066	220	Kangaroo Lake	Door	8/11/2016	TWH & CJF	219	8	Muck	Pole	SAMPLED			3	3												1			
220	45.03430721	-87.15756628	219	Kangaroo Lake	Door	8/11/2016	TWH & CJF	220	7	Sand	Pole	SAMPLED			1	1							1								
221	45.03428194	-87.15655189	218	Kangaroo Lake	Door	8/11/2016	TWH & CJF	221	8	Muck	Pole	SAMPLED			2	1				1								1			
222	45.03425666	-87.15553751	217	Kangaroo Lake	Door	8/11/2016	TWH & CJF	222	8	Muck	Pole	SAMPLED			1	1															
223	45.03423137	-87.15452312	216	Kangaroo Lake	Door	8/11/2016	TWH & CJF	223	8	Muck	Pole	SAMPLED			3	1				2		1						2			
224	45.03420607	-87.15350874	215	Kangaroo Lake	Door	8/11/2016	TWH & CJF	224	8	Muck	Pole	SAMPLED			1					1											
225	45.03418077	-87.15249436	214	Kangaroo Lake	Door	8/11/2016	TWH & CJF	225	8	Muck	Pole	SAMPLED			1	1												1			
226	45.03415545	-87.15147998	213	Kangaroo Lake	Door	8/11/2016	TWH & CJF	226	7	Muck	Pole	SAMPLED			0																
227	45.03413012	-87.15046561	212	Kangaroo Lake	Door	8/11/2016	TWH & CJF	227	4	Rock	Pole	SAMPLED			1	1															
228	45.0337898	-87.16571694	243	Kangaroo Lake	Door	8/12/2016	TWH & LJS	228	5	Sand	Pole	SAMPLED			0																
229	45.0337646	-87.16470256	242	Kangaroo Lake	Door	8/12/2016	TWH & LJS	229	6	Muck	Pole	SAMPLED			0																
230	45.03373939	-87.16368817	241	Kangaroo Lake	Door	8/12/2016	TWH & LJS	230	8	Muck	Pole	SAMPLED			1					1		1									

Point Number	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	ID	Lake Name	County	Date	Field Crew	Point Number	Depth (ft)	Sediment	Pole/Rope	Comments	Notes	Nuisance	Total Rake Fullness	Myriophyllum spicatum	Chara spp.	Heteranthera dubia	Myriophyllum heterophyllum	Najas flexilis	Potamogeton amplifolius	Potamogeton gramineus	Potamogeton illinoensis	Schoenoplectus acutus	Schoenoplectus pungens	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana	Freshwater sponge	Filamentous algae	
231	45.03371417	-87.16267379	240	Kangaroo Lake	Door	8/12/2016	TWH & LJS	231	8	Muck	Pole	SAMPLED			1	1															
232	45.03368895	-87.16165941	239	Kangaroo Lake	Door	8/12/2016	TWH & LJS	232	9	Muck	Pole	SAMPLED			1	1															
233	45.03366371	-87.16064504	238	Kangaroo Lake	Door	8/12/2016	TWH & LJS	233	9	Muck	Pole	SAMPLED			0																
234	45.03363847	-87.15963066	237	Kangaroo Lake	Door	8/12/2016	TWH & LJS	234	9	Muck	Pole	SAMPLED			2	1										2					
235	45.03361321	-87.15861628	236	Kangaroo Lake	Door	8/12/2016	TWH & LJS	235	8	Muck	Pole	SAMPLED			2	2															
236	45.03358795	-87.15760191	235	Kangaroo Lake	Door	8/12/2016	TWH & LJS	236	6	Rock	Pole	SAMPLED			0																
237	45.03356268	-87.15658754	234	Kangaroo Lake	Door	8/12/2016	TWH & LJS	237	7	Muck	Pole	SAMPLED			1	1											1				
238	45.0335374	-87.15557317	233	Kangaroo Lake	Door	8/12/2016	TWH & LJS	238	8	Muck	Pole	SAMPLED			1	1															
239	45.03351211	-87.1545588	232	Kangaroo Lake	Door	8/12/2016	TWH & LJS	239	9	Muck	Pole	SAMPLED			1	1															
240	45.03348681	-87.15354443	231	Kangaroo Lake	Door	8/12/2016	TWH & LJS	240	9	Muck	Pole	SAMPLED			1	1											1				
241	45.03346151	-87.15253006	230	Kangaroo Lake	Door	8/12/2016	TWH & LJS	241	8	Muck	Pole	SAMPLED			0																
242	45.03343619	-87.15151569	229	Kangaroo Lake	Door	8/12/2016	TWH & LJS	242	8	Muck	Pole	SAMPLED			1	1											1				
243	45.03341087	-87.15050133	228	Kangaroo Lake	Door	8/12/2016	TWH & LJS	243	4	Sand	Pole	SAMPLED			0																
244	45.03307053	-87.16575247	244	Kangaroo Lake	Door	8/12/2016	TWH & LJS	244	6	Sand	Pole	SAMPLED			1	1															
245	45.03304533	-87.1647381	245	Kangaroo Lake	Door	8/12/2016	TWH & LJS	245	5	Rock	Pole	SAMPLED			0																
246	45.03302012	-87.16372373	246	Kangaroo Lake	Door	8/12/2016	TWH & LJS	246	7	Muck	Pole	SAMPLED			0																
247	45.03299491	-87.16270936	247	Kangaroo Lake	Door	8/12/2016	TWH & LJS	247	8	Muck	Pole	SAMPLED			0																
248	45.03296968	-87.161695	248	Kangaroo Lake	Door	8/12/2016	TWH & LJS	248	9	Muck	Pole	SAMPLED			2	2															
249	45.03294445	-87.16068063	249	Kangaroo Lake	Door	8/12/2016	TWH & LJS	249	9	Muck	Pole	SAMPLED			2	2															
250	45.0329192	-87.15966627	250	Kangaroo Lake	Door	8/12/2016	TWH & LJS	250	9	Muck	Pole	SAMPLED			3	3															
251	45.03289395	-87.1586519	251	Kangaroo Lake	Door	8/12/2016	TWH & LJS	251	8	Muck	Pole	SAMPLED			3	3															
252	45.03286869	-87.15763754	252	Kangaroo Lake	Door	8/12/2016	TWH & LJS	252	8	Muck	Pole	SAMPLED			2	2											1				
253	45.03284342	-87.15662318	253	Kangaroo Lake	Door	8/12/2016	TWH & LJS	253	8	Sand	Pole	SAMPLED			1	1															
254	45.03281814	-87.15560882	254	Kangaroo Lake	Door	8/12/2016	TWH & LJS	254	8	Sand	Pole	SAMPLED			1							1									
255	45.03279285	-87.15459447	255	Kangaroo Lake	Door	8/12/2016	TWH & LJS	255	9	Sand	Pole	SAMPLED			1												1				
256	45.03276755	-87.15358011	256	Kangaroo Lake	Door	8/12/2016	TWH & LJS	256	9	Sand	Pole	SAMPLED			1													1			
257	45.03274225	-87.15256576	257	Kangaroo Lake	Door	8/12/2016	TWH & LJS	257	9	Sand	Pole	SAMPLED			1												1				
258	45.03271693	-87.1515514	258	Kangaroo Lake	Door	8/12/2016	TWH & LJS	258	8	Sand	Pole	SAMPLED			1	1				1							1				
259	45.03269161	-87.15053705	259	Kangaroo Lake	Door	8/12/2016	TWH & LJS	259	5	Rock	Pole	SAMPLED			0																
260	45.03235126	-87.165788	276	Kangaroo Lake	Door	8/12/2016	TWH & LJS	260	5	Sand	Pole	SAMPLED			1	1				1											
261	45.03232606	-87.16477364	275	Kangaroo Lake	Door	8/12/2016	TWH & LJS	261	7	Sand	Pole	SAMPLED			0																
262	45.03230086	-87.16375929	274	Kangaroo Lake	Door	8/12/2016	TWH & LJS	262	8	Muck	Pole	SAMPLED			0																
263	45.03227564	-87.16274493	273	Kangaroo Lake	Door	8/12/2016	TWH & LJS	263	8	Muck	Pole	SAMPLED			1							1									
264	45.03225042	-87.16173058	272	Kangaroo Lake	Door	8/12/2016	TWH & LJS	264	9	Muck	Pole	SAMPLED			1	1															
265	45.03222518	-87.16071622	271	Kangaroo Lake	Door	8/12/2016	TWH & LJS	265	9	Muck	Pole	SAMPLED			2	2															
266	45.03219994	-87.15970187	270	Kangaroo Lake	Door	8/12/2016	TWH & LJS	266	9	Muck	Pole	SAMPLED			3	3															
267	45.03217469	-87.15868752	269	Kangaroo Lake	Door	8/12/2016	TWH & LJS	267	6	Muck	Pole	SAMPLED			3	3															
268	45.03214943	-87.15767317	268	Kangaroo Lake	Door	8/12/2016	TWH & LJS	268	9	Muck	Pole	SAMPLED			1	1															
269	45.03212416	-87.15665883	267	Kangaroo Lake	Door	8/12/2016	TWH & LJS	269	8	Muck	Pole	SAMPLED			2	2															
270	45.03209888	-87.15564448	266	Kangaroo Lake	Door	8/12/2016	TWH & LJS	270	8	Muck	Pole	SAMPLED			1	1															
271	45.03207359	-87.15463014	265	Kangaroo Lake	Door	8/12/2016	TWH & LJS	271	9	Muck	Pole	SAMPLED			0																
272	45.03204829	-87.15361579	264	Kangaroo Lake	Door	8/12/2016	TWH & LJS	272	9	Sand	Pole	SAMPLED			0																
273	45.03202299	-87.15260145	263	Kangaroo Lake	Door	8/12/2016	TWH & LJS	273	9	Sand	Pole	SAMPLED			1	1															
274	45.03199767	-87.15158711	262	Kangaroo Lake	Door	8/12/2016	TWH & LJS	274	8	Sand	Pole	SAMPLED			1	1															
275	45.03197235	-87.15057277	261	Kangaroo Lake	Door	8/12/2016	TWH & LJS	275	7	Sand	Pole	SAMPLED			1	1															
276	45.03194702	-87.14955843	260	Kangaroo Lake	Door	8/12/2016	TWH & LJS	276	2	Rock	Pole	SAMPLED			0																

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277	45.03163199	-87.16582353	277	Kangaroo Lake	Door	8/12/2016	TWH & LJS	277	5	Sand	Pole	SAMPLED			1	1														
278	45.0316068	-87.16480918	278	Kangaroo Lake	Door	8/12/2016	TWH & LJS	278	6	Sand	Pole	SAMPLED			1	1														
279	45.03158159	-87.16379484	279	Kangaroo Lake	Door	8/12/2016	TWH & LJS	279	8	Muck	Pole	SAMPLED			0															
280	45.03155638	-87.1627805	280	Kangaroo Lake	Door	8/12/2016	TWH & LJS	280	8	Muck	Pole	SAMPLED			1							1								
281	45.03153115	-87.16176616	281	Kangaroo Lake	Door	8/12/2016	TWH & LJS	281	9	Muck	Pole	SAMPLED			2	2														
282	45.03150592	-87.16075182	282	Kangaroo Lake	Door	8/12/2016	TWH & LJS	282	10	Muck	Pole	SAMPLED			3	2											2			
283	45.03148068	-87.15973748	283	Kangaroo Lake	Door	8/12/2016	TWH & LJS	283	9	Muck	Pole	SAMPLED			3	3											1			
284	45.03145543	-87.15872314	284	Kangaroo Lake	Door	8/12/2016	TWH & LJS	284	6	Muck	Pole	SAMPLED			3	3											2			
285	45.03143016	-87.1577088	285	Kangaroo Lake	Door	8/12/2016	TWH & LJS	285	9	Muck	Pole	SAMPLED			2	1	1		1		1									
286	45.0314049	-87.15669447	286	Kangaroo Lake	Door	8/12/2016	TWH & LJS	286	8	Muck	Pole	SAMPLED			2	1											2			
287	45.03137962	-87.15568014	287	Kangaroo Lake	Door	8/12/2016	TWH & LJS	287	8	Muck	Pole	SAMPLED			1	1														
288	45.03135433	-87.1546658	288	Kangaroo Lake	Door	8/12/2016	TWH & LJS	288	8	Muck	Pole	SAMPLED			1				1											
289	45.03132903	-87.15365147	289	Kangaroo Lake	Door	8/12/2016	TWH & LJS	289	9	Muck	Pole	SAMPLED			0															
290	45.03130373	-87.15263714	290	Kangaroo Lake	Door	8/12/2016	TWH & LJS	290	9	Muck	Pole	SAMPLED			1	1														
291	45.03127841	-87.15162282	291	Kangaroo Lake	Door	8/12/2016	TWH & LJS	291	8	Muck	Pole	SAMPLED			3	1											3			
292	45.03125309	-87.15060849	292	Kangaroo Lake	Door	8/12/2016	TWH & LJS	292	7	Sand	Pole	SAMPLED			0															
293	45.03122776	-87.14959417	293	Kangaroo Lake	Door	8/12/2016	TWH & LJS	293	3	Sand	Pole	SAMPLED			0															
294	45.03091273	-87.16585906	310	Kangaroo Lake	Door	8/12/2016	TWH & LJS	294	4	Rock	Pole	SAMPLED			0															
295	45.03088753	-87.16484472	309	Kangaroo Lake	Door	8/12/2016	TWH & LJS	295	6	Sand	Pole	SAMPLED			1	1			1											
296	45.03086232	-87.16383039	308	Kangaroo Lake	Door	8/12/2016	TWH & LJS	296	8	Sand	Pole	SAMPLED			1	1														
297	45.03083711	-87.16281606	307	Kangaroo Lake	Door	8/12/2016	TWH & LJS	297	8	Muck	Pole	SAMPLED			1	1														
298	45.03081189	-87.16180173	306	Kangaroo Lake	Door	8/12/2016	TWH & LJS	298	9	Muck	Pole	SAMPLED			2	1											2			
299	45.03078665	-87.16078741	305	Kangaroo Lake	Door	8/12/2016	TWH & LJS	299	10	Muck	Pole	SAMPLED			2	2											1			
300	45.03076141	-87.15977308	304	Kangaroo Lake	Door	8/12/2016	TWH & LJS	300	8	Muck	Pole	SAMPLED			2	2														
301	45.03073616	-87.15875876	303	Kangaroo Lake	Door	8/12/2016	TWH & LJS	301	7	Muck	Pole	SAMPLED			3	3											1			
302	45.03071109	-87.15774443	302	Kangaroo Lake	Door	8/12/2016	TWH & LJS	302	8	Muck	Pole	SAMPLED			3	1		1			1	1								
303	45.03068563	-87.15673011	301	Kangaroo Lake	Door	8/12/2016	TWH & LJS	303	9	Muck	Pole	SAMPLED			2	2			1											
304	45.03066036	-87.15571579	300	Kangaroo Lake	Door	8/12/2016	TWH & LJS	304	9	Muck	Pole	SAMPLED			1	1														
305	45.03063507	-87.15470147	299	Kangaroo Lake	Door	8/12/2016	TWH & LJS	305	8	Muck	Pole	SAMPLED			0															
306	45.03060977	-87.15368715	298	Kangaroo Lake	Door	8/12/2016	TWH & LJS	306	9	Muck	Pole	SAMPLED			0															
307	45.03058447	-87.15267284	297	Kangaroo Lake	Door	8/12/2016	TWH & LJS	307	9	Muck	Pole	SAMPLED			0															
308	45.03055916	-87.15165852	296	Kangaroo Lake	Door	8/12/2016	TWH & LJS	308	8	Muck	Pole	SAMPLED			2	1											2			
309	45.03053383	-87.15064421	295	Kangaroo Lake	Door	8/12/2016	TWH & LJS	309	7	Sand	Pole	SAMPLED			1	1														
310	45.0305085	-87.1496299	294	Kangaroo Lake	Door	8/12/2016	TWH & LJS	310	4	Sand	Pole	SAMPLED			0															
311	45.03019346	-87.16589458	311	Kangaroo Lake	Door	8/12/2016	TWH & LJS	311	4	Sand	Pole	SAMPLED			0															
312	45.03016826	-87.16488026	312	Kangaroo Lake	Door	8/12/2016	TWH & LJS	312	7	Muck	Pole	SAMPLED			1	1			1			1								
313	45.03014306	-87.16386594	313	Kangaroo Lake	Door	8/12/2016	TWH & LJS	313	8	Muck	Pole	SAMPLED			1	1														
314	45.03011784	-87.16285163	314	Kangaroo Lake	Door	8/12/2016	TWH & LJS	314	8	Muck	Pole	SAMPLED			1	1							1							
315	45.03009262	-87.16183731	315	Kangaroo Lake	Door	8/12/2016	TWH & LJS	315	9	Muck	Pole	SAMPLED			2	2														
316	45.03006739	-87.160823	316	Kangaroo Lake	Door	8/12/2016	TWH & LJS	316	9	Muck	Pole	SAMPLED			3	3														
317	45.03004215	-87.15980868	317	Kangaroo Lake	Door	8/12/2016	TWH & LJS	317	9	Muck	Pole	SAMPLED			3	3														
318	45.0300169	-87.15879437	318	Kangaroo Lake	Door	8/12/2016	TWH & LJS	318	6	Muck	Pole	SAMPLED			3	3		1												
319	45.02999164	-87.15778006	319	Kangaroo Lake	Door	8/12/2016	TWH & LJS	319	6	Muck	Pole	SAMPLED			3	3														
320	45.02996637	-87.15676575	320	Kangaroo Lake	Door	8/12/2016	TWH & LJS	320	10	Muck	Pole	SAMPLED			2	2														
321	45.02994109	-87.15575144	321	Kangaroo Lake	Door	8/12/2016	TWH & LJS	321	9	Muck	Pole	SAMPLED			1	1														
322	45.02991581	-87.15473714	322	Kangaroo Lake	Door	8/12/2016	TWH & LJS	322	5	Rock	Pole	SAMPLED			0															

Point Number	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	ID	Lake Name	County	Date	Field Crew	Point Number	Depth (ft)	Sediment	Pole/Rope	Comments	Notes	Nuisance	Total Rake Fullness	Myriophyllum spicatum	Chara spp.	Heteranthera dubia	Myriophyllum heterophyllum	Najas flexilis	Potamogeton amplifolius	Potamogeton gramineus	Potamogeton illinoensis	Schoenoplectus acutus	Schoenoplectus pungens	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana	Freshwater sponge	Filamentous algae	
323	45.02989051	-87.15372283	323	Kangaroo Lake	Door	8/12/2016	TWH & LJS	323	8	Muck	Pole	SAMPLED			1	1															
324	45.02986521	-87.15270853	324	Kangaroo Lake	Door	8/12/2016	TWH & LJS	324	9	Muck	Pole	SAMPLED			1	1															
325	45.0298399	-87.15169423	325	Kangaroo Lake	Door	8/12/2016	TWH & LJS	325	8	Sand	Pole	SAMPLED			1	1															
326	45.02981457	-87.15067992	326	Kangaroo Lake	Door	8/12/2016	TWH & LJS	326	7	Sand	Pole	SAMPLED			2	1										2					
327	45.02978924	-87.14966562	327	Kangaroo Lake	Door	8/12/2016	TWH & LJS	327	3	Rock	Pole	SAMPLED			0																
328	45.02947419	-87.16593011	344	Kangaroo Lake	Door	8/12/2016	TWH & LJS	328	5	Sand	Pole	SAMPLED			0																
329	45.029449	-87.1649158	343	Kangaroo Lake	Door	8/12/2016	TWH & LJS	329	7	Muck	Pole	SAMPLED			1					1											
330	45.02942379	-87.16390149	342	Kangaroo Lake	Door	8/12/2016	TWH & LJS	330	8	Muck	Pole	SAMPLED			0																
331	45.02939858	-87.16288719	341	Kangaroo Lake	Door	8/12/2016	TWH & LJS	331	8	Muck	Pole	SAMPLED			1	1															
332	45.02937336	-87.16187289	340	Kangaroo Lake	Door	8/12/2016	TWH & LJS	332	9	Muck	Pole	SAMPLED			2	2															
333	45.02934812	-87.16085858	339	Kangaroo Lake	Door	8/12/2016	TWH & LJS	333	10	Muck	Pole	SAMPLED			2	2															
334	45.02932288	-87.15984428	338	Kangaroo Lake	Door	8/12/2016	TWH & LJS	334	9	Muck	Pole	SAMPLED			3	3															
335	45.02929763	-87.15882998	337	Kangaroo Lake	Door	8/12/2016	TWH & LJS	335	6	Muck	Pole	SAMPLED			3	3						1									
336	45.02927238	-87.15781569	336	Kangaroo Lake	Door	8/12/2016	TWH & LJS	336	7	Muck	Pole	SAMPLED			3	3										2					
337	45.02924711	-87.15680139	335	Kangaroo Lake	Door	8/12/2016	TWH & LJS	337	12	Muck	Pole	SAMPLED			2	2		1	1												
338	45.02922183	-87.1557871	334	Kangaroo Lake	Door	8/12/2016	TWH & LJS	338	10	Muck	Pole	SAMPLED			2	2				1											
339	45.02919655	-87.1547728	333	Kangaroo Lake	Door	8/12/2016	TWH & LJS	339	9	Muck	Pole	SAMPLED			1	1															
340	45.02917125	-87.15375851	332	Kangaroo Lake	Door	8/12/2016	TWH & LJS	340	9	Muck	Pole	SAMPLED			1	1				1											
341	45.02914595	-87.15274422	331	Kangaroo Lake	Door	8/12/2016	TWH & LJS	341	9	Muck	Pole	SAMPLED			1	1															
342	45.02912064	-87.15172993	330	Kangaroo Lake	Door	8/12/2016	TWH & LJS	342	8	Muck	Pole	SAMPLED			1	1															
343	45.02909532	-87.15071564	329	Kangaroo Lake	Door	8/12/2016	TWH & LJS	343	7	Sand	Pole	SAMPLED			2	1										2					
344	45.02906999	-87.14970135	328	Kangaroo Lake	Door	8/12/2016	TWH & LJS	344	3	Sand	Pole	SAMPLED			0																
345	45.02875492	-87.16596563	345	Kangaroo Lake	Door	8/12/2016	TWH & LJS	345	4	Rock	Pole	SAMPLED			1	1															
346	45.02872973	-87.16495134	346	Kangaroo Lake	Door	8/12/2016	TWH & LJS	346	7	Sand	Pole	SAMPLED			0																
347	45.02870452	-87.16393704	347	Kangaroo Lake	Door	8/12/2016	TWH & LJS	347	8	Muck	Pole	SAMPLED			1											1					
348	45.02867931	-87.16292275	348	Kangaroo Lake	Door	8/12/2016	TWH & LJS	348	9	Muck	Pole	SAMPLED			0																
349	45.02865409	-87.16190846	349	Kangaroo Lake	Door	8/12/2016	TWH & LJS	349	9	Muck	Pole	SAMPLED			2	1										2					
350	45.02862886	-87.16089417	350	Kangaroo Lake	Door	8/12/2016	TWH & LJS	350	8	Muck	Pole	SAMPLED			3	2										2					
351	45.02860362	-87.15987988	351	Kangaroo Lake	Door	8/12/2016	TWH & LJS	351	8	Muck	Pole	SAMPLED			3	3															
352	45.02857837	-87.1588656	352	Kangaroo Lake	Door	8/12/2016	TWH & LJS	352	7	Muck	Pole	SAMPLED			3	3										2					
353	45.02855311	-87.15785131	353	Kangaroo Lake	Door	8/12/2016	TWH & LJS	353	8	Muck	Pole	SAMPLED			3	3						1				1					
354	45.02852785	-87.15683703	354	Kangaroo Lake	Door	8/12/2016	TWH & LJS	354	12	Muck	Pole	SAMPLED			3	3		1			1					1					
355	45.02850257	-87.15582275	355	Kangaroo Lake	Door	8/12/2016	TWH & LJS	355	11	Muck	Pole	SAMPLED			1	1															
356	45.02847729	-87.15480846	356	Kangaroo Lake	Door	8/12/2016	TWH & LJS	356	10	Muck	Pole	SAMPLED			1					1											
357	45.02845199	-87.15379418	357	Kangaroo Lake	Door	8/12/2016	TWH & LJS	357	9	Muck	Pole	SAMPLED			2	1				1						1					
358	45.02842669	-87.15277991	358	Kangaroo Lake	Door	8/12/2016	TWH & LJS	358	8	Sand	Pole	SAMPLED			0																
359	45.02840138	-87.15176563	359	Kangaroo Lake	Door	8/12/2016	TWH & LJS	359	7	Sand	Pole	SAMPLED			1	1															
360	45.02837606	-87.15075135	360	Kangaroo Lake	Door	8/12/2016	TWH & LJS	360	5	Sand	Pole	SAMPLED			1	1															
361	45.02803565	-87.16600115	16	Kangaroo Lake	Door	8/12/2016	JLW & JMB	361	3	Sand	Pole	SAMPLED			1	1														1	
362	45.02801046	-87.16498687	15	Kangaroo Lake	Door	8/12/2016	JLW & JMB	362	6	Muck	Pole	SAMPLED			1	1															
363	45.02798526	-87.16397259	14	Kangaroo Lake	Door	8/12/2016	JLW & JMB	363	7	Muck	Pole	SAMPLED			1	1						1									
364	45.02796004	-87.16295831	13	Kangaroo Lake	Door	8/12/2016	JLW & JMB	364	8	Muck	Pole	SAMPLED			1	1															
365	45.02793482	-87.16194403	12	Kangaroo Lake	Door	8/12/2016	JLW & JMB	365	8	Muck	Pole	SAMPLED			1	1															
366	45.02790959	-87.16092976	11	Kangaroo Lake	Door	8/12/2016	JLW & JMB	366	9	Muck	Pole	SAMPLED			1	1						1									
367	45.02788435	-87.15991548	10	Kangaroo Lake	Door	8/12/2016	JLW & JMB	367	9	Muck	Pole	SAMPLED			2	2										1					
368	45.02785911	-87.15890121	9	Kangaroo Lake	Door	8/12/2016	JLW & JMB	368	6	Muck	Pole	SAMPLED			2	2															

Point Number	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	ID	Lake Name	County	Date	Field Crew	Point Number	Depth (ft)	Sediment	Pole/Rope	Comments	Notes	Nuisance	Total Rake Fullness	Myriophyllum spicatum	Chara spp.	Heteranthera dubia	Myriophyllum heterophyllum	Najas flexilis	Potamogeton amplifolius	Potamogeton gramineus	Potamogeton illinoensis	Schoenoplectus acutus	Schoenoplectus pungens	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana	Freshwater sponge	Filamentous algae
369	45.02783385	-87.15788694	8	Kangaroo Lake	Door	8/12/2016	JLW & JMB	369	8	Muck	Pole	SAMPLED			2	2	1	1					1							
370	45.02780858	-87.15687266	7	Kangaroo Lake	Door	8/12/2016	JLW & JMB	370	12	Muck	Pole	SAMPLED			2	2		1							1					
371	45.02778331	-87.15585839	6	Kangaroo Lake	Door	8/12/2016	JLW & JMB	371	10	Muck	Pole	SAMPLED			2	2														
372	45.02775802	-87.15484413	5	Kangaroo Lake	Door	8/12/2016	JLW & JMB	372	9	Muck	Pole	SAMPLED			2	2														
373	45.02773273	-87.15382986	4	Kangaroo Lake	Door	8/12/2016	JLW & JMB	373	9	Muck	Pole	SAMPLED			1	1		1								1				
374	45.02770743	-87.15281559	3	Kangaroo Lake	Door	8/12/2016	JLW & JMB	374	4	Sand	Pole	SAMPLED			0															
375	45.02768212	-87.15180133	2	Kangaroo Lake	Door	8/12/2016	JLW & JMB	375	6	Sand	Pole	SAMPLED			1	1														
376	45.0276568	-87.15078706	1	Kangaroo Lake	Door	8/12/2016	JLW & JMB	376	4	Sand	Pole	SAMPLED			0															
377	45.02729119	-87.1650224	17	Kangaroo Lake	Door	8/12/2016	JLW & JMB	377	6	Sand	Pole	SAMPLED			1	1			1							1				
378	45.02726599	-87.16400814	18	Kangaroo Lake	Door	8/12/2016	JLW & JMB	378	6	Sand	Pole	SAMPLED			1								1							
379	45.02724078	-87.16299387	19	Kangaroo Lake	Door	8/12/2016	JLW & JMB	379	7	Muck	Pole	SAMPLED			0															
380	45.02721556	-87.16197961	20	Kangaroo Lake	Door	8/12/2016	JLW & JMB	380	8	Muck	Pole	SAMPLED			1	1		1												
381	45.02719033	-87.16096534	21	Kangaroo Lake	Door	8/12/2016	JLW & JMB	381	9	Muck	Pole	SAMPLED			1	1														
382	45.02716509	-87.15995108	22	Kangaroo Lake	Door	8/12/2016	JLW & JMB	382	9	Muck	Pole	SAMPLED			2	1										2				
383	45.02713984	-87.15893682	23	Kangaroo Lake	Door	8/12/2016	JLW & JMB	383	7	Muck	Pole	SAMPLED			2	2										1				
384	45.02711459	-87.15792256	24	Kangaroo Lake	Door	8/12/2016	JLW & JMB	384	9	Muck	Pole	SAMPLED			3	3	1	1			1					1				
385	45.02708932	-87.1569083	25	Kangaroo Lake	Door	8/12/2016	JLW & JMB	385	11	Muck	Pole	SAMPLED			3	3														
386	45.02706405	-87.15589404	26	Kangaroo Lake	Door	8/12/2016	JLW & JMB	386	11	Muck	Pole	SAMPLED			1	1														
387	45.02703876	-87.15487979	27	Kangaroo Lake	Door	8/12/2016	JLW & JMB	387	9	Muck	Pole	SAMPLED			1	1			1											
388	45.02701347	-87.15386553	28	Kangaroo Lake	Door	8/12/2016	JLW & JMB	388	8	Muck	Pole	SAMPLED			1	1		1												
389	45.02698817	-87.15285128	29	Kangaroo Lake	Door	8/12/2016	JLW & JMB	389	5	Sand	Pole	SAMPLED			0															
390	45.02696286	-87.15183703	30	Kangaroo Lake	Door	8/12/2016	JLW & JMB	390	5	Sand	Pole	SAMPLED			0															
391	45.02693754	-87.15082277	31	Kangaroo Lake	Door	8/12/2016	JLW & JMB	391	0	3.5	Pole	SAMPLED			0															
392	45.02657192	-87.16505794	46	Kangaroo Lake	Door	8/12/2016	JLW & JMB	392	5	Sand	Pole	SAMPLED			1	1						1								
393	45.02654672	-87.16404368	45	Kangaroo Lake	Door	8/12/2016	JLW & JMB	393	7	Sand	Pole	SAMPLED			1				1											
394	45.02652151	-87.16302943	44	Kangaroo Lake	Door	8/12/2016	JLW & JMB	394	7	Muck	Pole	SAMPLED			0															
395	45.02649629	-87.16201518	43	Kangaroo Lake	Door	8/12/2016	JLW & JMB	395	8	Muck	Pole	SAMPLED			1	1														
396	45.02647106	-87.16100092	42	Kangaroo Lake	Door	8/12/2016	JLW & JMB	396	9	Muck	Pole	SAMPLED			2	2										2				
397	45.02644583	-87.15988667	41	Kangaroo Lake	Door	8/12/2016	JLW & JMB	397	9	Muck	Pole	SAMPLED			2	2								1						
398	45.02642058	-87.15897243	40	Kangaroo Lake	Door	8/12/2016	JLW & JMB	398	7	Muck	Pole	SAMPLED			2	2														
399	45.02639532	-87.15795818	39	Kangaroo Lake	Door	8/12/2016	JLW & JMB	399	9	Muck	Pole	SAMPLED			2	2		1								1				
400	45.02637006	-87.15694393	38	Kangaroo Lake	Door	8/12/2016	JLW & JMB	400	11	Muck	Pole	SAMPLED			3	3		1	1						1					
401	45.02634478	-87.15592969	37	Kangaroo Lake	Door	8/12/2016	JLW & JMB	401	11	Muck	Pole	SAMPLED			2	2														
402	45.0263195	-87.15491544	36	Kangaroo Lake	Door	8/12/2016	JLW & JMB	402	9	Muck	Pole	SAMPLED			2	2														
403	45.02629421	-87.1539012	35	Kangaroo Lake	Door	8/12/2016	JLW & JMB	403	9	Muck	Pole	SAMPLED			1	1														
404	45.02626891	-87.15288696	34	Kangaroo Lake	Door	8/12/2016	JLW & JMB	404	7	Sand	Pole	SAMPLED			1	1														
405	45.0262436	-87.15187272	33	Kangaroo Lake	Door	8/12/2016	JLW & JMB	405	4	Sand	Pole	SAMPLED			0															
406	45.02621828	-87.15085848	32	Kangaroo Lake	Door	8/12/2016	JLW & JMB	406	2	Rock	Pole	SAMPLED			0															
407	45.02585286	-87.16509347	47	Kangaroo Lake	Door	8/12/2016	JLW & JMB	407	4	Sand	Pole	SAMPLED			0															
408	45.02582746	-87.16407923	48	Kangaroo Lake	Door	8/12/2016	JLW & JMB	408	7	Muck	Pole	SAMPLED			1	1										1				
409	45.02580224	-87.16306498	49	Kangaroo Lake	Door	8/12/2016	JLW & JMB	409	8	Muck	Pole	SAMPLED			1	1						1								
410	45.02577703	-87.16205074	50	Kangaroo Lake	Door	8/12/2016	JLW & JMB	410	8	Muck	Pole	SAMPLED			1							1				1				
411	45.0257518	-87.16103651	51	Kangaroo Lake	Door	8/12/2016	JLW & JMB	411	9	Muck	Pole	SAMPLED			2	2									1					
412	45.02572656	-87.16002227	52	Kangaroo Lake	Door	8/12/2016	JLW & JMB	412	9	Muck	Pole	SAMPLED			1	1										1				
413	45.02570131	-87.15900803	53	Kangaroo Lake	Door	8/12/2016	JLW & JMB	413	7	Muck	Pole	SAMPLED			2	2														
414	45.02567606	-87.1579938	54	Kangaroo Lake	Door	8/12/2016	JLW & JMB	414	9	Muck	Pole	SAMPLED			3	3														

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415	45.02565079	-87.15697956	55	Kangaroo Lake	Door	8/12/2016	JLW & JMB	415	10	Muck	Pole	SAMPLED			1	1		1								1					
416	45.02562552	-87.15596533	56	Kangaroo Lake	Door	8/12/2016	JLW & JMB	416	10	Muck	Pole	SAMPLED			2	2											1				
417	45.02560024	-87.1549511	57	Kangaroo Lake	Door	8/12/2016	JLW & JMB	417	9	Muck	Pole	SAMPLED			2	2															
418	45.02557495	-87.15393687	58	Kangaroo Lake	Door	8/12/2016	JLW & JMB	418	9	Muck	Pole	SAMPLED			1	1															
419	45.02554965	-87.15292264	59	Kangaroo Lake	Door	8/12/2016	JLW & JMB	419	7	Muck	Pole	SAMPLED			1	1															
420	45.02552434	-87.15190842	60	Kangaroo Lake	Door	8/12/2016	JLW & JMB	420	5	Sand	Pole	SAMPLED			1	1															
421	45.02549902	-87.15089419	61	Kangaroo Lake	Door	8/12/2016	JLW & JMB	421	3	Sand	Pole	SAMPLED			0																
422	45.02513339	-87.165129	77	Kangaroo Lake	Door	8/12/2016	JLW & JMB	422	4	Muck	Pole	SAMPLED			1	1							1								
423	45.02510819	-87.16411477	76	Kangaroo Lake	Door	8/12/2016	JLW & JMB	423	4	Sand	Pole	SAMPLED			0																
424	45.02508298	-87.16310054	75	Kangaroo Lake	Door	8/12/2016	JLW & JMB	424	8	Muck	Pole	SAMPLED			0																
425	45.02505776	-87.16208631	74	Kangaroo Lake	Door	8/12/2016	JLW & JMB	425	8	Muck	Pole	SAMPLED			0																
426	45.02503253	-87.16107209	73	Kangaroo Lake	Door	8/12/2016	JLW & JMB	426	9	Muck	Pole	SAMPLED			2	2											1				
427	45.0250073	-87.16005786	72	Kangaroo Lake	Door	8/12/2016	JLW & JMB	427	9	Muck	Pole	SAMPLED			1	1															
428	45.02498205	-87.15904364	71	Kangaroo Lake	Door	8/12/2016	JLW & JMB	428	7	Muck	Pole	SAMPLED			2	2															
429	45.0249568	-87.15802942	70	Kangaroo Lake	Door	8/12/2016	JLW & JMB	429	10	Muck	Pole	SAMPLED			1	1		1									1				
430	45.02493153	-87.15701519	69	Kangaroo Lake	Door	8/12/2016	JLW & JMB	430	9	Muck	Pole	SAMPLED			3	3						1									
431	45.02490626	-87.15600098	68	Kangaroo Lake	Door	8/12/2016	JLW & JMB	431	10	Muck	Pole	SAMPLED			2	2															
432	45.02488098	-87.15498676	67	Kangaroo Lake	Door	8/12/2016	JLW & JMB	432	9	Muck	Pole	SAMPLED			2	2				1											
433	45.02485569	-87.15397254	66	Kangaroo Lake	Door	8/12/2016	JLW & JMB	433	9	Muck	Pole	SAMPLED			1	1				1											
434	45.02483039	-87.15295833	65	Kangaroo Lake	Door	8/12/2016	JLW & JMB	434	8	Muck	Pole	SAMPLED			1	1															
435	45.02480508	-87.15194411	64	Kangaroo Lake	Door	8/12/2016	JLW & JMB	435	5	Sand	Pole	SAMPLED			1	1															
436	45.02477976	-87.1509299	63	Kangaroo Lake	Door	8/12/2016	JLW & JMB	436	5	Sand	Pole	SAMPLED			1	1															
437	45.02475443	-87.14991569	62	Kangaroo Lake	Door	8/12/2016	JLW & JMB	437	2	Sand	Pole	SAMPLED			0																
438	45.02443931	-87.16617874	78	Kangaroo Lake	Door	8/12/2016	JLW & JMB	438	2	Sand	Pole	SAMPLED			0																
439	45.02441412	-87.16516453	79	Kangaroo Lake	Door	8/12/2016	JLW & JMB	439	4	Sand	Pole	SAMPLED			1	1				1											
440	45.02438892	-87.16415031	80	Kangaroo Lake	Door	8/12/2016	JLW & JMB	440	5	Sand	Pole	SAMPLED			0																
441	45.02436371	-87.16313609	81	Kangaroo Lake	Door	8/12/2016	JLW & JMB	441	7	Sand	Pole	SAMPLED			1	1															
442	45.02433849	-87.16212188	82	Kangaroo Lake	Door	8/12/2016	JLW & JMB	442	8	Muck	Pole	SAMPLED			1	1				1						1	1				
443	45.02431327	-87.16110766	83	Kangaroo Lake	Door	8/12/2016	JLW & JMB	443	8	Muck	Pole	SAMPLED			2	2															
444	45.02428803	-87.16009345	84	Kangaroo Lake	Door	8/12/2016	JLW & JMB	444	9	Muck	Pole	SAMPLED			2	2															
445	45.02426279	-87.15907924	85	Kangaroo Lake	Door	8/12/2016	JLW & JMB	445	7	Muck	Pole	SAMPLED			3	2							1					2			
446	45.02423753	-87.15806503	86	Kangaroo Lake	Door	8/12/2016	JLW & JMB	446	9	Muck	Pole	SAMPLED			2	2				1											
447	45.02421227	-87.15705082	87	Kangaroo Lake	Door	8/12/2016	JLW & JMB	447	9	Muck	Pole	SAMPLED			2	2															
448	45.024187	-87.15603662	88	Kangaroo Lake	Door	8/12/2016	JLW & JMB	448	10	Muck	Pole	SAMPLED			2	2															
449	45.02416172	-87.15502241	89	Kangaroo Lake	Door	8/12/2016	JLW & JMB	449	9	Muck	Pole	SAMPLED			2	2															
450	45.02413643	-87.15400821	90	Kangaroo Lake	Door	8/12/2016	JLW & JMB	450	9	Muck	Pole	SAMPLED			1	1															
451	45.02411113	-87.15299401	91	Kangaroo Lake	Door	8/12/2016	JLW & JMB	451	8	Muck	Pole	SAMPLED			1	1											1				
452	45.02408582	-87.1519798	92	Kangaroo Lake	Door	8/12/2016	JLW & JMB	452	8	Muck	Pole	SAMPLED			1	1				1											
453	45.0240605	-87.1509656	93	Kangaroo Lake	Door	8/12/2016	JLW & JMB	453	5	Sand	Pole	SAMPLED			1	1															
454	45.02403518	-87.14995141	94	Kangaroo Lake	Door	8/12/2016	JLW & JMB	454	4	Sand	Pole	SAMPLED			0																
455	45.02372004	-87.16621426	111	Kangaroo Lake	Door	8/12/2016	JLW & JMB	455	2	Sand	Pole	SAMPLED			0																
456	45.02369485	-87.16520005	110	Kangaroo Lake	Door	8/12/2016	JLW & JMB	456	3	Sand	Pole	SAMPLED			1	1															
457	45.02366965	-87.16418585	109	Kangaroo Lake	Door	8/12/2016	JLW & JMB	457	6	Sand	Pole	SAMPLED			1	1															
458	45.02364444	-87.16317164	108	Kangaroo Lake	Door	8/12/2016	JLW & JMB	458	6	Sand	Pole	SAMPLED			1					1											
459	45.02361923	-87.16215744	107	Kangaroo Lake	Door	8/12/2016	JLW & JMB	459	8	Muck	Pole	SAMPLED			0																
460	45.023594	-87.16114324	106	Kangaroo Lake	Door	8/12/2016	JLW & JMB	460	8	Muck	Pole	SAMPLED			2	2															

Point Number	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	ID	Lake Name	County	Date	Field Crew	Point Number	Depth (ft)	Sediment	Pole/Rope	Comments	Notes	Nuisance	Total Rake Fullness	Myriophyllum spicatum	Chara spp.	Heteranthera dubia	Myriophyllum heterophyllum	Najas flexilis	Potamogeton amplifolius	Potamogeton gramineus	Potamogeton illinoensis	Schoenoplectus acutus	Schoenoplectus pungens	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana	Freshwater sponge	Filamentous algae	
461	45.02356877	-87.16012904	105	Kangaroo Lake	Door	8/12/2016	JLW & JMB	461	9	Muck	Pole	SAMPLED			2	2															
462	45.02354352	-87.15911484	104	Kangaroo Lake	Door	8/12/2016	JLW & JMB	462	6	Muck	Pole	SAMPLED			2	2															
463	45.02351827	-87.15810065	103	Kangaroo Lake	Door	8/12/2016	JLW & JMB	463	8	Muck	Pole	SAMPLED			2	2															
464	45.02349301	-87.15708645	102	Kangaroo Lake	Door	8/12/2016	JLW & JMB	464	8	Muck	Pole	SAMPLED			2	2															
465	45.02346773	-87.15607226	101	Kangaroo Lake	Door	8/12/2016	JLW & JMB	465	9	Muck	Pole	SAMPLED			1	1			1								1				
466	45.02344245	-87.15505807	100	Kangaroo Lake	Door	8/12/2016	JLW & JMB	466	9	Muck	Pole	SAMPLED			2	2															
467	45.02341716	-87.15404387	99	Kangaroo Lake	Door	8/12/2016	JLW & JMB	467	9	Muck	Pole	SAMPLED			2	2			1												
468	45.02339187	-87.15302968	98	Kangaroo Lake	Door	8/12/2016	JLW & JMB	468	8	Muck	Pole	SAMPLED			1	1															
469	45.02336656	-87.1520155	97	Kangaroo Lake	Door	8/12/2016	JLW & JMB	469	7	Muck	Pole	SAMPLED			1	1															
470	45.02334124	-87.15100131	96	Kangaroo Lake	Door	8/12/2016	JLW & JMB	470	6	Sand	Pole	SAMPLED			1	1			1												
471	45.02331592	-87.14998712	95	Kangaroo Lake	Door	8/12/2016	JLW & JMB	471	5	Sand	Pole	SAMPLED			0																
472	45.02297558	-87.16523558	112	Kangaroo Lake	Door	8/12/2016	JLW & JMB	472	2	Rock	Pole	SAMPLED			0																
473	45.02295038	-87.16422139	113	Kangaroo Lake	Door	8/12/2016	JLW & JMB	473	4	Rock	Pole	SAMPLED			0																
474	45.02292518	-87.16320719	114	Kangaroo Lake	Door	8/12/2016	JLW & JMB	474	6	Muck	Pole	SAMPLED			1				1												
475	45.02289996	-87.16219301	115	Kangaroo Lake	Door	8/12/2016	JLW & JMB	475	7	Muck	Pole	SAMPLED			1	1															
476	45.02287473	-87.16117882	116	Kangaroo Lake	Door	8/12/2016	JLW & JMB	476	8	Muck	Pole	SAMPLED			1	1						1				1					
477	45.0228495	-87.16016463	117	Kangaroo Lake	Door	8/12/2016	JLW & JMB	477	8	Muck	Pole	SAMPLED			2	2											1				
478	45.02282426	-87.15915045	118	Kangaroo Lake	Door	8/12/2016	JLW & JMB	478	8	Muck	Pole	SAMPLED			3	3											1				
479	45.022799	-87.15813626	119	Kangaroo Lake	Door	8/12/2016	JLW & JMB	479	8	Muck	Pole	SAMPLED			2	2											1				
480	45.02277374	-87.15712208	120	Kangaroo Lake	Door	8/12/2016	JLW & JMB	480	8	Muck	Pole	SAMPLED			3	2											2				
481	45.02274847	-87.1561079	121	Kangaroo Lake	Door	8/12/2016	JLW & JMB	481	8	Muck	Pole	SAMPLED			2	2															
482	45.02272319	-87.15509372	122	Kangaroo Lake	Door	8/12/2016	JLW & JMB	482	9	Muck	Pole	SAMPLED			1	1											1				
483	45.0226979	-87.15407954	123	Kangaroo Lake	Door	8/12/2016	JLW & JMB	483	8	Muck	Pole	SAMPLED			1	1											1				
484	45.0226726	-87.15306536	124	Kangaroo Lake	Door	8/12/2016	JLW & JMB	484	8	Muck	Pole	SAMPLED			2	1											2				
485	45.0226473	-87.15205119	125	Kangaroo Lake	Door	8/12/2016	JLW & JMB	485	7	Muck	Pole	SAMPLED			1	1		1	1												
486	45.02262198	-87.15103701	126	Kangaroo Lake	Door	8/12/2016	JLW & JMB	486	6	Sand	Pole	SAMPLED				1															
487	45.02259666	-87.15002284	127	Kangaroo Lake	Door	8/12/2016	JLW & JMB	487	5	Sand	Pole	SAMPLED			0																
488	45.02257132	-87.14900867	128	Kangaroo Lake	Door	8/12/2016	JLW & JMB	488	1	Sand	Pole	SAMPLED			0																
489	45.0225631	-87.1652711	107	Kangaroo Lake	Door	8/12/2016	EEH & CMB	489	0			SHALLOW																			
490	45.02223112	-87.16425692	108	Kangaroo Lake	Door	8/12/2016	EEH & CMB	490	5	Sand	Pole	SAMPLED			0																
491	45.02220591	-87.16324274	104	Kangaroo Lake	Door	8/12/2016	EEH & CMB	491	0			ROCKS																			
492	45.02218069	-87.16222857	109	Kangaroo Lake	Door	8/12/2016	EEH & CMB	492	7	Muck	Pole	SAMPLED			0																
493	45.02215547	-87.16121439	110	Kangaroo Lake	Door	8/12/2016	EEH & CMB	493	8	Muck	Pole	SAMPLED			1	1															
494	45.02213023	-87.16020022	140	Kangaroo Lake	Door	8/12/2016	JLW & JMB	494	8	Muck	Pole	SAMPLED			1	1															
495	45.02210499	-87.15918605	139	Kangaroo Lake	Door	8/12/2016	JLW & JMB	495	7	Muck	Pole	SAMPLED			2	2															
496	45.02207974	-87.15817187	138	Kangaroo Lake	Door	8/12/2016	JLW & JMB	496	8	Muck	Pole	SAMPLED			2	2															
497	45.02205448	-87.1571577	137	Kangaroo Lake	Door	8/12/2016	JLW & JMB	497	8	Muck	Pole	SAMPLED			2	2															
498	45.02202921	-87.15614354	136	Kangaroo Lake	Door	8/12/2016	JLW & JMB	498	8	Muck	Pole	SAMPLED			2	2															
499	45.02200393	-87.15512937	135	Kangaroo Lake	Door	8/12/2016	JLW & JMB	499	8	Muck	Pole	SAMPLED			1	1			1												
500	45.02197864	-87.1541152	134	Kangaroo Lake	Door	8/12/2016	JLW & JMB	500	8	Muck	Pole	SAMPLED			1	1															
501	45.02195334	-87.15310104	133	Kangaroo Lake	Door	8/12/2016	JLW & JMB	501	8	Muck	Pole	SAMPLED			1	1															
502	45.02192804	-87.15208687	132	Kangaroo Lake	Door	8/12/2016	JLW & JMB	502	7	Muck	Pole	SAMPLED			1	1															
503	45.02190272	-87.15107271	131	Kangaroo Lake	Door	8/12/2016	JLW & JMB	503	7	Sand	Pole	SAMPLED			1	1											1				
504	45.0218774	-87.15005855	130	Kangaroo Lake	Door	8/12/2016	JLW & JMB	504	6	Sand	Pole	SAMPLED			1	1															
505	45.02185207	-87.14904439	129	Kangaroo Lake	Door	8/12/2016	JLW & JMB	505	4	Sand	Pole	SAMPLED			0																
506	45.02153705	-87.16530662	106	Kangaroo Lake	Door	8/12/2016	EEH & CMB	506	0			SHALLOW																			

Point Number	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	ID	Lake Name	County	Date	Field Crew	Point Number	Depth (ft)	Sediment	Pole/Rope	Comments	Notes	Nuisance	Total Rake Fullness	Myriophyllum spicatum	Chara spp.	Heteranthera dubia	Myriophyllum heterophyllum	Najas flexilis	Potamogeton amplifolius	Potamogeton gramineus	Potamogeton illinoensis	Schoenoplectus acutus	Schoenoplectus pungens	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana	Freshwater sponge	Filamentous algae	
507	45.02151185	-87.16429246	105	Kangaroo Lake	Door	8/12/2016	EEH & CMB	507	3	Muck	Pole	SAMPLED			0																
508	45.02148664	-87.16327829	103	Kangaroo Lake	Door	8/12/2016	EEH & CMB	508	0			ROCKS																			
509	45.02146143	-87.16226413	102	Kangaroo Lake	Door	8/12/2016	EEH & CMB	509	5	Sand	Pole	SAMPLED			0																
510	45.0214362	-87.16124997	101	Kangaroo Lake	Door	8/12/2016	EEH & CMB	510	8	Muck	Pole	SAMPLED			0																
511	45.02141097	-87.16023358	100	Kangaroo Lake	Door	8/12/2016	EEH & CMB	511	7	Muck	Pole	SAMPLED			1	1															
512	45.02138573	-87.15922164	99	Kangaroo Lake	Door	8/12/2016	EEH & CMB	512	7	Muck	Pole	SAMPLED			2	2											2				
513	45.02136047	-87.15820749	98	Kangaroo Lake	Door	8/12/2016	EEH & CMB	513	7	Muck	Pole	SAMPLED			1	1															
514	45.02133521	-87.15719333	97	Kangaroo Lake	Door	8/12/2016	EEH & CMB	514	7	Muck	Pole	SAMPLED			1	1															
515	45.02130994	-87.15617917	96	Kangaroo Lake	Door	8/12/2016	EEH & CMB	515	8	Muck	Pole	SAMPLED			2	1										2					
516	45.02128467	-87.15516502	95	Kangaroo Lake	Door	8/12/2016	EEH & CMB	516	8	Muck	Pole	SAMPLED			1	1															
517	45.02125938	-87.15415086	94	Kangaroo Lake	Door	8/12/2016	EEH & CMB	517	8	Muck	Pole	SAMPLED			1	1															
518	45.02123408	-87.15313671	93	Kangaroo Lake	Door	8/12/2016	EEH & CMB	518	7	Muck	Pole	SAMPLED			0																
519	45.02120878	-87.15212256	92	Kangaroo Lake	Door	8/12/2016	EEH & CMB	519	7	Muck	Pole	SAMPLED			1	1															
520	45.02118346	-87.15110841	91	Kangaroo Lake	Door	8/12/2016	EEH & CMB	520	6	Muck	Pole	SAMPLED			1	1															
521	45.02115814	-87.15009426	90	Kangaroo Lake	Door	8/12/2016	EEH & CMB	521	5	Sand	Pole	SAMPLED			0																
522	45.02081778	-87.16534215	74	Kangaroo Lake	Door	8/12/2016	EEH & CMB	522	0			SHALLOW																			
523	45.02079258	-87.16432799	75	Kangaroo Lake	Door	8/12/2016	EEH & CMB	523	3	Rock	Pole	SAMPLED			0																
524	45.02076737	-87.16331384	76	Kangaroo Lake	Door	8/12/2016	EEH & CMB	524	5	Sand	Pole	SAMPLED			1	1															
525	45.02074216	-87.16229969	77	Kangaroo Lake	Door	8/12/2016	EEH & CMB	525	4	Sand	Pole	SAMPLED			1	1															
526	45.02071694	-87.16128554	78	Kangaroo Lake	Door	8/12/2016	EEH & CMB	526	7	Muck	Pole	SAMPLED			0																
527	45.0206917	-87.16027139	79	Kangaroo Lake	Door	8/12/2016	EEH & CMB	527	7	Muck	Pole	SAMPLED			1				1												
528	45.02066646	-87.15925724	80	Kangaroo Lake	Door	8/12/2016	EEH & CMB	528	7	Muck	Pole	SAMPLED			1	1															
529	45.02064121	-87.1582431	81	Kangaroo Lake	Door	8/12/2016	EEH & CMB	529	7	Muck	Pole	SAMPLED			1	1															
530	45.02061595	-87.15722895	82	Kangaroo Lake	Door	8/12/2016	EEH & CMB	530	7	Muck	Pole	SAMPLED			1	1						1									
531	45.02059068	-87.15621481	83	Kangaroo Lake	Door	8/12/2016	EEH & CMB	531	8	Muck	Pole	SAMPLED			1	1															
532	45.02056654	-87.15520067	84	Kangaroo Lake	Door	8/12/2016	EEH & CMB	532	8	Muck	Pole	SAMPLED			1	1	1	1													
533	45.02054012	-87.15418653	85	Kangaroo Lake	Door	8/12/2016	EEH & CMB	533	8	Muck	Pole	SAMPLED			1	1															
534	45.02051482	-87.15317239	86	Kangaroo Lake	Door	8/12/2016	EEH & CMB	534	7	Muck	Pole	SAMPLED			1	V	1		1												
535	45.02048952	-87.15215825	87	Kangaroo Lake	Door	8/12/2016	EEH & CMB	535	7	Muck	Pole	SAMPLED			0																
536	45.0204642	-87.15114411	88	Kangaroo Lake	Door	8/12/2016	EEH & CMB	536	6	Muck	Pole	SAMPLED			1	1															
537	45.02043888	-87.15012998	89	Kangaroo Lake	Door	8/12/2016	EEH & CMB	537	3	Rock	Pole	SAMPLED			0																
538	45.02009851	-87.16537767	73	Kangaroo Lake	Door	8/12/2016	EEH & CMB	538	0			SHALLOW																			
539	45.02007331	-87.16436352	72	Kangaroo Lake	Door	8/12/2016	EEH & CMB	539	2	Sand	Pole	SAMPLED			0																
540	45.02004811	-87.16334938	71	Kangaroo Lake	Door	8/12/2016	EEH & CMB	540	5	Sand	Pole	SAMPLED			1	1															
541	45.02002289	-87.16233525	70	Kangaroo Lake	Door	8/12/2016	EEH & CMB	541	5	Muck	Pole	SAMPLED			0																
542	45.01999767	-87.16132111	69	Kangaroo Lake	Door	8/12/2016	EEH & CMB	542	7	Muck	Pole	SAMPLED			0																
543	45.01997244	-87.16030697	68	Kangaroo Lake	Door	8/12/2016	EEH & CMB	543	7	Muck	Pole	SAMPLED			1	1															
544	45.0199472	-87.15929284	67	Kangaroo Lake	Door	8/12/2016	EEH & CMB	544	7	Muck	Pole	SAMPLED			1	1			1												
545	45.01992195	-87.1582787	66	Kangaroo Lake	Door	8/12/2016	EEH & CMB	545	6	Muck	Pole	SAMPLED			1	1															
546	45.01989669	-87.15726457	65	Kangaroo Lake	Door	8/12/2016	EEH & CMB	546	7	Muck	Pole	SAMPLED			1	1															
547	45.01987142	-87.15625044	64	Kangaroo Lake	Door	8/12/2016	EEH & CMB	547	7	Muck	Pole	SAMPLED			0																
548	45.01984614	-87.15523631	63	Kangaroo Lake	Door	8/12/2016	EEH & CMB	548	7	Muck	Pole	SAMPLED			1	1															
549	45.01982086	-87.15422218	62	Kangaroo Lake	Door	8/12/2016	EEH & CMB	549	7	Muck	Pole	SAMPLED			1	1											1				
550	45.01979556	-87.15320806	61	Kangaroo Lake	Door	8/12/2016	EEH & CMB	550	7	Sand	Pole	SAMPLED			1	1															
551	45.01977026	-87.15219393	60	Kangaroo Lake	Door	8/12/2016	EEH & CMB	551	6	Sand	Pole	SAMPLED			1	1															
552	45.01974494	-87.15117981	59	Kangaroo Lake	Door	8/12/2016	EEH & CMB	552	5	Rock	Pole	SAMPLED			0																

Point Number	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	ID	Lake Name	County	Date	Field Crew	Point Number	Depth (ft)	Sediment	Pole/Rope	Comments	Notes	Nuisance	Total Rake Fullness	Myriophyllum spicatum	Chara spp.	Heteranthera dubia	Myriophyllum heterophyllum	Najas flexilis	Potamogeton amplifolius	Potamogeton gramineus	Potamogeton illinoensis	Schoenoplectus acutus	Schoenoplectus pungens	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana	Freshwater sponge	Filamentous algae
553	45.01935404	-87.16439906	46	Kangaroo Lake	Door	8/12/2016	EEH & CMB	553	0			SHALLOW																		
554	45.01932884	-87.16338493	47	Kangaroo Lake	Door	8/12/2016	EEH & CMB	554	4	Sand	Pole	SAMPLED			0															
555	45.01930363	-87.1623708	48	Kangaroo Lake	Door	8/12/2016	EEH & CMB	555	5	Sand	Pole	SAMPLED			1	1										1				
556	45.0192784	-87.16135668	49	Kangaroo Lake	Door	8/12/2016	EEH & CMB	556	6	Muck	Pole	SAMPLED			1											1				
557	45.01925317	-87.16034255	50	Kangaroo Lake	Door	8/12/2016	EEH & CMB	557	6	Muck	Pole	SAMPLED			0															
558	45.01922793	-87.15932843	51	Kangaroo Lake	Door	8/12/2016	EEH & CMB	558	6	Muck	Pole	SAMPLED			0															
559	45.01920268	-87.15831431	52	Kangaroo Lake	Door	8/12/2016	EEH & CMB	559	6	Muck	Pole	SAMPLED			1	1										1				
560	45.01917742	-87.15730019	53	Kangaroo Lake	Door	8/12/2016	EEH & CMB	560	6	Muck	Pole	SAMPLED			1	1														
561	45.01915216	-87.15628607	54	Kangaroo Lake	Door	8/12/2016	EEH & CMB	561	6	Muck	Pole	SAMPLED			1	1			1							1				
562	45.01912688	-87.15527196	55	Kangaroo Lake	Door	8/12/2016	EEH & CMB	562	7	Muck	Pole	SAMPLED			0															
563	45.01910159	-87.15425784	56	Kangaroo Lake	Door	8/12/2016	EEH & CMB	563	7	Muck	Pole	SAMPLED			1	1														
564	45.0190763	-87.15324373	57	Kangaroo Lake	Door	8/12/2016	EEH & CMB	564	6	Sand	Pole	SAMPLED			1	1														
565	45.019051	-87.15222962	58	Kangaroo Lake	Door	8/12/2016	EEH & CMB	565	5	Sand	Pole	SAMPLED			1	1														
566	45.01860957	-87.16342047	45	Kangaroo Lake	Door	8/12/2016	EEH & CMB	566	4	Sand	Pole	SAMPLED			0															
567	45.01858436	-87.16240636	44	Kangaroo Lake	Door	8/12/2016	EEH & CMB	567	5	Muck	Pole	SAMPLED			1	1														
568	45.01855914	-87.16139225	43	Kangaroo Lake	Door	8/12/2016	EEH & CMB	568	5	Muck	Pole	SAMPLED			1	1														
569	45.01853391	-87.16037813	42	Kangaroo Lake	Door	8/12/2016	EEH & CMB	569	6	Muck	Pole	SAMPLED			1	1														
570	45.01850867	-87.15936403	41	Kangaroo Lake	Door	8/12/2016	EEH & CMB	570	6	Muck	Pole	SAMPLED			0															
571	45.01848342	-87.15834992	40	Kangaroo Lake	Door	8/12/2016	EEH & CMB	571	6	Muck	Pole	SAMPLED			0															
572	45.01845816	-87.15733581	39	Kangaroo Lake	Door	8/12/2016	EEH & CMB	572	5	Muck	Pole	SAMPLED			1											1				
573	45.01843289	-87.15632171	38	Kangaroo Lake	Door	8/12/2016	EEH & CMB	573	6	Muck	Pole	SAMPLED			0															
574	45.01840762	-87.1553076	37	Kangaroo Lake	Door	8/12/2016	EEH & CMB	574	5	Sand	Pole	SAMPLED			0															
575	45.01838233	-87.1542935	36	Kangaroo Lake	Door	8/12/2016	EEH & CMB	575	5	Sand	Pole	SAMPLED			0															
576	45.01835704	-87.1532794	35	Kangaroo Lake	Door	8/12/2016	EEH & CMB	576	4	Sand	Pole	SAMPLED			1	1														
577	45.0178903	-87.16345601	24	Kangaroo Lake	Door	8/12/2016	EEH & CMB	577	0			SHALLOW																		
578	45.01786509	-87.16244191	25	Kangaroo Lake	Door	8/12/2016	EEH & CMB	578	5	Muck	Pole	SAMPLED			0															
579	45.01783987	-87.16142781	26	Kangaroo Lake	Door	8/12/2016	EEH & CMB	579	6	Muck	Pole	SAMPLED			2	1										1				
580	45.01781464	-87.16041371	27	Kangaroo Lake	Door	8/12/2016	EEH & CMB	580	6	Sand	Pole	SAMPLED																		
581	45.0177894	-87.15939962	28	Kangaroo Lake	Door	8/12/2016	EEH & CMB	581	5	Sand	Pole	SAMPLED			1	1														
582	45.01776415	-87.15838552	29	Kangaroo Lake	Door	8/12/2016	EEH & CMB	582	6	Muck	Pole	SAMPLED			2	1										2				
583	45.01773889	-87.15737143	30	Kangaroo Lake	Door	8/12/2016	EEH & CMB	583	5	Sand	Pole	SAMPLED			0															
584	45.01771363	-87.15635734	31	Kangaroo Lake	Door	8/12/2016	EEH & CMB	584	4	Rock	Pole	SAMPLED			0															
585	45.01768835	-87.15534324	32	Kangaroo Lake	Door	8/12/2016	EEH & CMB	585	4	Sand	Pole	SAMPLED			0															
586	45.01766307	-87.15432915	33	Kangaroo Lake	Door	8/12/2016	EEH & CMB	586	0			SHALLOW																		
587	45.01763778	-87.15331507	34	Kangaroo Lake	Door	8/12/2016	EEH & CMB	587	2	Sand	Pole	SAMPLED			0															
588	45.01717103	-87.16349155	23	Kangaroo Lake	Door	8/12/2016	EEH & CMB	588	4	Muck	Pole	SAMPLED			1	1													1	
589	45.01714582	-87.16247746	22	Kangaroo Lake	Door	8/12/2016	EEH & CMB	589	5	Muck	Pole	SAMPLED			0															
590	45.0171206	-87.16146338	21	Kangaroo Lake	Door	8/12/2016	EEH & CMB	590	8	Muck	Pole	SAMPLED			1	1		1	1											
591	45.01709537	-87.16044929	20	Kangaroo Lake	Door	8/12/2016	EEH & CMB	591	5	Muck	Pole	SAMPLED				1	1													
592	45.01707013	-87.15943521	14	Kangaroo Lake	Door	8/12/2016	EEH & CMB	592	55	Muck	Pole	SAMPLED			1	1			1											
593	45.01704489	-87.15842113	13	Kangaroo Lake	Door	8/12/2016	EEH & CMB	593	6	Sand	Pole	SAMPLED			0															
594	45.01701963	-87.15740704	8	Kangaroo Lake	Door	8/12/2016	EEH & CMB	594	5	Sand	Pole	SAMPLED			1	1											1			
595	45.01699436	-87.15639296	2	Kangaroo Lake	Door	8/12/2016	EEH & CMB	595	3	Sand	Pole	SAMPLED			0															
596	45.01696909	-87.15537889	1	Kangaroo Lake	Door	8/12/2016	EEH & CMB	596	2	Sand	Pole	SAMPLED			1	1														
597	45.01645177	-87.16352709	19	Kangaroo Lake	Door	8/12/2016	EEH & CMB	597	0			SHALLOW																		
598	45.01642656	-87.16251302	18	Kangaroo Lake	Door	8/12/2016	EEH & CMB	598	0			SHALLOW																		

Point Number	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	ID	Lake Name	County	Date	Field Crew	Point Number	Depth (ft)	Sediment	Pole/Rope	Comments	Notes	Nuisance	Total Rake Fullness	Myriophyllum spicatum	Chara spp.	Heteranthera dubia	Myriophyllum heterophyllum	Najas flexilis	Potamogeton amplifolius	Potamogeton gramineus	Potamogeton illinoensis	Schoenoplectus acutus	Schoenoplectus pungens	Stuckenia pectinata	Utricularia vulgaris	Vallisneria americana	Freshwater sponge	Filamentous algae					
599	45.01640134	-87.16149894	15	Kangaroo Lake	Door	8/12/2016	EEH & CMB	599	0			SHALLOW																							
600	45.01637611	-87.16048487	12	Kangaroo Lake	Door	8/12/2016	EEH & CMB	600	0			SHALLOW																							
601	45.01635087	-87.1594708	9	Kangaroo Lake	Door	8/12/2016	EEH & CMB	601	0			SHALLOW																							
602	45.01632562	-87.15845673	6	Kangaroo Lake	Door	8/12/2016	EEH & CMB	602	0			SHALLOW																							
603	45.01630037	-87.15744266	5	Kangaroo Lake	Door	8/12/2016	EEH & CMB	603	0			SHALLOW																							
604	45.0162751	-87.15642859	4	Kangaroo Lake	Door	8/12/2016	EEH & CMB	604	0			SHALLOW																							
605	45.01624983	-87.15541453	3	Kangaroo Lake	Door	8/12/2016	EEH & CMB	605	0			SHALLOW																							
606	45.01570729	-87.16254857	17	Kangaroo Lake	Door	8/12/2016	EEH & CMB	606	0			SHALLOW																							
607	45.01568207	-87.1615345	16	Kangaroo Lake	Door	8/12/2016	EEH & CMB	607	0			SHALLOW																							
608	45.01565684	-87.16052044	11	Kangaroo Lake	Door	8/12/2016	EEH & CMB	608	0			SHALLOW																							
609	45.0156316	-87.15950639	10	Kangaroo Lake	Door	8/12/2016	EEH & CMB	609	0			SHALLOW																							
610	45.01560636	-87.15849233	7	Kangaroo Lake	Door	8/12/2016	EEH & CMB	610	0			SHALLOW																							

Point Number	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	ID	Lake Name	County	Date	Field Crew	Point Number	Depth (ft)	Sediment	Pole, Rope	Comments	Notes	Nuisance	Total Rate Fullness	Myriophyllum spicatum	Chara spp.	Eleocharis palustris	Myriophyllum heterophyllum	Najas flexilis	Nuphar variegata	Nymphaea odorata	Potamogeton gramineus	Potamogeton illinoensis	Potamogeton natans	Scheuchzeria palustris	Stuckenia pectinata	Utricularia intermedia	Utricularia minor	Utricularia vulgaris	Vallisneria spiralis	Zizania spp.				
1	45.058552	-87.160019	174	Kangaroo Lake	Door	8/25/2016	TWH & JMB	1	2	Muck	Pole	SAMPLED			1																					
2	45.058537	-87.159448	173	Kangaroo Lake	Door	8/25/2016	TWH & JMB	2	1	Muck	Pole	SAMPLED			1	1																				
3	45.057728	-87.159488	172	Kangaroo Lake	Door	8/25/2016	TWH & JMB	3	2	Muck	Pole	SAMPLED			1	1				1	1															
4	45.057714	-87.158917	205	Kangaroo Lake	Door	8/25/2016	TWH & JMB	4	2	Muck	Pole	SAMPLED			1	1																				
5	45.057700	-87.158346	206	Kangaroo Lake	Door	8/25/2016	TWH & JMB	5	2	Muck	Pole	SAMPLED			0																					
6	45.057686	-87.157776	241	Kangaroo Lake	Door	8/25/2016	TWH & JMB	6	3	Muck	Pole	SAMPLED			2						1															
7	45.057671	-87.157205	242	Kangaroo Lake	Door	8/25/2016	TWH & JMB	7	2	Muck	Pole	SAMPLED			0																					
8	45.057657	-87.156634	279	Kangaroo Lake	Door	8/25/2016	TWH & JMB	8	2	Muck	Pole	SAMPLED			1	1																				
9	45.057643	-87.156063	281	Kangaroo Lake	Door	8/25/2016	TWH & JMB	9	0			NONNAVIGABLE (PLANTS)																								
10	45.057324	-87.159508	171	Kangaroo Lake	Door	8/25/2016	TWH & JMB	10	2	Muck	Pole	SAMPLED			2	1				1																
11	45.057309	-87.158937	204	Kangaroo Lake	Door	8/25/2016	TWH & JMB	11	2	Muck	Pole	SAMPLED			1	1				1																
12	45.057295	-87.158366	207	Kangaroo Lake	Door	8/25/2016	TWH & JMB	12	2	Muck	Pole	SAMPLED			2	1				2	1															
13	45.057281	-87.157796	240	Kangaroo Lake	Door	8/25/2016	TWH & JMB	13	2	Muck	Pole	SAMPLED			0																					
14	45.057267	-87.157225	243	Kangaroo Lake	Door	8/25/2016	TWH & JMB	14	3	Muck	Pole	SAMPLED			0																					
15	45.057252	-87.156854	278	Kangaroo Lake	Door	8/25/2016	TWH & JMB	15	2	Muck	Pole	SAMPLED			0																					
16	45.057238	-87.156083	280	Kangaroo Lake	Door	8/25/2016	TWH & JMB	16	2	Muck	Pole	SAMPLED			0																					
17	45.057224	-87.155512	318	Kangaroo Lake	Door	8/25/2016	TWH & JMB	17	2	Muck	Pole	SAMPLED			0																					
18	45.056947	-87.160670	170	Kangaroo Lake	Door	8/25/2016	TWH & JMB	18	0			NONNAVIGABLE (PLANTS)																								
19	45.056933	-87.160099	169	Kangaroo Lake	Door	8/25/2016	TWH & JMB	19	2	Muck	Pole	SAMPLED			2					2																
20	45.056919	-87.159528	175	Kangaroo Lake	Door	8/25/2016	TWH & JMB	20	2	Muck	Pole	SAMPLED			1	1				1																
21	45.056905	-87.158957	203	Kangaroo Lake	Door	8/25/2016	TWH & JMB	21	2	Muck	Pole	SAMPLED			1	1				1																
22	45.056891	-87.158386	208	Kangaroo Lake	Door	8/25/2016	TWH & JMB	22	2	Muck	Pole	SAMPLED			1	1																				
23	45.056876	-87.157816	239	Kangaroo Lake	Door	8/25/2016	TWH & JMB	23	3	Muck	Pole	SAMPLED			1	1																				
24	45.056862	-87.157245	244	Kangaroo Lake	Door	8/25/2016	TWH & JMB	24	3	Muck	Pole	SAMPLED			1	1																				
25	45.056848	-87.156674	277	Kangaroo Lake	Door	8/25/2016	TWH & JMB	25	2	Muck	Pole	SAMPLED			1	1																				
26	45.056834	-87.156103	282	Kangaroo Lake	Door	8/25/2016	TWH & JMB	26	2	Muck	Pole	SAMPLED			1	1																				
27	45.056819	-87.155532	317	Kangaroo Lake	Door	8/25/2016	TWH & JMB	27	1	Muck	Pole	SAMPLED			1			1																		
28	45.056805	-87.154962	319	Kangaroo Lake	Door	8/25/2016	TWH & JMB	28	2	Muck	Pole	SAMPLED			1					1																
29	45.056791	-87.154391	320	Kangaroo Lake	Door	8/25/2016	TWH & JMB	29	1	Muck	Pole	SAMPLED			1	1																				
30	45.056557	-87.161261	149	Kangaroo Lake	Door	8/25/2016	TWH & JMB	30	2	Muck	Pole	SAMPLED			1	1					1															
31	45.056529	-87.160119	168	Kangaroo Lake	Door	8/25/2016	TWH & JMB	31	3	Muck	Pole	SAMPLED			2	1				2																
32	45.056514	-87.159548	176	Kangaroo Lake	Door	8/25/2016	TWH & JMB	32	2	Muck	Pole	SAMPLED			2	2				2																
33	45.056500	-87.158977	202	Kangaroo Lake	Door	8/25/2016	TWH & JMB	33	2	Muck	Pole	SAMPLED			1	1				1																
34	45.056486	-87.158407	209	Kangaroo Lake	Door	8/25/2016	TWH & JMB	34	2	Muck	Pole	SAMPLED			1	1				1																
35	45.056472	-87.157836	238	Kangaroo Lake	Door	8/25/2016	TWH & JMB	35	3	Muck	Pole	SAMPLED			0																					
36	45.056458	-87.157265	245	Kangaroo Lake	Door	8/25/2016	TWH & JMB	36	4	Muck	Pole	SAMPLED			1	1																				
37	45.056443	-87.156694	276	Kangaroo Lake	Door	8/25/2016	TWH & JMB	37	3	Muck	Pole	SAMPLED			1	1																				
38	45.056429	-87.156123	283	Kangaroo Lake	Door	8/25/2016	TWH & JMB	38	2	Muck	Pole	SAMPLED			1	1																				
39	45.056415	-87.155552	316	Kangaroo Lake	Door	8/25/2016	TWH & JMB	39	2	Muck	Pole	SAMPLED			0																					
40	45.056386	-87.154411	321	Kangaroo Lake	Door	8/25/2016	TWH & JMB	40	2	Muck	Pole	SAMPLED			0																					
41	45.056152	-87.161281	148	Kangaroo Lake	Door	8/25/2016	TWH & JMB	41	2	Muck	Pole	SAMPLED			1	1				1																
42	45.056124	-87.160139	167	Kangaroo Lake	Door	8/25/2016	TWH & JMB	42	3	Muck	Pole	SAMPLED			1					1																
43	45.056110	-87.159568	177	Kangaroo Lake	Door	8/25/2016	TWH & JMB	43	3	Muck	Pole	SAMPLED			1	1																				
44	45.056096	-87.158997	201	Kangaroo Lake	Door	8/25/2016	TWH & JMB	44	3	Muck	Pole	SAMPLED			1	1				1																
45	45.056081	-87.158427	210	Kangaroo Lake	Door	8/25/2016	TWH & JMB	45	3	Muck	Pole	SAMPLED			2	2																				
46	45.056067	-87.157856	237	Kangaroo Lake	Door	8/25/2016	TWH & JMB	46	3	Muck	Pole	SAMPLED			1	1																				
47	45.056053	-87.157285	246	Kangaroo Lake	Door	8/25/2016	TWH & JMB	47	3	Muck	Pole	SAMPLED			1	1																				
48	45.056039	-87.156714	275	Kangaroo Lake	Door	8/25/2016	TWH & JMB	48	3	Muck	Pole	SAMPLED			1	1				1																
49	45.056025	-87.156143	284	Kangaroo Lake	Door	8/25/2016	TWH & JMB	49	3	Muck	Pole	SAMPLED			1	1																				
50	45.056010	-87.155573	315	Kangaroo Lake	Door	8/25/2016	TWH & JMB	50	3	Muck	Pole	SAMPLED			1	1																				
51	45.055996	-87.155002	322	Kangaroo Lake	Door	8/25/2016	TWH & JMB	51	2	Muck	Pole	SAMPLED			1	1																				
52	45.055762	-87.161871	133	Kangaroo Lake	Door	8/25/2016	TWH & JMB	52	2	Muck	Pole	SAMPLED			1	1																				
53	45.055748	-87.161301	147	Kangaroo Lake	Door	8/25/2016	TWH & JMB	53	2	Muck	Pole	SAMPLED			2	1				2																

Point Number	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	ID	Lake Name	County	Date	Field Crew	Point Number	Depth (ft)	Sediment	Pole, Rope	Comments	Notes	Nuisance	Total Rake Fullness	Myriophyllum spicatum	Chara spp.	Eleocharis palustris	Myriophyllum heterophyllum	Najas flexilis	Nuphar variegata	Nymphaea odorata	Potamogeton gramineus	Potamogeton illinoensis	Potamogeton natans	Scheuchzeria palustris	Stuckenia pectinata	Utricularia intermedia	Utricularia minor	Utricularia vulgaris	Vallisneria spiralis	Zizania spp.		
54	45.055734	-87.160730	150	Kangaroo Lake	Door	8/25/2016	TWH & JMB	54	2	Muck	Pole	SAMPLED			3	1			3															
55	45.055719	-87.160159	166	Kangaroo Lake	Door	8/25/2016	TWH & JMB	55	3	Muck	Pole	SAMPLED			3				3															
56	45.055705	-87.159588	178	Kangaroo Lake	Door	8/25/2016	TWH & JMB	56	3	Muck	Pole	SAMPLED			1	1																		
57	45.055691	-87.159017	200	Kangaroo Lake	Door	8/25/2016	TWH & JMB	57	3	Muck	Pole	SAMPLED			1	1																		
58	45.055677	-87.158447	211	Kangaroo Lake	Door	8/25/2016	TWH & JMB	58	3	Muck	Pole	SAMPLED			1	1																		
59	45.055663	-87.157876	236	Kangaroo Lake	Door	8/25/2016	TWH & JMB	59	3	Muck	Pole	SAMPLED			0																			
60	45.055648	-87.157305	247	Kangaroo Lake	Door	8/25/2016	TWH & JMB	60	3	Muck	Pole	SAMPLED			1	1																		
61	45.055634	-87.156734	274	Kangaroo Lake	Door	8/25/2016	TWH & JMB	61	3	Muck	Pole	SAMPLED			1	1																		
62	45.055620	-87.156163	285	Kangaroo Lake	Door	8/25/2016	TWH & JMB	62	3	Muck	Pole	SAMPLED			1	1																		
63	45.055606	-87.155593	314	Kangaroo Lake	Door	8/25/2016	TWH & JMB	63	3	Muck	Pole	SAMPLED			1	1																		
64	45.055591	-87.155022	323	Kangaroo Lake	Door	8/25/2016	TWH & JMB	64	2	Muck	Pole	SAMPLED			1	1																		
65	45.055577	-87.154451	350	Kangaroo Lake	Door	8/25/2016	TWH & JMB	65	2	Muck	Pole	SAMPLED			1	1																		
66	45.055400	-87.163604	117	Kangaroo Lake	Door	8/25/2016	TWH & JMB	66	0			NONNAVIGABLE (PLANTS)																						
67	45.055386	-87.163033	118	Kangaroo Lake	Door	8/25/2016	TWH & JMB	67	2	Muck	Pole	SAMPLED			2	2																		
68	45.055372	-87.162462	132	Kangaroo Lake	Door	8/25/2016	TWH & JMB	68	2	Muck	Pole	SAMPLED			1	1												1						
69	45.055357	-87.161892	134	Kangaroo Lake	Door	8/25/2016	TWH & JMB	69	2	Muck	Pole	SAMPLED			1	1																		
70	45.055343	-87.161321	146	Kangaroo Lake	Door	8/25/2016	TWH & JMB	70	3	Muck	Pole	SAMPLED			1	1			1															
71	45.055329	-87.160750	151	Kangaroo Lake	Door	8/25/2016	TWH & JMB	71	2	Muck	Pole	SAMPLED			1	1																		
72	45.055315	-87.160179	165	Kangaroo Lake	Door	8/25/2016	TWH & JMB	72	3	Muck	Pole	SAMPLED			1	1			1			1												
73	45.055301	-87.159608	179	Kangaroo Lake	Door	8/25/2016	TWH & JMB	73	3	Muck	Pole	SAMPLED			1	1																		
74	45.055286	-87.159038	199	Kangaroo Lake	Door	8/25/2016	TWH & JMB	74	3	Muck	Pole	SAMPLED			1	1																		
75	45.055272	-87.158467	212	Kangaroo Lake	Door	8/25/2016	TWH & JMB	75	2	Muck	Pole	SAMPLED			2	2																		
76	45.055258	-87.157896	235	Kangaroo Lake	Door	8/25/2016	TWH & JMB	76	3	Muck	Pole	SAMPLED			1	1																		
77	45.055244	-87.157325	248	Kangaroo Lake	Door	8/25/2016	TWH & JMB	77	3	Muck	Pole	SAMPLED			0																			
78	45.055230	-87.156754	273	Kangaroo Lake	Door	8/25/2016	TWH & JMB	78	3	Muck	Pole	SAMPLED			1	1																		
79	45.055215	-87.156184	286	Kangaroo Lake	Door	8/25/2016	TWH & JMB	79	3	Muck	Pole	SAMPLED			1	1																		
80	45.055201	-87.155613	313	Kangaroo Lake	Door	8/25/2016	TWH & JMB	80	3	Muck	Pole	SAMPLED			1	1																		
81	45.055187	-87.155042	324	Kangaroo Lake	Door	8/25/2016	TWH & JMB	81	2	Muck	Pole	SAMPLED			1	1																		
82	45.055173	-87.154471	349	Kangaroo Lake	Door	8/25/2016	TWH & JMB	82	3	Muck	Pole	SAMPLED			1	1																		
83	45.055158	-87.153900	363	Kangaroo Lake	Door	8/26/2016	TWH & JMB	83	2	Muck	Pole	SAMPLED			1	1																		
84	45.054995	-87.163624	116	Kangaroo Lake	Door	8/25/2016	TWH & JMB	84	2	Muck	Pole	SAMPLED			2	2																		
85	45.054981	-87.163053	119	Kangaroo Lake	Door	8/25/2016	TWH & JMB	85	2	Muck	Pole	SAMPLED			1	1																		
86	45.054967	-87.162482	131	Kangaroo Lake	Door	8/25/2016	TWH & JMB	86	2	Muck	Pole	SAMPLED			1	1					1													
87	45.054953	-87.161912	135	Kangaroo Lake	Door	8/25/2016	TWH & JMB	87	2	Muck	Pole	SAMPLED			1	1			1															
88	45.054939	-87.161341	145	Kangaroo Lake	Door	8/25/2016	TWH & JMB	88	3	Muck	Pole	SAMPLED			1	1																		
89	45.054924	-87.160770	152	Kangaroo Lake	Door	8/25/2016	TWH & JMB	89	3	Muck	Pole	SAMPLED			2	1																		
90	45.054910	-87.160199	164	Kangaroo Lake	Door	8/25/2016	TWH & JMB	90	3	Muck	Pole	SAMPLED			1	1																		
91	45.054896	-87.159628	180	Kangaroo Lake	Door	8/25/2016	TWH & JMB	91	3	Muck	Pole	SAMPLED			1	1																		
92	45.054882	-87.159058	198	Kangaroo Lake	Door	8/25/2016	TWH & JMB	92	3	Muck	Pole	SAMPLED			1	1																		
93	45.054868	-87.158487	213	Kangaroo Lake	Door	8/25/2016	TWH & JMB	93	3	Muck	Pole	SAMPLED			1	1																		
94	45.054853	-87.157916	234	Kangaroo Lake	Door	8/25/2016	TWH & JMB	94	3	Muck	Pole	SAMPLED			1	1																		
95	45.054839	-87.157345	249	Kangaroo Lake	Door	8/25/2016	TWH & JMB	95	3	Muck	Pole	SAMPLED			1	1																		
96	45.054825	-87.156774	272	Kangaroo Lake	Door	8/25/2016	TWH & JMB	96	3	Muck	Pole	SAMPLED			1	1																		
97	45.054811	-87.156204	287	Kangaroo Lake	Door	8/25/2016	TWH & JMB	97	3	Muck	Pole	SAMPLED			1	1																		
98	45.054797	-87.155633	312	Kangaroo Lake	Door	8/25/2016	TWH & JMB	98	3	Muck	Pole	SAMPLED			1	1																		
99	45.054782	-87.155062	325	Kangaroo Lake	Door	8/25/2016	TWH & JMB	99	2	Muck	Pole	SAMPLED			1	1																		
100	45.054768	-87.154491	348	Kangaroo Lake	Door	8/25/2016	TWH & JMB	100	3	Muck	Pole	SAMPLED			1	1																		
101	45.054754	-87.153920	362	Kangaroo Lake	Door	8/26/2016	TWH & JMB	101	2	Muck	Pole	SAMPLED			1	1																		
102	45.054605	-87.164215	114	Kangaroo Lake	Door	8/25/2016	TWH & JMB	102	0			NONNAVIGABLE (PLANTS)																						
103	45.054591	-87.163644	115	Kangaroo Lake	Door	8/25/2016	TWH & JMB	103	2	Muck	Pole	SAMPLED			1																			
104	45.054577	-87.163073	120	Kangaroo Lake	Door	8/25/2016	TWH & JMB	104	2	Muck	Pole	SAMPLED			1	1																		
105	45.054562	-87.162502	130	Kangaroo Lake	Door	8/25/2016	TWH & JMB	105	3	Muck	Pole	SAMPLED			1	1			1															
106	45.054548	-87.161932	136	Kangaroo Lake	Door	8/25/2016	TWH & JMB	106	3	Muck	Pole	SAMPLED			2	2																		

Point Number	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	ID	Lake Name	County	Date	Field Crew	Point Number	Depth (ft)	Sediment	Pole, Rope	Comments	Notes	Nuisance	Total Rake Fullness	Myriophyllum spicatum	Chara spp.	Eleocharis palustris	Myriophyllum heterophyllum	Najas flexilis	Nuphar variegata	Nymphaea odorata	Potamogeton gramineus	Potamogeton illinoensis	Potamogeton natans	Scheuchzeria palustris	Stuckenia pectinata	Utricularia intermedia	Utricularia minor	Utricularia vulgaris	Vallisneria spiralis	Zizania spp.		
107	45.054534	-87.161361	144	Kangaroo Lake	Door	8/25/2016	TWH & JMB	107	3	Muck	Pole	SAMPLED			1	1																		
108	45.054520	-87.160790	153	Kangaroo Lake	Door	8/25/2016	TWH & JMB	108	3	Muck	Pole	SAMPLED			1	1																		
109	45.054506	-87.160219	163	Kangaroo Lake	Door	8/25/2016	TWH & JMB	109	3	Muck	Pole	SAMPLED			1	1																		
110	45.054491	-87.159648	181	Kangaroo Lake	Door	8/25/2016	TWH & JMB	110	3	Muck	Pole	SAMPLED			1	1																		
111	45.054477	-87.159078	197	Kangaroo Lake	Door	8/25/2016	TWH & JMB	111	3	Muck	Pole	SAMPLED			2	1			1									1						
112	45.054463	-87.158507	214	Kangaroo Lake	Door	8/25/2016	TWH & JMB	112	3	Muck	Pole	SAMPLED			1	1																		
113	45.054449	-87.157936	233	Kangaroo Lake	Door	8/25/2016	TWH & JMB	113	3	Muck	Pole	SAMPLED			1	1																		
114	45.054435	-87.157365	250	Kangaroo Lake	Door	8/25/2016	TWH & JMB	114	3	Muck	Pole	SAMPLED			1	1																		
115	45.054420	-87.156794	271	Kangaroo Lake	Door	8/25/2016	TWH & JMB	115	3	Muck	Pole	SAMPLED			1	1																		
116	45.054406	-87.156224	288	Kangaroo Lake	Door	8/25/2016	TWH & JMB	116	3	Muck	Pole	SAMPLED			1	1																		
117	45.054392	-87.155653	311	Kangaroo Lake	Door	8/25/2016	TWH & JMB	117	3	Muck	Pole	SAMPLED			1	1																		
118	45.054378	-87.155082	326	Kangaroo Lake	Door	8/25/2016	TWH & JMB	118	3	Muck	Pole	SAMPLED			1	1																		
119	45.054364	-87.154511	347	Kangaroo Lake	Door	8/25/2016	TWH & JMB	119	3	Muck	Pole	SAMPLED			1	1																		
120	45.054349	-87.153940	361	Kangaroo Lake	Door	8/26/2016	TWH & JMB	120	3	Muck	Pole	SAMPLED			1	1											1							
121	45.054321	-87.152799	381	Kangaroo Lake	Door	8/26/2016	TWH & JMB	121	2	Muck	Pole	SAMPLED			1	1					1													
122	45.054307	-87.152228	382	Kangaroo Lake	Door	8/26/2016	TWH & JMB	122	2	Muck	Pole	SAMPLED			1	1																		
123	45.054200	-87.164235	113	Kangaroo Lake	Door	8/25/2016	TWH & JMB	123	2	Muck	Pole	SAMPLED			0																			
124	45.054186	-87.163664	122	Kangaroo Lake	Door	8/25/2016	TWH & JMB	124	3	Muck	Pole	SAMPLED			1	1					1													
125	45.054172	-87.163093	121	Kangaroo Lake	Door	8/25/2016	TWH & JMB	125	2	Muck	Pole	SAMPLED			1	1					1													
126	45.054158	-87.162522	129	Kangaroo Lake	Door	8/25/2016	TWH & JMB	126	3	Muck	Pole	SAMPLED			1	1					1													
127	45.054144	-87.161952	137	Kangaroo Lake	Door	8/25/2016	TWH & JMB	127	3	Muck	Pole	SAMPLED			1	1					1													
128	45.054130	-87.161381	143	Kangaroo Lake	Door	8/25/2016	TWH & JMB	128	3	Muck	Pole	SAMPLED			1	1																		
129	45.054115	-87.160810	154	Kangaroo Lake	Door	8/25/2016	TWH & JMB	129	3	Muck	Pole	SAMPLED			1	1																		
130	45.054101	-87.160239	162	Kangaroo Lake	Door	8/25/2016	TWH & JMB	130	3	Muck	Pole	SAMPLED			2	2																		
131	45.054087	-87.159668	182	Kangaroo Lake	Door	8/25/2016	TWH & JMB	131	3	Muck	Pole	SAMPLED			1	1																		
132	45.054073	-87.159098	196	Kangaroo Lake	Door	8/25/2016	TWH & JMB	132	3	Muck	Pole	SAMPLED			2	2																		
133	45.054058	-87.158527	215	Kangaroo Lake	Door	8/25/2016	TWH & JMB	133	3	Muck	Pole	SAMPLED			1	1																		
134	45.054044	-87.157956	232	Kangaroo Lake	Door	8/25/2016	TWH & JMB	134	3	Muck	Pole	SAMPLED			1	1																		
135	45.054030	-87.157385	251	Kangaroo Lake	Door	8/25/2016	TWH & JMB	135	3	Muck	Pole	SAMPLED			1	1																		
136	45.054016	-87.156815	270	Kangaroo Lake	Door	8/25/2016	TWH & JMB	136	3	Muck	Pole	SAMPLED			1	1																		
137	45.054002	-87.156244	289	Kangaroo Lake	Door	8/25/2016	TWH & JMB	137	3	Muck	Pole	SAMPLED			2	2																		
138	45.053987	-87.155673	310	Kangaroo Lake	Door	8/25/2016	TWH & JMB	138	3	Muck	Pole	SAMPLED			1	1																		
139	45.053973	-87.155102	327	Kangaroo Lake	Door	8/25/2016	TWH & JMB	139	3	Muck	Pole	SAMPLED			1	1																		
140	45.053959	-87.154531	346	Kangaroo Lake	Door	8/25/2016	TWH & JMB	140	3	Muck	Pole	SAMPLED			1	1																		
141	45.053945	-87.153961	360	Kangaroo Lake	Door	8/26/2016	TWH & JMB	141	2	Muck	Pole	SAMPLED			0																			
142	45.053930	-87.153390	364	Kangaroo Lake	Door	8/26/2016	TWH & JMB	142	3	Muck	Pole	SAMPLED			1	1					1													
143	45.053916	-87.152819	380	Kangaroo Lake	Door	8/26/2016	TWH & JMB	143	3	Muck	Pole	SAMPLED			1	1					1													
144	45.053902	-87.152248	383	Kangaroo Lake	Door	8/26/2016	TWH & JMB	144	2	Muck	Pole	SAMPLED			1						1	1												
145	45.053888	-87.151677	401	Kangaroo Lake	Door	8/26/2016	TWH & JMB	145	2	Muck	Pole	SAMPLED			0																			
146	45.053796	-87.164255	112	Kangaroo Lake	Door	8/25/2016	TWH & JMB	146	3	Muck	Pole	SAMPLED			1	1					1													
147	45.053782	-87.163684	123	Kangaroo Lake	Door	8/25/2016	TWH & JMB	147	3	Muck	Pole	SAMPLED			1	1																		
148	45.053768	-87.163113	128	Kangaroo Lake	Door	8/25/2016	TWH & JMB	148	3	Muck	Pole	SAMPLED			1	1																		
149	45.053753	-87.162542	127	Kangaroo Lake	Door	8/25/2016	TWH & JMB	149	3	Muck	Pole	SAMPLED			1	1																		
150	45.053739	-87.161972	138	Kangaroo Lake	Door	8/25/2016	TWH & JMB	150	3	Muck	Pole	SAMPLED			1	1																		
151	45.053725	-87.161401	142	Kangaroo Lake	Door	8/25/2016	TWH & JMB	151	3	Muck	Pole	SAMPLED			1	1																		
152	45.053711	-87.160830	155	Kangaroo Lake	Door	8/25/2016	TWH & JMB	152	3	Muck	Pole	SAMPLED			1	1					1													
153	45.053697	-87.160259	161	Kangaroo Lake	Door	8/25/2016	TWH & JMB	153	3	Muck	Pole	SAMPLED			2	2																		
154	45.053682	-87.159688	183	Kangaroo Lake	Door	8/25/2016	TWH & JMB	154	3	Muck	Pole	SAMPLED			1	1																		
155	45.053668	-87.159118	195	Kangaroo Lake	Door	8/25/2016	TWH & JMB	155	3	Muck	Pole	SAMPLED			1	1																		
156	45.053654	-87.158547	216	Kangaroo Lake	Door	8/25/2016	TWH & JMB	156	3	Muck	Pole	SAMPLED			1	1																		
157	45.053640	-87.157976	231	Kangaroo Lake	Door	8/25/2016	TWH & JMB	157	3	Muck	Pole	SAMPLED			1	1																		
158	45.053625	-87.157405	252	Kangaroo Lake	Door	8/25/2016	TWH & JMB	158	3	Muck	Pole	SAMPLED			1	1																		
159	45.053611	-87.156835	269	Kangaroo Lake	Door	8/25/2016	TWH & JMB	159	3	Muck	Pole	SAMPLED			1	1																		

Point Number	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	ID	Lake Name	County	Date	Field Crew	Point Number	Depth (ft)	Sediment	Pole, Rope	Comments	Notes	Nuisance	Total Lake Fullness	Myriophyllum spicatum	Chara spp.	Eleocharis palustris	Myriophyllum heterophyllum	Najas flexilis	Nuphar variegata	Nymphaea odorata	Potamogeton gramineus	Potamogeton natans	Potamogeton natans	Scheuchzeria palustris	Stuckenia pectinata	Utricularia intermedia	Utricularia minor	Vallisneria spiralis	Zizania spp.			
160	45.053597	-87.156264	290	Kangaroo Lake	Door	8/25/2016	TWH & JMB	160	3	Muck	Pole	SAMPLED			1	1																		
161	45.053583	-87.155693	309	Kangaroo Lake	Door	8/25/2016	TWH & JMB	161	3	Muck	Pole	SAMPLED			1	1																		
162	45.053569	-87.155122	328	Kangaroo Lake	Door	8/25/2016	TWH & JMB	162	3	Muck	Pole	SAMPLED			1	1																		
163	45.053554	-87.154551	345	Kangaroo Lake	Door	8/25/2016	TWH & JMB	163	2	Muck	Pole	SAMPLED			1	1																		
164	45.053540	-87.153981	359	Kangaroo Lake	Door	8/26/2016	TWH & JMB	164	3	Muck	Pole	SAMPLED			1	1																		
165	45.053526	-87.153410	365	Kangaroo Lake	Door	8/26/2016	TWH & JMB	165	3	Muck	Pole	SAMPLED			1											1								
166	45.053512	-87.152839	379	Kangaroo Lake	Door	8/26/2016	TWH & JMB	166	3	Muck	Pole	SAMPLED			0																			
167	45.053497	-87.152268	384	Kangaroo Lake	Door	8/26/2016	TWH & JMB	167	2	Muck	Pole	SAMPLED			1					1														
168	45.053483	-87.151698	400	Kangaroo Lake	Door	8/26/2016	TWH & JMB	168	2	Muck	Pole	SAMPLED			1				1															
169	45.053469	-87.151127	399	Kangaroo Lake	Door	8/26/2016	TWH & JMB	169	2	Muck	Pole	SAMPLED			0																			
170	45.053405	-87.164846	110	Kangaroo Lake	Door	8/25/2016	TWH & JMB	170	2	Muck	Pole	SAMPLED			1	1																		
171	45.053391	-87.164275	111	Kangaroo Lake	Door	8/25/2016	TWH & JMB	171	3	Muck	Pole	SAMPLED			1	1										1								
172	45.053377	-87.163704	124	Kangaroo Lake	Door	8/25/2016	TWH & JMB	172	3	Muck	Pole	SAMPLED			1	1																		
173	45.053363	-87.163133	125	Kangaroo Lake	Door	8/25/2016	TWH & JMB	173	3	Muck	Pole	SAMPLED			1	1							1											
174	45.053349	-87.162562	126	Kangaroo Lake	Door	8/25/2016	TWH & JMB	174	4	Muck	Pole	SAMPLED			1	1																		
175	45.053335	-87.161992	139	Kangaroo Lake	Door	8/25/2016	TWH & JMB	175	3	Muck	Pole	SAMPLED			1	1																		
176	45.053320	-87.161421	140	Kangaroo Lake	Door	8/25/2016	TWH & JMB	176	3	Muck	Pole	SAMPLED			1	1				1														
177	45.053306	-87.160850	156	Kangaroo Lake	Door	8/25/2016	TWH & JMB	177	3	Muck	Pole	SAMPLED			2	1											1							
178	45.053292	-87.160279	160	Kangaroo Lake	Door	8/25/2016	TWH & JMB	178	3	Muck	Pole	SAMPLED			1	1																		
179	45.053278	-87.159709	184	Kangaroo Lake	Door	8/25/2016	TWH & JMB	179	3	Muck	Pole	SAMPLED			1	1																		
180	45.053264	-87.159138	194	Kangaroo Lake	Door	8/25/2016	TWH & JMB	180	3	Muck	Pole	SAMPLED			1	1																		
181	45.053249	-87.158567	217	Kangaroo Lake	Door	8/25/2016	TWH & JMB	181	3	Muck	Pole	SAMPLED			1	1																		
182	45.053235	-87.157996	230	Kangaroo Lake	Door	8/25/2016	TWH & JMB	182	3	Muck	Pole	SAMPLED			1	1																		
183	45.053221	-87.157425	253	Kangaroo Lake	Door	8/25/2016	TWH & JMB	183	3	Muck	Pole	SAMPLED			1	1																		
184	45.053207	-87.156855	268	Kangaroo Lake	Door	8/25/2016	TWH & JMB	184	2	Muck	Pole	SAMPLED			1	1																		
185	45.053192	-87.156284	291	Kangaroo Lake	Door	8/25/2016	TWH & JMB	185	3	Muck	Pole	SAMPLED			1	1																		
186	45.053178	-87.155713	308	Kangaroo Lake	Door	8/25/2016	TWH & JMB	186	3	Muck	Pole	SAMPLED			1	1																		
187	45.053164	-87.155142	329	Kangaroo Lake	Door	8/25/2016	TWH & JMB	187	3	Muck	Pole	SAMPLED			1	1										1								
188	45.053150	-87.154572	344	Kangaroo Lake	Door	8/25/2016	TWH & JMB	188	3	Muck	Pole	SAMPLED			1	1																		
189	45.053136	-87.154001	358	Kangaroo Lake	Door	8/26/2016	TWH & JMB	189	3	Muck	Pole	SAMPLED			1	1																		
190	45.053121	-87.153430	366	Kangaroo Lake	Door	8/26/2016	TWH & JMB	190	3	Muck	Pole	SAMPLED			1	1																		
191	45.053107	-87.152859	378	Kangaroo Lake	Door	8/26/2016	TWH & JMB	191	3	Muck	Pole	SAMPLED			0																			
192	45.053093	-87.152288	385	Kangaroo Lake	Door	8/26/2016	TWH & JMB	192	2	Muck	Pole	SAMPLED			0																			
193	45.053079	-87.151718	397	Kangaroo Lake	Door	8/26/2016	TWH & JMB	193	2	Muck	Pole	SAMPLED			0																			
194	45.053064	-87.151147	398	Kangaroo Lake	Door	8/26/2016	TWH & JMB	194	2	Muck	Pole	SAMPLED			0																			
195	45.053015	-87.165436	1	Kangaroo Lake	Door	8/25/2016	TWH & JMB	195	1	Muck	Pole	SAMPLED			1							1												
196	45.053001	-87.164866	2	Kangaroo Lake	Door	8/25/2016	TWH & JMB	196	2	Muck	Pole	SAMPLED			1	1																		
197	45.052987	-87.164295	3	Kangaroo Lake	Door	8/25/2016	TWH & JMB	197	2	Muck	Pole	SAMPLED			1	1																		
198	45.052973	-87.163724	4	Kangaroo Lake	Door	8/25/2016	TWH & JMB	198	3	Muck	Pole	SAMPLED			1	1																		
199	45.052958	-87.163153	5	Kangaroo Lake	Door	8/25/2016	TWH & JMB	199	3	Muck	Pole	SAMPLED			1	1																		
200	45.052944	-87.162582	6	Kangaroo Lake	Door	8/25/2016	TWH & JMB	200	4	Muck	Pole	SAMPLED			1	1										1								
201	45.052930	-87.162012	7	Kangaroo Lake	Door	8/25/2016	TWH & JMB	201	3	Rock	Pole	SAMPLED			1	1																		
202	45.052916	-87.161441	141	Kangaroo Lake	Door	8/25/2016	TWH & JMB	202	3	Muck	Pole	SAMPLED			1	1																		
203	45.052902	-87.160870	157	Kangaroo Lake	Door	8/25/2016	TWH & JMB	203	3	Muck	Pole	SAMPLED			1	1																		
204	45.052887	-87.160299	159	Kangaroo Lake	Door	8/25/2016	TWH & JMB	204	3	Muck	Pole	SAMPLED			1	1																		
205	45.052873	-87.159729	185	Kangaroo Lake	Door	8/25/2016	TWH & JMB	205	3	Muck	Pole	SAMPLED			2	2																		
206	45.052859	-87.159158	193	Kangaroo Lake	Door	8/25/2016	TWH & JMB	206	3	Muck	Pole	SAMPLED			1	1																		
207	45.052845	-87.158587	218	Kangaroo Lake	Door	8/25/2016	TWH & JMB	207	3	Muck	Pole	SAMPLED			1	1																		
208	45.052831	-87.158016	229	Kangaroo Lake	Door	8/25/2016	TWH & JMB	208	3	Muck	Pole	SAMPLED			1	1																		
209	45.052816	-87.157445	254	Kangaroo Lake	Door	8/25/2016	TWH & JMB	209	3	Muck	Pole	SAMPLED			1	1																		
210	45.052802	-87.156875	267	Kangaroo Lake	Door	8/25/2016	TWH & JMB	210	2	Muck	Pole	SAMPLED			1	1																		
211	45.052788	-87.156304	292	Kangaroo Lake	Door	8/25/2016	TWH & JMB	211	2	Muck	Pole	SAMPLED			1	1																		
212	45.052774	-87.155733	307	Kangaroo Lake	Door	8/25/2016	TWH & JMB	212	3	Muck	Pole	SAMPLED			1	1																		

Point Number	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	ID	Lake Name	County	Date	Field Crew	Point Number	Depth (ft)	Sediment	Pole, Rope	Comments	Notes	Nuisance	Total Rake Fullness	Myriophyllum spicatum	Chara spp.	Eleocharis palustris	Myriophyllum heterophyllum	Najas flexilis	Nuphar variegata	Nymphaea odorata	Potamogeton gramineus	Potamogeton illinoensis	Potamogeton natans	Scheuchzeria palustris	Stuckenia pectinata	Utricularia intermedia	Utricularia minor	Utricularia vulgaris	Vallisneria spiralis	Zizania spp.	
213	45.0527594	-87.15516236	330	Kangaroo Lake	Door	8/25/2016	TWH & JMB	213	3	Muck	Pole	SAMPLED			1	1																	
214	45.05274517	-87.15459159	343	Kangaroo Lake	Door	8/25/2016	TWH & JMB	214	2	Muck	Pole	SAMPLED			1	1																	
215	45.05273093	-87.15402081	357	Kangaroo Lake	Door	8/26/2016	TWH & JMB	215	3	Muck	Pole	SAMPLED			1	1																	
216	45.0527167	-87.15345004	367	Kangaroo Lake	Door	8/26/2016	TWH & JMB	216	3	Muck	Pole	SAMPLED			1	1										1							
217	45.05270246	-87.15287927	377	Kangaroo Lake	Door	8/26/2016	TWH & JMB	217	3	Muck	Pole	SAMPLED			0																		
218	45.05268822	-87.15230849	386	Kangaroo Lake	Door	8/26/2016	TWH & JMB	218	1	Muck	Pole	SAMPLED			1											1							
219	45.05267397	-87.15173772	396	Kangaroo Lake	Door	8/26/2016	TWH & JMB	219	2	Muck	Pole	SAMPLED			0																		
220	45.05265972	-87.15116695	395	Kangaroo Lake	Door	8/26/2016	TWH & JMB	220	2	Muck	Pole	SAMPLED			0																		
221	45.05261048	-87.16545637	14	Kangaroo Lake	Door	8/25/2016	TWH & JMB	221	2	Muck	Pole	SAMPLED			1	1																	
222	45.0525963	-87.16488559	13	Kangaroo Lake	Door	8/25/2016	TWH & JMB	222	3	Muck	Pole	SAMPLED			1	1																	
223	45.05258212	-87.16431481	12	Kangaroo Lake	Door	8/25/2016	TWH & JMB	223	3	Muck	Pole	SAMPLED			1	1																	
224	45.05256793	-87.16374404	11	Kangaroo Lake	Door	8/25/2016	TWH & JMB	224	3	Muck	Pole	SAMPLED			1	1																	
225	45.05255374	-87.16317326	10	Kangaroo Lake	Door	8/25/2016	TWH & JMB	225	3	Muck	Pole	SAMPLED			1	1										1							
226	45.05253955	-87.16260248	9	Kangaroo Lake	Door	8/25/2016	TWH & JMB	226	3	Muck	Pole	SAMPLED			1	1																	
227	45.05252536	-87.16203171	8	Kangaroo Lake	Door	8/25/2016	TWH & JMB	227	2	Muck	Pole	SAMPLED			1	1										1							
228	45.05248276	-87.16031938	158	Kangaroo Lake	Door	8/25/2016	TWH & JMB	228	3	Muck	Pole	SAMPLED			1	1																	
229	45.05246856	-87.15974861	186	Kangaroo Lake	Door	8/25/2016	TWH & JMB	229	2	Muck	Pole	SAMPLED			1	1										1							
230	45.05245435	-87.15917784	192	Kangaroo Lake	Door	8/25/2016	TWH & JMB	230	3	Muck	Pole	SAMPLED			1	1																	
231	45.05244014	-87.15860706	219	Kangaroo Lake	Door	8/25/2016	TWH & JMB	231	3	Muck	Pole	SAMPLED			1												1						
232	45.05242593	-87.15803629	228	Kangaroo Lake	Door	8/25/2016	TWH & JMB	232	4	Muck	Pole	SAMPLED			1	1										1							
233	45.05241171	-87.15746552	255	Kangaroo Lake	Door	8/25/2016	TWH & JMB	233	3	Muck	Pole	SAMPLED			1	1					1												
234	45.05239749	-87.15689475	266	Kangaroo Lake	Door	8/25/2016	TWH & JMB	234	2	Muck	Pole	SAMPLED			1	1																	
235	45.05238327	-87.15632398	293	Kangaroo Lake	Door	8/25/2016	TWH & JMB	235	3	Muck	Pole	SAMPLED			1	1																	
236	45.05236904	-87.1557532	306	Kangaroo Lake	Door	8/25/2016	TWH & JMB	236	3	Muck	Pole	SAMPLED			1	1																	
237	45.05235481	-87.15518243	331	Kangaroo Lake	Door	8/25/2016	TWH & JMB	237	2	Muck	Pole	SAMPLED			1	1																	
238	45.05234058	-87.15461166	342	Kangaroo Lake	Door	8/25/2016	TWH & JMB	238	2	Muck	Pole	SAMPLED			1	1																	
239	45.05232635	-87.15404089	356	Kangaroo Lake	Door	8/26/2016	TWH & JMB	239	2	Muck	Pole	SAMPLED			1	1																	
240	45.05231211	-87.15347012	368	Kangaroo Lake	Door	8/26/2016	TWH & JMB	240	3	Muck	Pole	SAMPLED			1	1																	
241	45.05229788	-87.15289936	376	Kangaroo Lake	Door	8/26/2016	TWH & JMB	241	3	Muck	Pole	SAMPLED			1	1																	
242	45.05228363	-87.15232859	387	Kangaroo Lake	Door	8/26/2016	TWH & JMB	242	2	Muck	Pole	SAMPLED			0																		
243	45.05226939	-87.15175782	393	Kangaroo Lake	Door	8/26/2016	TWH & JMB	243	1	Muck	Pole	SAMPLED			0																		
244	45.05225514	-87.15118705	394	Kangaroo Lake	Door	8/26/2016	TWH & JMB	244	1	Muck	Pole	SAMPLED			1	1							1		1								
245	45.05220589	-87.16547637	15	Kangaroo Lake	Door	8/25/2016	TWH & JMB	245	2	Muck	Pole	SAMPLED			0																		
246	45.05219171	-87.1649056	16	Kangaroo Lake	Door	8/25/2016	TWH & JMB	246	3	Muck	Pole	SAMPLED			1	1																	
247	45.05217753	-87.16433482	17	Kangaroo Lake	Door	8/25/2016	TWH & JMB	247	3	Muck	Pole	SAMPLED			2	2										1							
248	45.05216335	-87.16376405	18	Kangaroo Lake	Door	8/25/2016	TWH & JMB	248	3	Muck	Pole	SAMPLED			1	1										1							
249	45.05214916	-87.16319328	19	Kangaroo Lake	Door	8/25/2016	TWH & JMB	249	3	Muck	Pole	SAMPLED			1	1							1										
250	45.05213497	-87.16262251	20	Kangaroo Lake	Door	8/25/2016	TWH & JMB	250	3	Muck	Pole	SAMPLED			1	1										1							
251	45.05212077	-87.16205173	21	Kangaroo Lake	Door	8/25/2016	TWH & JMB	251	2	Sand	Pole	SAMPLED			1	1										1							
252	45.05206397	-87.15976865	187	Kangaroo Lake	Door	8/25/2016	TWH & JMB	252	2	Muck	Pole	SAMPLED			1	1																	
253	45.05204976	-87.15919788	191	Kangaroo Lake	Door	8/25/2016	TWH & JMB	253	3	Muck	Pole	SAMPLED			1	1							1										
254	45.05203555	-87.15862711	220	Kangaroo Lake	Door	8/25/2016	TWH & JMB	254	3	Muck	Pole	SAMPLED			1	1																	
255	45.05202134	-87.15805634	227	Kangaroo Lake	Door	8/25/2016	TWH & JMB	255	3	Muck	Pole	SAMPLED			1	1																	
256	45.05200713	-87.15748558	256	Kangaroo Lake	Door	8/25/2016	TWH & JMB	256	2	Muck	Pole	SAMPLED			1	1												1					
257	45.05199291	-87.15691481	265	Kangaroo Lake	Door	8/25/2016	TWH & JMB	257	2	Muck	Pole	SAMPLED			2	2																	
258	45.05197868	-87.15634404	294	Kangaroo Lake	Door	8/25/2016	TWH & JMB	258	3	Muck	Pole	SAMPLED			0																		
259	45.05196446	-87.15577327	305	Kangaroo Lake	Door	8/25/2016	TWH & JMB	259	3	Muck	Pole	SAMPLED			2	2																	
260	45.05195023	-87.15520251	332	Kangaroo Lake	Door	8/25/2016	TWH & JMB	260	3	Muck	Pole	SAMPLED			1	1																	
261	45.051936	-87.15463174	341	Kangaroo Lake	Door	8/25/2016	TWH & JMB	261	3	Muck	Pole	SAMPLED			1	1																	
262	45.05192177	-87.15406098	355	Kangaroo Lake	Door	8/26/2016	TWH & JMB	262	3	Muck	Pole	SAMPLED			1	1																	
263	45.05190753	-87.15349021	369	Kangaroo Lake	Door	8/26/2016	TWH & JMB	263	3	Muck	Pole	SAMPLED			0																		
264	45.05189329	-87.15291945	375	Kangaroo Lake	Door	8/26/2016	TWH & JMB	264	2	Muck	Pole	SAMPLED			1	1																	
265	45.05187905	-87.15234868	388	Kangaroo Lake	Door	8/26/2016	TWH & JMB	265	2	Muck	Pole	SAMPLED			0																		

Point Number	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	ID	Lake Name	County	Date	Field Crew	Point Number	Depth (ft)	Sediment	Pole, Rope	Comments	Notes	Nuisance	Total Rake Fullness	Myriophyllum spicatum	Chara spp.	Eleocharis palustris	Myriophyllum heterophyllum	Najas flexilis	Nuphar variegata	Nymphaea odorata	Potamogeton gramineus	Potamogeton illinoensis	Potamogeton natans	Scheuchzeria palustris	Stuckenia pectinata	Utricularia intermedia	Utricularia minor	Utricularia vulgaris	Vallisneria spiralis	Zizania spp.	
266	45.05186481	-87.15177792	391	Kangaroo Lake	Door	8/26/2016	TWH & JMB	266	1	Muck	Pole	SAMPLED			1																		
267	45.05180131	-87.16549637	28	Kangaroo Lake	Door	8/25/2016	TWH & JMB	267	0			NONNAVIGABLE (PLANTS)																					
268	45.05178713	-87.1649256	27	Kangaroo Lake	Door	8/25/2016	TWH & JMB	268	2	Muck	Pole	SAMPLED			1	1																	
269	45.05177294	-87.16435483	26	Kangaroo Lake	Door	8/25/2016	TWH & JMB	269	3	Muck	Pole	SAMPLED			1	1										1							
270	45.05175876	-87.16378406	25	Kangaroo Lake	Door	8/25/2016	TWH & JMB	270	3	Muck	Pole	SAMPLED			1	1										1							
271	45.05174457	-87.1632133	24	Kangaroo Lake	Door	8/25/2016	TWH & JMB	271	3	Muck	Pole	SAMPLED			1	1																	
272	45.05173038	-87.16264253	23	Kangaroo Lake	Door	8/25/2016	TWH & JMB	272	3	Muck	Pole	SAMPLED			1	1										1	1						
273	45.05171619	-87.16207176	22	Kangaroo Lake	Door	8/25/2016	TWH & JMB	273	2	Sand	Pole	SAMPLED			1	1	1									1				1			
274	45.05165939	-87.15978869	188	Kangaroo Lake	Door	8/25/2016	TWH & JMB	274	0			NONNAVIGABLE (PLANTS)																					
275	45.05164518	-87.15921793	190	Kangaroo Lake	Door	8/25/2016	TWH & JMB	275	2	Muck	Pole	SAMPLED			1	1																	
276	45.05163097	-87.15864716	221	Kangaroo Lake	Door	8/25/2016	TWH & JMB	276	2	Muck	Pole	SAMPLED			1	1																	
277	45.05161676	-87.1580764	226	Kangaroo Lake	Door	8/25/2016	TWH & JMB	277	2	Muck	Pole	SAMPLED			1	1																	
278	45.05160254	-87.15750563	257	Kangaroo Lake	Door	8/25/2016	TWH & JMB	278	3	Muck	Pole	SAMPLED			1	1																	
279	45.05158832	-87.15693487	264	Kangaroo Lake	Door	8/25/2016	TWH & JMB	279	3	Muck	Pole	SAMPLED			1	1																	
280	45.0515741	-87.15636411	295	Kangaroo Lake	Door	8/25/2016	TWH & JMB	280	2	Muck	Pole	SAMPLED			1	1																	
281	45.05155988	-87.15579334	304	Kangaroo Lake	Door	8/25/2016	TWH & JMB	281	3	Muck	Pole	SAMPLED			1	1																	
282	45.05154565	-87.15522258	333	Kangaroo Lake	Door	8/25/2016	TWH & JMB	282	3	Muck	Pole	SAMPLED			1	1										1							
283	45.05153142	-87.15465182	340	Kangaroo Lake	Door	8/25/2016	TWH & JMB	283	2	Muck	Pole	SAMPLED			1	1																	
284	45.05151719	-87.15408106	354	Kangaroo Lake	Door	8/26/2016	TWH & JMB	284	2	Muck	Pole	SAMPLED			1												1						
285	45.05150295	-87.1535103	370	Kangaroo Lake	Door	8/26/2016	TWH & JMB	285	3	Muck	Pole	SAMPLED			0																		
286	45.05148871	-87.15293953	374	Kangaroo Lake	Door	8/26/2016	TWH & JMB	286	2	Muck	Pole	SAMPLED			0																		
287	45.05147447	-87.15236877	389	Kangaroo Lake	Door	8/26/2016	TWH & JMB	287	1	Muck	Pole	SAMPLED			0																		
288	45.05146022	-87.15179801	392	Kangaroo Lake	Door	8/26/2016	TWH & JMB	288	0			NONNAVIGABLE (PLANTS)																					
289	45.05139672	-87.16551637	29	Kangaroo Lake	Door	8/25/2016	TWH & JMB	289	1	Muck	Pole	SAMPLED			1	1						1											
290	45.05138254	-87.16494561	31	Kangaroo Lake	Door	8/25/2016	TWH & JMB	290	2	Muck	Pole	SAMPLED			2	2																	
291	45.05136836	-87.16437484	32	Kangaroo Lake	Door	8/25/2016	TWH & JMB	291	3	Muck	Pole	SAMPLED			2	2																	
292	45.05135417	-87.16380408	33	Kangaroo Lake	Door	8/25/2016	TWH & JMB	292	3	Muck	Pole	SAMPLED			2	2															1		
293	45.05133999	-87.16323331	34	Kangaroo Lake	Door	8/25/2016	TWH & JMB	293	3	Rock	Pole	SAMPLED			1	1										1							
294	45.0513258	-87.16266255	35	Kangaroo Lake	Door	8/25/2016	TWH & JMB	294	3	Muck	Pole	SAMPLED			1	1																	
295	45.0513116	-87.16209178	36	Kangaroo Lake	Door	8/25/2016	TWH & JMB	295	2	Sand	Pole	SAMPLED			2	2							1										
296	45.05129741	-87.16152102	37	Kangaroo Lake	Door	8/25/2016	TWH & JMB	296	0			NONNAVIGABLE (PLANTS)																					
297	45.0512406	-87.15923797	189	Kangaroo Lake	Door	8/25/2016	TWH & JMB	297	0			NONNAVIGABLE (PLANTS)																					
298	45.05122639	-87.15866721	222	Kangaroo Lake	Door	8/25/2016	TWH & JMB	298	2	Muck	Pole	SAMPLED			1	1																	
299	45.05121217	-87.15809645	225	Kangaroo Lake	Door	8/25/2016	TWH & JMB	299	2	Muck	Pole	SAMPLED			1	1																	
300	45.05119796	-87.15752569	258	Kangaroo Lake	Door	8/25/2016	TWH & JMB	300	3	Muck	Pole	SAMPLED			1	1																	
301	45.05118374	-87.15695493	263	Kangaroo Lake	Door	8/25/2016	TWH & JMB	301	2	Muck	Pole	SAMPLED			1	1										1							
302	45.05116952	-87.15638417	296	Kangaroo Lake	Door	8/25/2016	TWH & JMB	302	3	Muck	Pole	SAMPLED			1	1																	
303	45.05115529	-87.15581341	303	Kangaroo Lake	Door	8/25/2016	TWH & JMB	303	3	Muck	Pole	SAMPLED			1	1																	
304	45.05114107	-87.15524265	334	Kangaroo Lake	Door	8/25/2016	TWH & JMB	304	3	Muck	Pole	SAMPLED			1	1																	
305	45.05112684	-87.1546719	339	Kangaroo Lake	Door	8/25/2016	TWH & JMB	305	3	Muck	Pole	SAMPLED			1	1																	
306	45.0511126	-87.15410114	353	Kangaroo Lake	Door	8/26/2016	TWH & JMB	306	2	Muck	Pole	SAMPLED			0																		
307	45.05109837	-87.15353038	371	Kangaroo Lake	Door	8/26/2016	TWH & JMB	307	2	Muck	Pole	SAMPLED			0																		
308	45.05108413	-87.15295962	373	Kangaroo Lake	Door	8/26/2016	TWH & JMB	308	0			NONNAVIGABLE (PLANTS)																					
309	45.05106989	-87.15238887	390	Kangaroo Lake	Door	8/26/2016	TWH & JMB	309	0			NONNAVIGABLE (PLANTS)																					
310	45.05106631	-87.16610713	30	Kangaroo Lake	Door	8/25/2016	TWH & JMB	310	0			NONNAVIGABLE (PLANTS)																					
311	45.05097795	-87.16496561	44	Kangaroo Lake	Door	8/25/2016	TWH & JMB	311	2	Sand	Pole	SAMPLED			2	2																	
312	45.05096377	-87.16439485	43	Kangaroo Lake	Door	8/25/2016	TWH & JMB	312	3	Muck	Pole	SAMPLED			2	2																	
313	45.05094959	-87.16382409	42	Kangaroo Lake	Door	8/25/2016	TWH & JMB	313	3	Muck	Pole	SAMPLED			2	2												1					
314	45.0509354	-87.16325333	41	Kangaroo Lake	Door	8/25/2016	TWH & JMB	314	4	Muck	Pole	SAMPLED			2	2												1					
315	45.05092121	-87.16268257	40	Kangaroo Lake	Door	8/25/2016	TWH & JMB	315	3	Muck	Pole	SAMPLED			3	3							1										
316	45.05090702	-87.16211181	39	Kangaroo Lake	Door	8/25/2016	TWH & JMB	316	3	Muck	Pole	SAMPLED			2	2																	
317	45.05089282	-87.16154105	38	Kangaroo Lake	Door	8/25/2016	TWH & JMB	317	3	Rock	Pole	SAMPLED			2	2																	
318	45.05087862	-87.16097029	53	Kangaroo Lake	Door	8/25/2016	TWH & JMB	318	0			NONNAVIGABLE (PLANTS)																					

Point Number	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	ID	Lake Name	County	Date	Field Crew	Point Number	Depth (ft)	Sediment	Pole, Rope	Comments	Notes	Nuisance	Total Rake Fullness	Myriophyllum spicatum	Chara spp.	Eleocharis palustris	Myriophyllum heterophyllum	Najas flexilis	Nuphar variegata	Nymphaea odorata	Potamogeton gramineus	Potamogeton illinoensis	Potamogeton natans	Scheuchzeria palustris	Stuckenia pectinata	Utricularia intermedia	Utricularia minor	Utricularia vulgaris	Vallisneria spiralis	Zizania spp.			
319	45.0508218	-87.15868726	223	Kangaroo Lake	Door	8/25/2016	TWH & JMB	319	2	Muck	Pole	SAMPLED			1	1																			
320	45.05080759	-87.1581165	224	Kangaroo Lake	Door	8/25/2016	TWH & JMB	320	2	Muck	Pole	SAMPLED			1	1																			
321	45.05079337	-87.15754575	259	Kangaroo Lake	Door	8/25/2016	TWH & JMB	321	3	Muck	Pole	SAMPLED			1	1							1												
322	45.05077916	-87.15697499	262	Kangaroo Lake	Door	8/25/2016	TWH & JMB	322	2	Muck	Pole	SAMPLED			1	1																			
323	45.05076493	-87.15640424	297	Kangaroo Lake	Door	8/25/2016	TWH & JMB	323	3	Muck	Pole	SAMPLED			1	1																			
324	45.05075071	-87.15583348	302	Kangaroo Lake	Door	8/25/2016	TWH & JMB	324	3	Muck	Pole	SAMPLED			1	1																			
325	45.05073648	-87.15526273	335	Kangaroo Lake	Door	8/25/2016	TWH & JMB	325	3	Muck	Pole	SAMPLED			1	1																			
326	45.05072225	-87.15469197	338	Kangaroo Lake	Door	8/25/2016	TWH & JMB	326	3	Muck	Pole	SAMPLED			1	1																			
327	45.05070802	-87.15412122	352	Kangaroo Lake	Door	8/26/2016	TWH & JMB	327	2	Muck	Pole	SAMPLED			1	1																			
328	45.05069378	-87.15355047	372	Kangaroo Lake	Door	8/26/2016	TWH & JMB	328	0			NONNAVIGABLE (PLANTS)																							
329	45.05057337	-87.16498561	45	Kangaroo Lake	Door	8/25/2016	TWH & JMB	329	2	Sand	Pole	SAMPLED			1	1																			
330	45.05055919	-87.16441486	46	Kangaroo Lake	Door	8/25/2016	TWH & JMB	330	3	Muck	Pole	SAMPLED			2	2																			
331	45.050545	-87.1638441	47	Kangaroo Lake	Door	8/25/2016	TWH & JMB	331	3	Muck	Pole	SAMPLED			2	2																			
332	45.05053082	-87.16327334	48	Kangaroo Lake	Door	8/25/2016	TWH & JMB	332	4	Muck	Pole	SAMPLED			2	1																			
333	45.05051663	-87.16270259	49	Kangaroo Lake	Door	8/25/2016	TWH & JMB	333	4	Muck	Pole	SAMPLED			1	1																			
334	45.05050243	-87.16213183	50	Kangaroo Lake	Door	8/25/2016	TWH & JMB	334	3	Muck	Pole	SAMPLED			2	1																			
335	45.05048824	-87.16156108	51	Kangaroo Lake	Door	8/25/2016	TWH & JMB	335	3	Muck	Pole	SAMPLED			1	1																			
336	45.05047404	-87.16099032	52	Kangaroo Lake	Door	8/25/2016	TWH & JMB	336	3	Rock	Pole	SAMPLED			0																				
337	45.05045984	-87.16041957	54	Kangaroo Lake	Door	8/25/2016	TWH & JMB	337	0			NONNAVIGABLE (PLANTS)																							
338	45.05038879	-87.1575658	260	Kangaroo Lake	Door	8/25/2016	TWH & JMB	338	2	Muck	Pole	SAMPLED			1																				
339	45.05037457	-87.15699505	261	Kangaroo Lake	Door	8/25/2016	TWH & JMB	339	2	Muck	Pole	SAMPLED			1	1																			
340	45.05036035	-87.1564243	298	Kangaroo Lake	Door	8/25/2016	TWH & JMB	340	2	Muck	Pole	SAMPLED			1	1																			
341	45.05034613	-87.15585355	301	Kangaroo Lake	Door	8/25/2016	TWH & JMB	341	3	Muck	Pole	SAMPLED			1	1																			
342	45.05033319	-87.1552828	336	Kangaroo Lake	Door	8/25/2016	TWH & JMB	342	3	Muck	Pole	SAMPLED			1	1																			
343	45.05031767	-87.15471205	337	Kangaroo Lake	Door	8/25/2016	TWH & JMB	343	2	Muck	Pole	SAMPLED			0																				
344	45.05030344	-87.1541413	351	Kangaroo Lake	Door	8/26/2016	TWH & JMB	344	2	Muck	Pole	SAMPLED			0																				
345	45.0501546	-87.16443486	62	Kangaroo Lake	Door	8/25/2016	TWH & JMB	345	2	Muck	Pole	SAMPLED			1	1																			
346	45.05014042	-87.16386411	61	Kangaroo Lake	Door	8/25/2016	TWH & JMB	346	3	Muck	Pole	SAMPLED			2	2																			
347	45.05012623	-87.16329336	60	Kangaroo Lake	Door	8/25/2016	TWH & JMB	347	3	Muck	Pole	SAMPLED			2	2																			
348	45.05011204	-87.16272261	59	Kangaroo Lake	Door	8/25/2016	TWH & JMB	348	4	Muck	Pole	SAMPLED			2	2																			
349	45.05009785	-87.16215186	58	Kangaroo Lake	Door	8/25/2016	TWH & JMB	349	4	Muck	Pole	SAMPLED			1																				
350	45.05008365	-87.1615811	57	Kangaroo Lake	Door	8/25/2016	TWH & JMB	350	4	Muck	Pole	SAMPLED			2	1																			
351	45.05006945	-87.16101035	56	Kangaroo Lake	Door	8/25/2016	TWH & JMB	351	4	Muck	Pole	SAMPLED			1	1																			
352	45.05005525	-87.1604396	55	Kangaroo Lake	Door	8/25/2016	TWH & JMB	352	3	Muck	Pole	SAMPLED			2	1																			
353	45.04995577	-87.15644436	299	Kangaroo Lake	Door	8/25/2016	TWH & JMB	353	2	Muck	Pole	SAMPLED			1	1																			
354	45.04994154	-87.15587362	300	Kangaroo Lake	Door	8/25/2016	TWH & JMB	354	2	Muck	Pole	SAMPLED			0																				
355	45.04976419	-87.16502562	64	Kangaroo Lake	Door	8/25/2016	TWH & JMB	355	2	Muck	Pole	SAMPLED			3	3																			
356	45.04975001	-87.16445487	63	Kangaroo Lake	Door	8/25/2016	TWH & JMB	356	2	Muck	Pole	SAMPLED			2	1																			
357	45.04973583	-87.16388412	65	Kangaroo Lake	Door	8/25/2016	TWH & JMB	357	3	Muck	Pole	SAMPLED			2	2																			
358	45.04972164	-87.16331337	66	Kangaroo Lake	Door	8/25/2016	TWH & JMB	358	3	Muck	Pole	SAMPLED			2	2																			
359	45.04970745	-87.16274263	67	Kangaroo Lake	Door	8/25/2016	TWH & JMB	359	4	Muck	Pole	SAMPLED			1	1																			
360	45.04969326	-87.16217188	68	Kangaroo Lake	Door	8/25/2016	TWH & JMB	360	4	Muck	Pole	SAMPLED			1	1																			
361	45.04967907	-87.16160113	69	Kangaroo Lake	Door	8/25/2016	TWH & JMB	361	4	Muck	Pole	SAMPLED			1	1																			
362	45.04966487	-87.16103039	70	Kangaroo Lake	Door	8/25/2016	TWH & JMB	362	4	Muck	Pole	SAMPLED			1	1																			
363	45.04965067	-87.16045964	71	Kangaroo Lake	Door	8/25/2016	TWH & JMB	363	4	Muck	Pole	SAMPLED			0																				
364	45.04963646	-87.15988889	72	Kangaroo Lake	Door	8/25/2016	TWH & JMB	364	2	Rock	Pole	SAMPLED			1	1	1																		
365	45.04934543	-87.16447488	82	Kangaroo Lake	Door	8/25/2016	TWH & JMB	365	2	Muck	Pole	SAMPLED			3	3																			
366	45.04933124	-87.16390413	81	Kangaroo Lake	Door	8/25/2016	TWH & JMB	366	3	Muck	Pole	SAMPLED			3	3																			
367	45.04931706	-87.16333339	80	Kangaroo Lake	Door	8/25/2016	TWH & JMB	367	4	Muck	Pole	SAMPLED			3	3																			
368	45.04930287	-87.16276265	79	Kangaroo Lake	Door	8/25/2016	TWH & JMB	368	4	Muck	Pole	SAMPLED			2	2																			
369	45.04928868	-87.1621919	78	Kangaroo Lake	Door	8/25/2016	TWH & JMB	369	4	Muck	Pole	SAMPLED			1	1																			
370	45.04927448	-87.16162116	77	Kangaroo Lake	Door	8/25/2016	TWH & JMB	370	4	Muck	Pole	SAMPLED			1	1																			
371	45.04926028	-87.16105042	76	Kangaroo Lake	Door	8/25/2016	TWH & JMB	371	4	Muck	Pole	SAMPLED			1																				

Point Number	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)	ID	Lake Name	County	Date	Field Crew	Point Number	Depth (ft)	Sediment	Pole, Rope	Comments	Notes	Nuisance	Total Rake Fullness	Myriophyllum spicatum	Chara spp.	Eleocharis palustris	Myriophyllum heterophyllum	Najas flexilis	Nuphar variegata	Nymphaea odorata	Potamogeton gramineus	Potamogeton illinoensis	Potamogeton natans	Scheuchzeria palustris	Stuckenia pectinata	Utricularia intermedia	Utricularia minor	Utricularia vulgaris	Vallisneria spiralis	Zizania spp.	
372	45.04924608	-87.16047967	75	Kangaroo Lake	Door	8/25/2016	TWH & JMB	372	4	Muck	Pole	SAMPLED			1	1			1														
373	45.04923188	-87.15990893	74	Kangaroo Lake	Door	8/25/2016	TWH & JMB	373	4	Muck	Pole	SAMPLED			1											1							
374	45.04921767	-87.15933819	73	Kangaroo Lake	Door	8/25/2016	TWH & JMB	374	2	Rock	Pole	SAMPLED			1	1																	
375	45.04892666	-87.16392414	83	Kangaroo Lake	Door	8/25/2016	TWH & JMB	375	4	Muck	Pole	SAMPLED			3	1			2				2										
376	45.04891247	-87.1633534	84	Kangaroo Lake	Door	8/25/2016	TWH & JMB	376	4	Muck	Pole	SAMPLED			2	2																	
377	45.04889828	-87.16278266	85	Kangaroo Lake	Door	8/25/2016	TWH & JMB	377	4	Muck	Pole	SAMPLED			2	2									1	1							
378	45.04888409	-87.16221192	86	Kangaroo Lake	Door	8/25/2016	TWH & JMB	378	4	Muck	Pole	SAMPLED			2	2											1						
379	45.0488699	-87.16164118	87	Kangaroo Lake	Door	8/25/2016	TWH & JMB	379	4	Muck	Pole	SAMPLED			2	2			1						1								
380	45.0488557	-87.16107045	88	Kangaroo Lake	Door	8/25/2016	TWH & JMB	380	4	Muck	Pole	SAMPLED			1	1															1		
381	45.0488415	-87.16049971	89	Kangaroo Lake	Door	8/25/2016	TWH & JMB	381	4	Muck	Pole	SAMPLED			1	1																	
382	45.04882729	-87.15992897	90	Kangaroo Lake	Door	8/25/2016	TWH & JMB	382	4	Muck	Pole	SAMPLED			0																		
383	45.04881309	-87.15935823	91	Kangaroo Lake	Door	8/25/2016	TWH & JMB	383	3	Muck	Pole	SAMPLED			1				1														
384	45.04852207	-87.16394415	101	Kangaroo Lake	Door	8/25/2016	TWH & JMB	384	3	Muck	Pole	SAMPLED			1										1	1							
385	45.04850789	-87.16337342	100	Kangaroo Lake	Door	8/25/2016	TWH & JMB	385	4	Muck	Pole	SAMPLED			1	1			1														
386	45.0484937	-87.16280268	99	Kangaroo Lake	Door	8/25/2016	TWH & JMB	386	4	Muck	Pole	SAMPLED			2	2			1														
387	45.0484795	-87.16223195	98	Kangaroo Lake	Door	8/25/2016	TWH & JMB	387	4	Muck	Pole	SAMPLED			2				1						1					1			
388	45.04846531	-87.16166121	97	Kangaroo Lake	Door	8/25/2016	TWH & JMB	388	4	Muck	Pole	SAMPLED			1										1								
389	45.04845111	-87.16109048	96	Kangaroo Lake	Door	8/25/2016	TWH & JMB	389	4	Muck	Pole	SAMPLED			2	2					1												
390	45.04843691	-87.16051974	95	Kangaroo Lake	Door	8/25/2016	TWH & JMB	390	4	Muck	Pole	SAMPLED			2	1					2			1									
391	45.04842271	-87.15994901	94	Kangaroo Lake	Door	8/25/2016	TWH & JMB	391	4	Muck	Pole	SAMPLED			0																		
392	45.0484085	-87.15937827	93	Kangaroo Lake	Door	8/25/2016	TWH & JMB	392	4	Muck	Pole	SAMPLED			3						2			2									
393	45.0483943	-87.15880754	92	Kangaroo Lake	Door	8/25/2016	TWH & JMB	393	2	Muck	Pole	SAMPLED			1	1																	
394	45.04808911	-87.1628227	102	Kangaroo Lake	Door	8/25/2016	TWH & JMB	394	0			OTHER	Highway																				
395	45.04807492	-87.16225197	103	Kangaroo Lake	Door	8/25/2016	TWH & JMB	395	0			OTHER	highway																				
396	45.04806072	-87.16168124	104	Kangaroo Lake	Door	8/25/2016	TWH & JMB	396	1	Rock	Pole	SAMPLED			0																		
397	45.04804653	-87.16111051	105	Kangaroo Lake	Door	8/25/2016	TWH & JMB	397	3	Rock	Pole	SAMPLED			1								1										
398	45.04803233	-87.16053977	106	Kangaroo Lake	Door	8/25/2016	TWH & JMB	398	6	Muck	Pole	SAMPLED			2						1			1									
399	45.04801813	-87.15996905	107	Kangaroo Lake	Door	8/25/2016	TWH & JMB	399	4	Muck	Pole	SAMPLED			2						1				1								
400	45.04800392	-87.15939832	108	Kangaroo Lake	Door	8/25/2016	TWH & JMB	400	4	Muck	Pole	SAMPLED			2						1				1							1	
401	45.04798971	-87.15882759	109	Kangaroo Lake	Door	8/25/2016	TWH & JMB	401	1	Muck	Pole	SAMPLED			1	1									1								