# A

# APPENDIX A

## Public Participation Materials


## *Presentation Outline*

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

## *Onterra, LLC*

- Founded in 2005
- Staff
  - Four full-time ecologists
  - One part-time ecologist
  - One field technician
  - Two summer interns
- Services
  - Science and planning
- Philosophy
  - Promote realistic planning
  - Assist, not direct

## *Why create a lake management plan?*

A goal without a plan is just a wish!

- 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.

## *Elements of an Effective Lake Management Planning Project*

**Data and Information Gathering**

*Environmental & Sociological*

**Planning Process**

*Brings it all together*

## *Data and information gathering*

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

## *Water Quality Analysis*

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

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## *Watershed Assessment*

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

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## *Aquatic Plant Surveys*

- Concerned with both native and non-native plants
- Multiple surveys used in assessment
  - Early-season AIS Survey
  - Point-intercept survey
  - Aquatic plant community mapping
  - Volunteer survey findings

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## Non-native Aquatic Plants

### Curly-leaf Pondweed


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## Non-native Aquatic Plants

### Eurasian Water Milfoil

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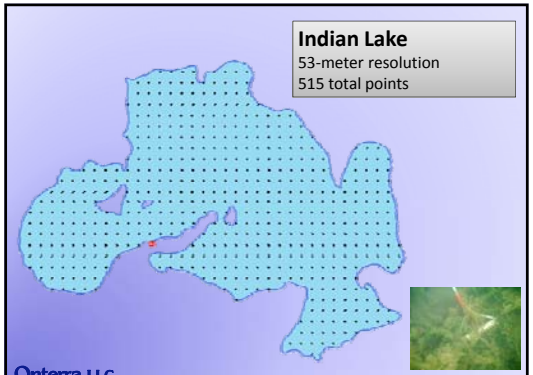


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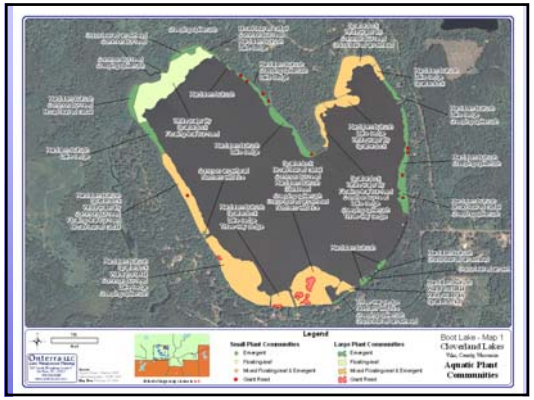

## *Fisheries Data Integration*

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

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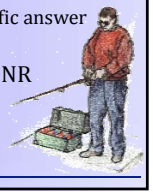
## *Stakeholder Survey*

- 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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## *Shoreland Assessment*

- Shoreland area is important for buffering runoff and provides valuable habitat for aquatic and terrestrial wildlife.
- It does not look at lake shoreline on a property-by-property basis.
- Assessment ranks shoreland area from shoreline back 35 feet

**Urbanized** **Natural**

Range

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## *Planning Process*

### *Planning Committee Meetings*

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

*Implementation Plan*

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# Thank You

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

Wisconsin Lakes Partnership

UW Extension

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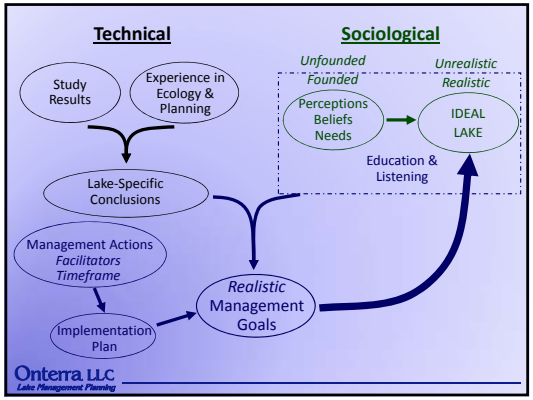
The Planning Process
…it's not as easy as you may think.


Technical
Sociological
Study Results
Experience in Ecology & Planning
Unfounded
Founded
Unrealistic
Realistic
Perceptions Beliefs Needs
IDEAL LAKE
Education & Listening
Lake-Specific Conclusions
Management Actions
Facilitators
Timeframe
Realistic Management Goals
Implementation Plan
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# Indian Lake Management Planning Project

November 2012 Update
Submitted by: Dan Cibulka, Onterra, LLC

With the help of a Lake Management Planning Grant totaling nearly $20,000 from the Wisconsin Department of Natural Resources (WDNR) and additional donations from individuals, a project is underway to create a lake management plan for Indian Lake. The lake management plan will contain historic 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.

As described further below, numerous field studies were carried out upon Indian Lake during 2012. Because of the wealth of data that was collected just within the past few months, much of the data analysis has yet to be completed. This update intends to bring Indian Lake property owners up-to-date on the scientific studies that have occurred, provide some initial observations on the ecology of Indian Lake, and project a rough timeline for the remaining actions that will be taken as a part of this planning project.

In April of 2012, Onterra staff had their first glimpse of Indian Lake with a water quality sampling visit. The lake is sampled during the spring and fall to analyze water chemistry during the lake's mixing, or *turnover* events. When a lake turns over, many physical and chemical constituents (temperature, dissolved oxygen, nutrients, etc.) are evenly mixed within the water column. This gives ecologists an idea of what the nutrient balance is within the lake, and supports modeling of the lake's watershed. During the summer months, water quality samples were collected by Onterra staff in June, July and August. These results help ecologists understand how the physical and chemical constituents behave if the lake *stratifies*. Stratification is when a lake develops two separate layers of water – a warmer, upper layer and a cold lower layer of water. Water samples targeting the larval stage of the invasive zebra mussel were also taken by Onterra staff and sent into the WDNR as part of efforts to monitor the lake for this invasive species.

All aquatic plant surveys were conducted as scheduled, first by visiting the lake on June 5, 2012 to complete the curly-leaf pondweed (CLP) survey. This survey's purpose is to search the lake for CLP, and is scheduled early in the summer to coincide with this species peak growth. On July 11$^{th}$, three crews, (six staff members) visited Indian Lake to complete the point-intercept survey. This is a grid-based survey designed to sample plants within the lake. Additionally, it provides an opportunity to search the lake for another Wisconsin invasive plant – Eurasian water milfoil. A third aquatic plant survey, the community mapping survey, was completed on this date as well. The purpose of this survey is to map the floating-leaf and emergent species that are found within the lake and are typically underestimated in the point intercept survey.

During all surveys, no aquatic invasive species were observed. Many interesting native species were observed however. Aquatic plants were found to grow to a depth of 19 feet in Indian Lake. Fern pondweed, a low-growing, submerged aquatic plant that was likely named after its palm-frond or fern-like leaves, was the most common plant encountered during the point-intercept survey (Figure 1).

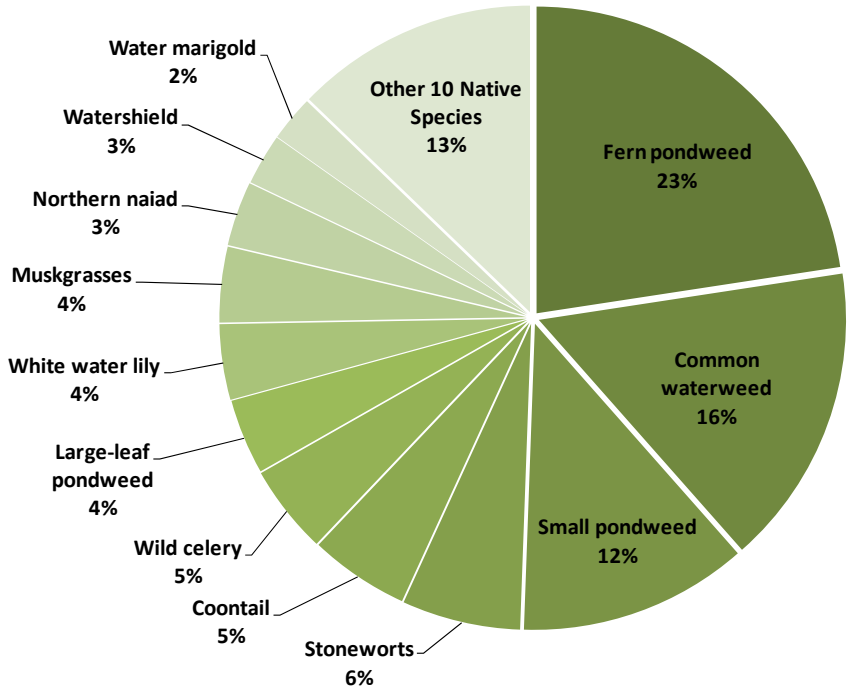


**Figure 1. Indian Lake aquatic plant relative frequency of occurrence.** Created using data from a June 2012 aquatic plant point-intercept survey.

On September 26th, a crew visited Indian Lake to conduct the shoreline assessment survey. During this survey, the lake's shoreline is examined and classified into one of five development categories, based upon its level of human disturbance. The results of this survey may be used to prioritize areas for restoration, if the Indian Lake Associaiton (ILA) wishes to pursue this.

In addition to collected ecological data from Indian Lake, sociological data was collected from the people who use and care for Indian Lake. This was approached in the form of a stakeholder survey, which was developed by Onterra staff and a planning committee comprised of (ILA) volunteers. This survey was distributed in August of 2012 to all riparian property owners, both association members and non-members. Within 2 months, over 50% of these surveys were returned, which is a great return rate for a survey of this type. The data has been tabulated by Association volunteers and provided to Onterra for analysis.

In the coming months, Onterra will be sorting through the immense amount of water quality, aquatic plant, shoreline assessment and stakeholder survey data that has been collected. Additionally, we will be looking at the watershed surrounding the lake and using a modeling program to estimate the amount of nutrients the lake receives on an annual basis. We will also be working with the WDNR to collect data and report upon the management of the fishery.

In summary, all project components are on schedule. Following data analysis and report creation, the Indian Lake Planning Committee and Onterra staff will tentatively meet next spring to discuss the project results and begin creation of management goals and actions the ILA will pursue to manage their lake in both a recreationally enjoyable and ecologically sound manner.

# Indian Lake Management Planning Project

April 2013 Update
Submitted by: Dan Cibulka, Onterra, LLC

In February of 2012, the Indian Lake Association (ILA) successfully applied for nearly $20,000 in grant funds from the Wisconsin Department of Natural Resources (WDNR) to fund studies that will lead to the creation of a lake management plan for Indian Lake. Field surveys were conducted in summer of 2012 and winter of 2013 to collect scientific data for this endeavor; at this time, all surveys and data analysis are complete. The purpose of this update is to provide a very brief summary of the collected data, and outline the remaining steps to be taken in the lake management project.

## Stakeholder Survey

In August of 2012, an anonymous written survey was sent to all ILA members and Indian Lake property owners to solicit their thoughts on Indian Lake's health and management. Volunteers from the ILA played a crucial role in designing the survey, distributing it to Indian Lake stakeholders, and collecting and tabulating the data. Over 50% of households receiving the survey provided their responses, which will be integrated into the Indian Lake Management Plan.

## Water Quality

Indian Lake was sampled numerous times during 2012, and once through the ice in 2013. Numerous chemical, biological and physical water quality parameters were measured in order to make assessments about the lake. Additionally, historical data within WDNR databases were examined. Figure 1 displays the water clarity data that have been collected over the years from the deep-hole location in Indian Lake. This parameter is measured through the use of a white and black colored, 8-inch diameter disk that is lowered into the water until it disappears from view. The clarity data collected over the past few decades indicate that Indian Lake's water clarity is usually between eight and ten feet through the open water season, and falls within the category of *Excellent* when compared to similar lakes across the state of Wisconsin.

## Watershed

A watershed (sometimes called the drainage basin) is the area surrounding the lake that contributes surface water runoff to the lake and is determined primarily by topography. Characteristics of a lake's watershed, such as its size and the land cover types it contains, impact the lake's water quality and ecology in a number of ways. Indian Lake's watershed was determined to be roughly 924 acres in size, which is relatively small for a lake the size of Indian Lake (~357 acres). Indian Lake holds much natural land (forests, wetlands, etc.) within its watershed which is ideal for the health of the lake. Lakes that have unnatural land cover types (urbanized or agricultural or other developed lands) within their watershed often see problems with elevated nutrients and sediment inputs, which may lead to algae blooms, dense aquatic plants or other problems. A survey designed to assess the development on the immediate watershed, or shoreland zone, was conducted on Indian Lake as well. This survey determined that roughly 64% of Indian Lake's shoreland is in a natural state, while a small portion (11%) has been highly developed and 25% is in a moderately developed state.

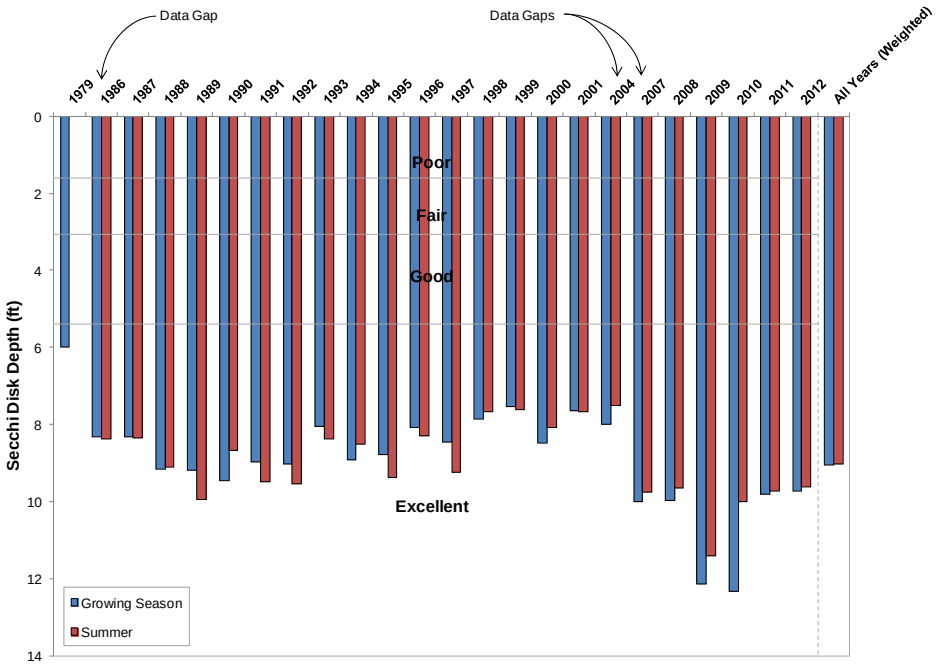


**Figure 1. Indian Lake Secchi disk clarity values.** Mean values calculated with surface sample data. Water Quality Index values adapted from WDNR PUB WT-913.

## Aquatic Plants

Numerous aquatic plant surveys were designed for this project, in order to examine the lake for invasive, non-native aquatic plant species and also to document the presence of native species in the lake. During all surveys, no aquatic invasive species were observed. Many interesting native species were observed however. Aquatic plants were found to grow to a depth of 19 feet in Indian Lake. Fern pondweed, a low-growing, submerged aquatic plant that was likely named after its palm-frond or fern-like leaves, was the most common plant encountered.

## Fisheries

As a part of this project, Onterra worked collectively with local WDNR fisheries biologists to integrate data they had collected on Indian Lake to the management plan. These data include Native American spear harvesting records, creel survey and stocking data, angling regulations and WDNR management goals for the lake. Additionally, Onterra staff collected data regarding the sediment composition and coarse woody habitat in Indian Lake. The sediment composition was found to be 69% mucky/organic, 19% sand and 16% rock. A balanced sediment distribution is desired in a lake because some fish prefer spawning on harder substrates (such as walleye) while others (such as muskellunge) broadcast their eggs over mucky areas. Coarse woody habitat is preferred by some fish species to lay eggs, search for food, and escape predator fish.

## Summary and Remaining Steps

All studies conducted on Indian Lake point towards a healthy and vibrant ecosystem with minimal signs of human impact. In the coming months, Onterra staff will meet with the Indian Lake Planning Committee to discuss the project results and begin creation of management goals and actions the ILA will pursue in managing their lake. Following this process, the management plan document will be created and sent to the Planning Committee and WDNR for review.


## Presentation Outline

- Lake Management Planning Project Overview
- Study Results
  - Water Quality
  - Watershed
  - Shoreland
  - Aquatic Plants
  - Fishery

  *Stakeholder Survey*
- "Big Picture"

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## Study and Plan Goals

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

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## Wisconsin Ecoregions


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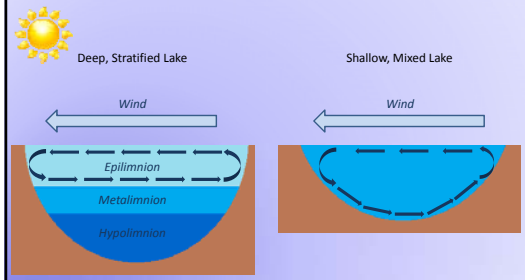
## Wisconsin Lakes Classification

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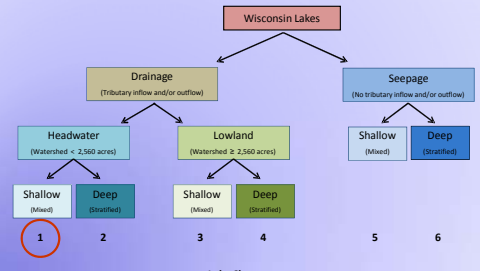
## Wisconsin Lakes Classification

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## Water Quality

**Phosphorus (Limiting Plant Nutrient)**
Nitrogen:Phosphorus = 17:1

**Chlorophyll-*a* (Algal Abundance)**
Moderate abundance

**Water Clarity (Secchi Disk)**
Relatively high water clarity

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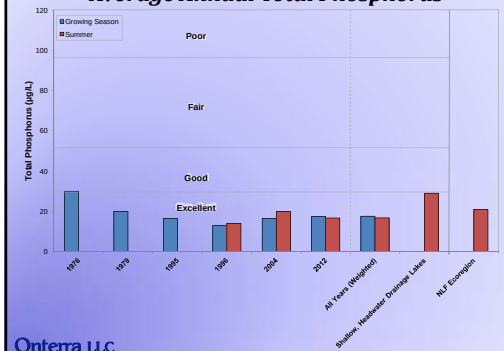
## Average Annual Total Phosphorus

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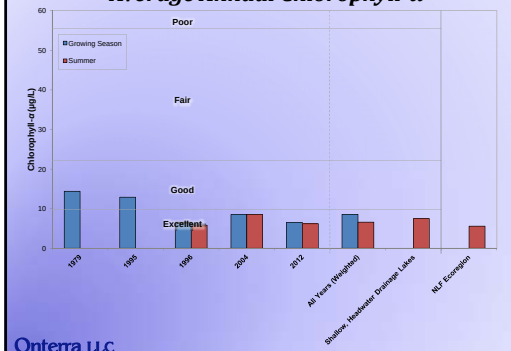
## Average Annual Chlorophyll-α

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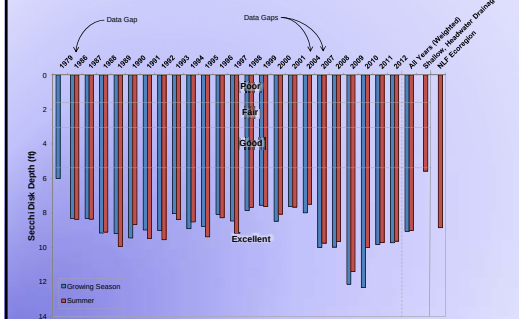
## Average Annual Secchi Disk Clarity

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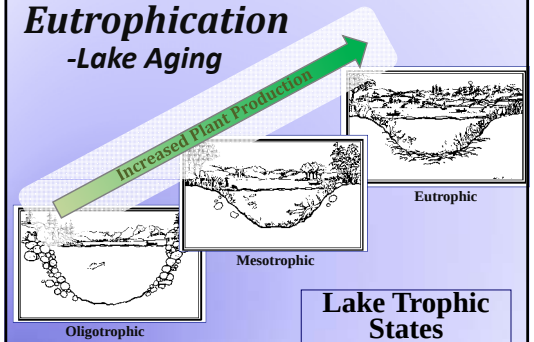
## Eutrophication
### -Lake Aging

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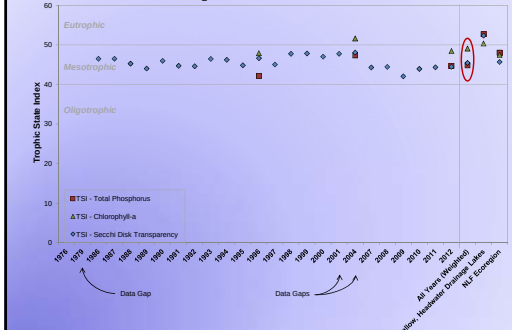
## Trophic State Index

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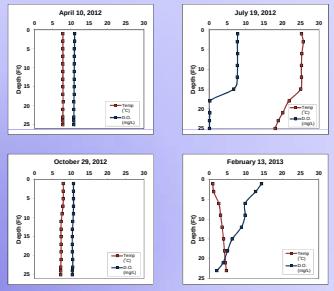
## Dissolved Oxygen / Temperature

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## Other Water Quality Results

- Alkalinity = 25.1 mg/L as $CaCO_3$ – indicates very little sensitivity to acid rain
- Low calcium concentrations (6.2 mg/L)
  - Not suitable for zebra mussel establishment

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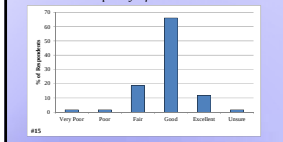
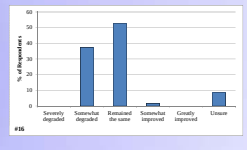
## Stakeholder Survey – Water Quality

*How would you describe the current water quality of Indian Lake?*




*How has the water quality changed in Indian lake since you first visited the lake?*

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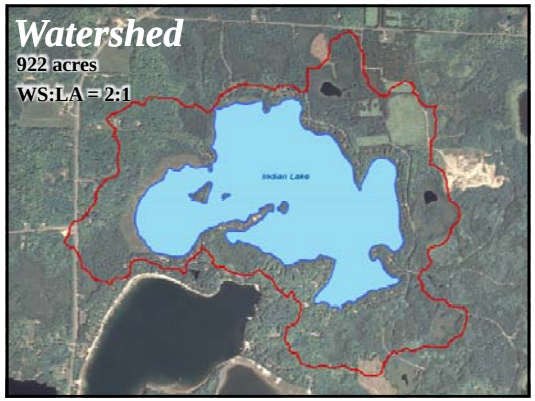
## Watershed

922 acres
WS:LA = 2:1




## Watershed Assessment Procedure


Greater Phosphorus Export/Acre

- Urban - High Density
- Row Crops
- Urban - Med Density
- Pasture/Grass
- Open Water
- Rural Residential
- Wetlands
- Forest

Less Negative Impact on Lake

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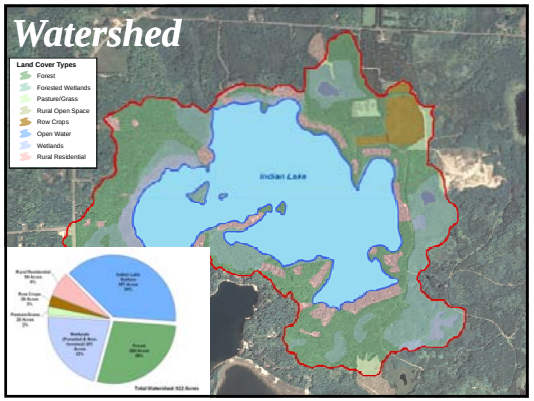
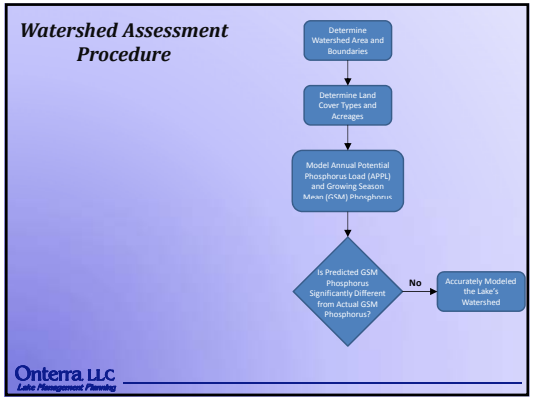
## Watershed




Watershed Assessment Procedure
Determine Watershed Area and Boundaries
Determine Land Cover Types and Acreages
Model Annual Potential Phosphorus Load (APPL) and Growing Season Mean (GSM) Phosphorus
Is Predicted GSM Phosphorus Significantly Different from Actual GSM Phosphorus?
No
Accurately Modeled the Lake's Watershed
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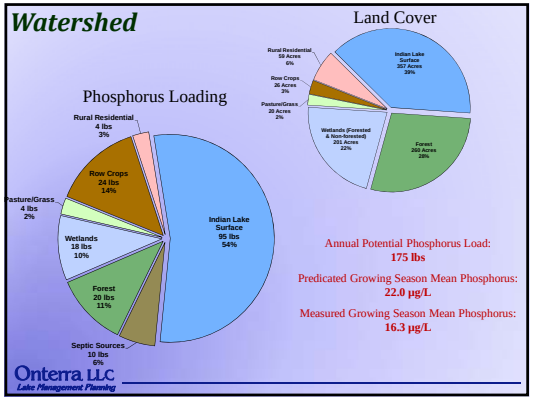
Watershed
Land Cover
Phosphorus Loading
Rural Residential 4 lbs 3%
Row Crops 24 lbs 14%
Pasture/Grass 4 lbs 2%
Wetlands 18 lbs 10%
Forest 20 lbs 11%
Septic Sources 10 lbs 6%
Indian Lake Surface 95 lbs 54%
Annual Potential Phosphorus Load:
175 lbs
Predicated Growing Season Mean Phosphorus:
22.0 µg/L
Measured Growing Season Mean Phosphorus:
16.3 µg/L
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Shoreland Assessment
Shoreland area is important for buffering runoff and provides valuable habitat for aquatic and terrestrial wildlife.
It does not look at lake shoreline on a property-by-property basis.
Assessment ranks shoreland area from shoreline back 35 feet
Urbanized
Natural
Range
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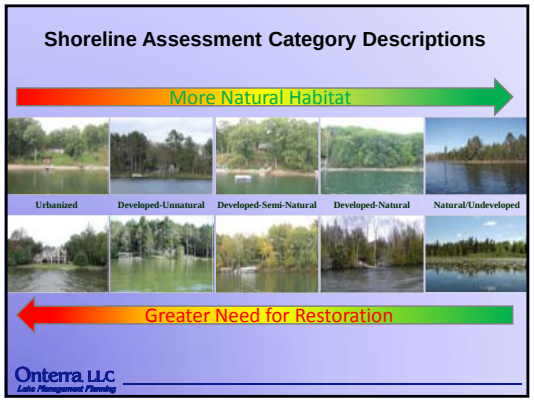
Shoreline Assessment Category Descriptions
More Natural Habitat
Urbanized
Developed-Unnatural
Developed-Semi-Natural
Developed-Natural
Natural/Undeveloped
Greater Need for Restoration
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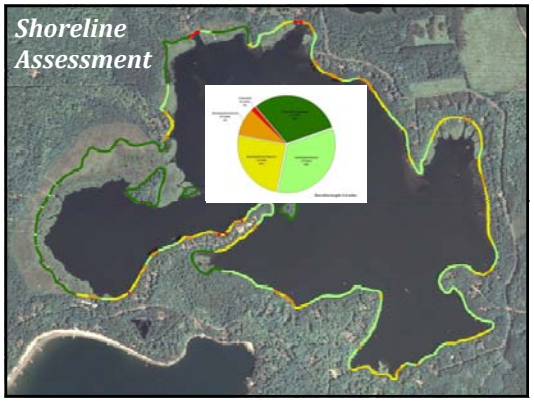
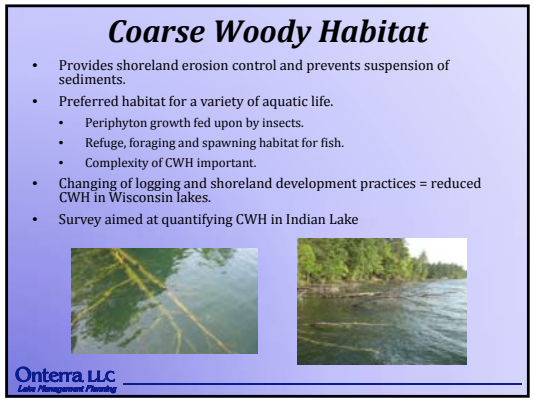

Shoreline Assessment


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 Indian Lake
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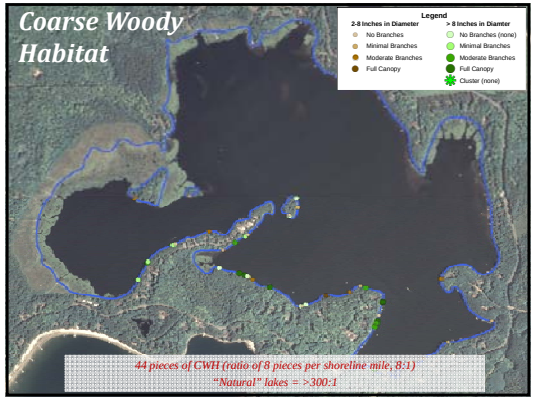
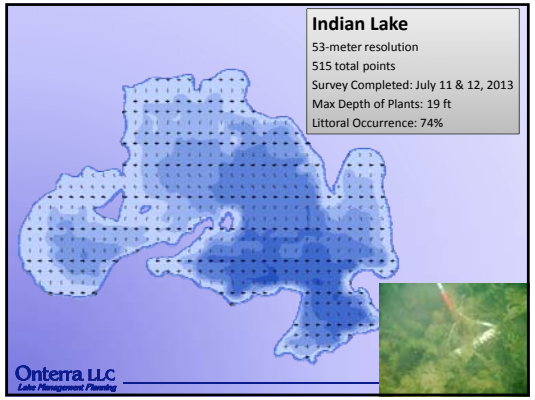

Coarse Woody Habitat
Legend
2-8 Inches in Diameter
No Branches
Minimal Branches
Moderate Branches
Full Canopy
> 8 Inches in Diamter
No Branches (none)
Minimal Branches
Moderate Branches
Full Canopy
Cluster (none)
44 pieces of CWH (ratio of 8 pieces per shoreline mile, 8:1)
"Natural" lakes = >300:1


Aquatic Plants


Indian Lake
53-meter resolution
515 total points
Survey Completed: July 11 & 12, 2013
Max Depth of Plants: 19 ft
Littoral Occurrence: 74%
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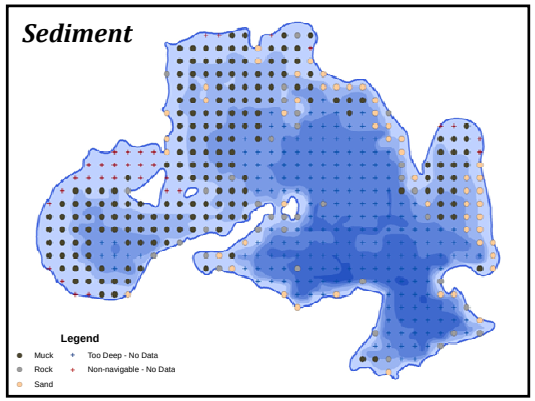
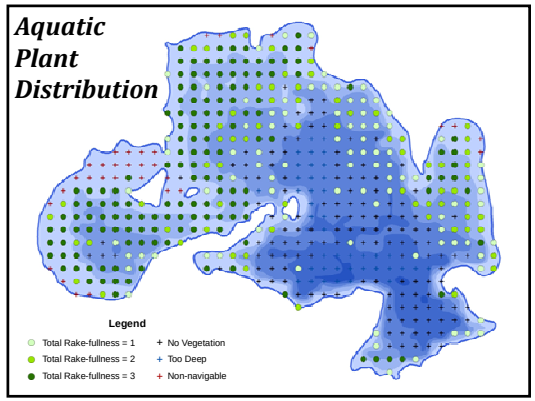

Sediment
Legend
Muck
Rock
Sand
Too Deep - No Data
Non-navigable - No Data


Aquatic Plant Distribution
Legend
Total Rake-fullness = 1
Total Rake-fullness = 2
Total Rake-fullness = 3
No Vegetation
Too Deep
Non-navigable


Species List
57 Native Species
1 listed as special concern (Vasey's pondweed)
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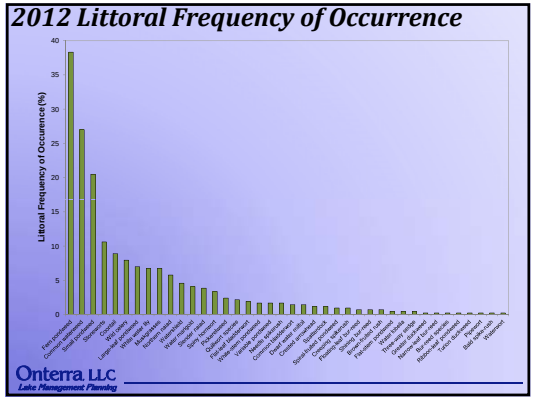
2012 Littoral Frequency of Occurrence
Littoral Frequency of Occurrence (%)
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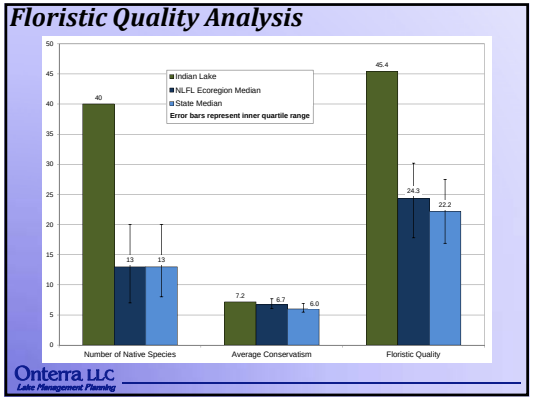
Floristic Quality Analysis
Indian Lake
NLFL Ecoregion Median
State Median
Error bars represent inner quartile range
40
13
13
7.2
6.7
6.0
45.4
24.3
22.2
Number of Native Species
Average Conservatism
Floristic Quality
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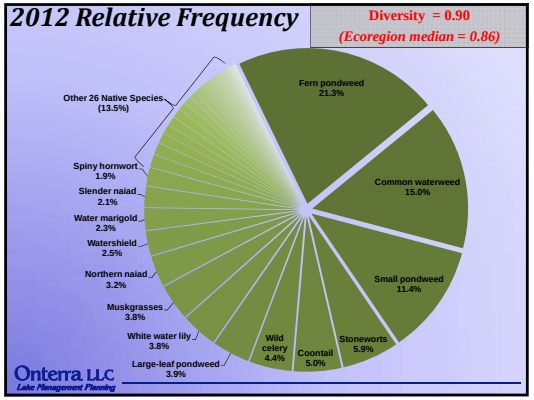
2012 Relative Frequency
Diversity = 0.90
(Ecoregion median = 0.86)
Fern pondweed 21.3%
Common waterweed 15.0%
Small pondweed 11.4%
Stoneworts 5.9%
Coontail 5.0%
Wild celery 4.4%
Large-leaf pondweed 3.9%
White water lily 3.8%
Muskgrasses 3.8%
Northern naiad 3.2%
Watershield 2.5%
Water marigold 2.3%
Slender naiad 2.1%
Spiny hornwort 1.9%
Other 26 Native Species (13.5%)
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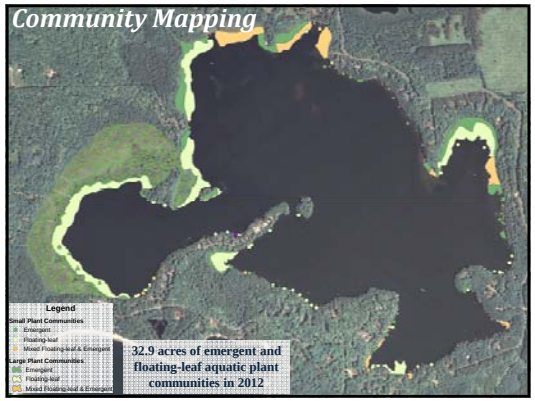
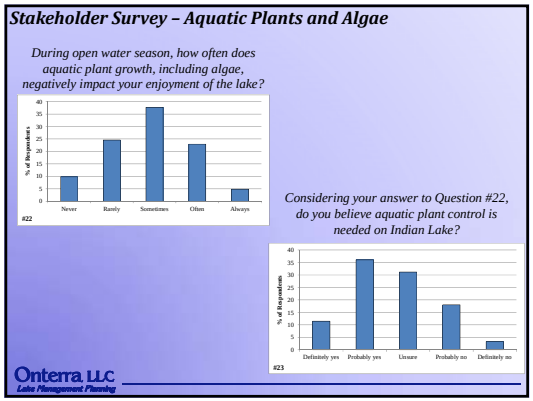

Community Mapping
Legend
Small Plant Communities
Emergent
Floating-leaf
Mixed Floating-leaf & Emergent
Large Plant Communities
Emergent
Floating-leaf
Mixed Floating-leaf & Emergent
32.9 acres of emergent and floating-leaf aquatic plant communities in 2012


Stakeholder Survey – Aquatic Plants and Algae
During open water season, how often does aquatic plant growth, including algae, negatively impact your enjoyment of the lake?
Never
Rarely
Sometimes
Often
Always
#22
Considering your answer to Question #22, do you believe aquatic plant control is needed on Indian Lake?
Definitely yes
Probably yes
Unsure
Probably no
Definitely no
#23
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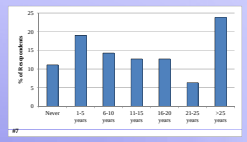
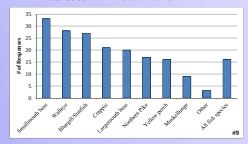
Fisheries

### *Stakeholder Survey – Indian Lake Fishery*

*For how many years have you fished Indian Lake?*




*What species of fish do you like to catch in Indian Lake?*

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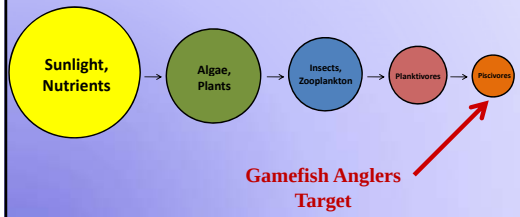
### *Indian Lake Fishery*

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### *Native American Spear Harvest*


**Only two walleyes harvested (1990)**

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### *Indian Lake Fishery*

- **WDNR management for:**
  - Panfish (consumptive opportunity)
  - Northern pike
  - Quality size bass and walleye
- **Walleye recruitment poor in recent years**
  - Ample spawning substrate
  - WDNR placed Indian Lake on walleye stocking list in 2013

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### Conclusions

- Water quality for shallow, headwater drainage lake is excellent.
  - Limited historic data, but no apparent trends detected.
  - Lake is moderately productive, and modeling indicates no unaccounted sources of phosphorus entering the lake.
- Overall watershed is in excellent condition.
  - Land cover exports minimal phosphorus.
  - Shoreland zone is mostly undeveloped or developed-natural

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## Conclusions continued

- Aquatic plant community
  - Based upon standard analysis, native plant community is of high quality.
    - High species diversity
    - Sensitive species present
    - High species richness
  - Abundance of organic substrate and high-nutrient water creates abundant aquatic plant growth.
- Fisheries
  - Productive lake leads to robust fishery
  - Very minimal tribal spearing
  - Minimal coarse woody habitat

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# Thank You

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

Wisconsin Lakes Partnership

Extension

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# B

# APPENDIX B

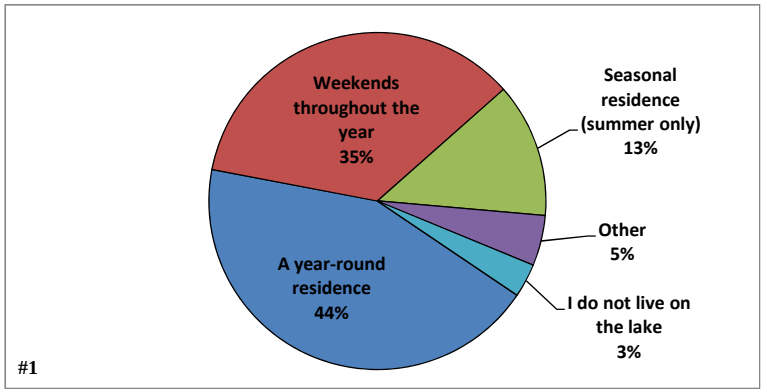
## Stakeholder Survey Response Charts and Comments

| | |
|---|---|
| Returned Surveys | 61 |
| Sent Surveys | 116 |
| **Response Rate (%)** | 52.6 |

## INDIAN LAKE PROPERTY

**#1 How is your property on Indian Lake utilized?**

| | Total | % |
|---|---|---|
| A year-round residence | 27 | *43.5* |
| Weekends throughout the year | 22 | *35.5* |
| Seasonal residence (summer only) | 8 | *12.9* |
| Other | 3 | *4.8* |
| I do not live on the lake | 2 | *3.2* |
| | 62 | *100.0* |

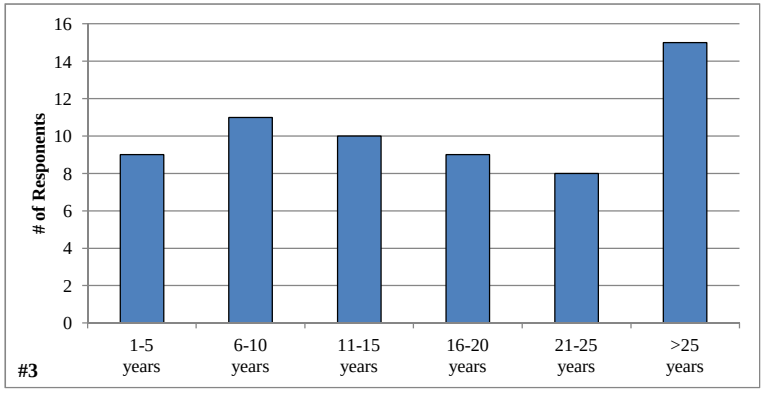



**#2 How many days each year is your property used by you or others?**

| | |
|---|---|
| Answered Question | 61 |
| Average | 185.4 |
| Standard deviation | 144.0 |

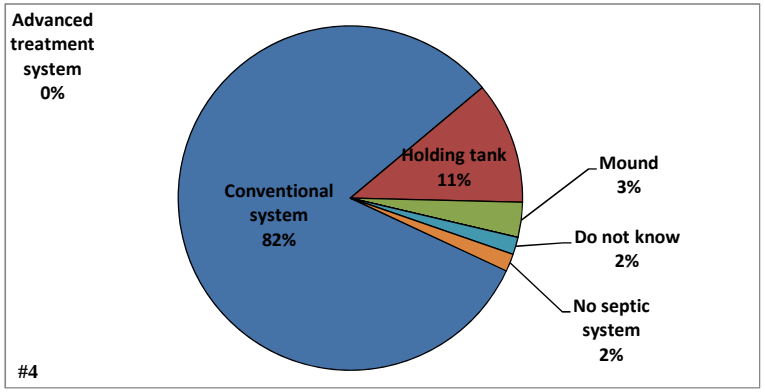
**#3 How long have you owned or rented your property on Indian Lake?**

| | Total | % |
|---|---|---|
| 1-5 years | 9 | *14.5* |
| 6-10 years | 11 | *17.7* |
| 11-15 years | 10 | *16.1* |
| 16-20 years | 9 | *14.5* |
| 21-25 years | 8 | *12.9* |
| >25 years | 15 | *24.2* |
| | 62 | *100.0* |



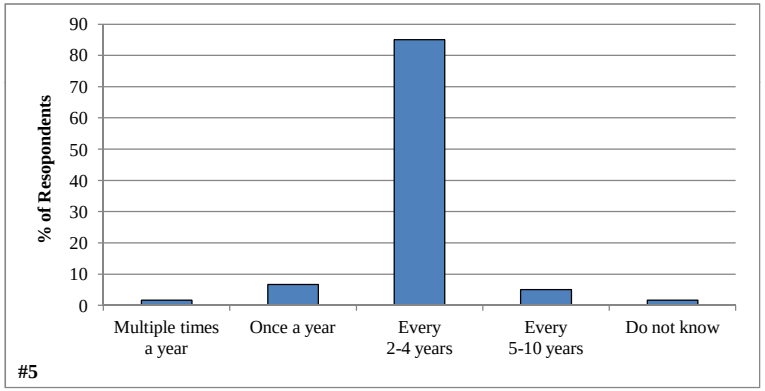
**#4 What type of septic system does your property utilize?**

| | Total | % |
|---|---|---|
| Conventional system | 50 | *82.0* |
| Holding tank | 7 | *11.5* |
| Mound | 2 | *3.3* |
| Advanced treatment system | 0 | *0.0* |
| Do not know | 1 | *1.6* |
| No septic system | 1 | *1.6* |
| | 61 | *100.0* |




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

| | Total | % |
|---|---|---|
| Multiple times a year | 1 | *1.7* |
| Once a year | 4 | *6.7* |
| Every 2-4 years | 51 | *85.0* |
| Every 5-10 years | 3 | *5.0* |
| Do not know | 1 | *1.7* |
| | 60 | *100.0* |



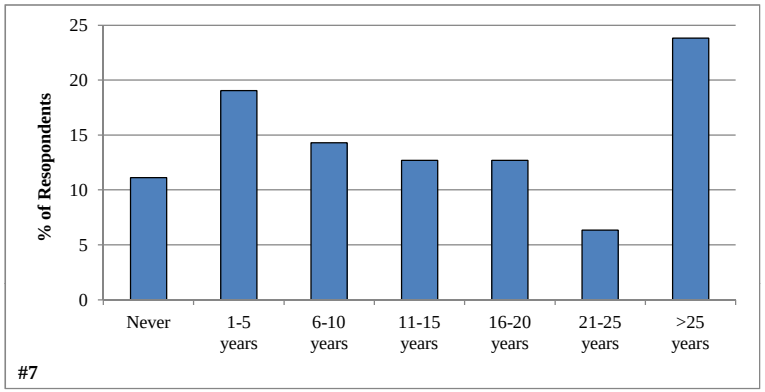
## RECREATIONAL ACTIVITY ON INDIAN LAKE

**#6 How many years ago did you first visit Indian Lake?**

| | |
|---|---|
| Answered Question | 62 |
| Average | 21.4 |
| Standard deviation | 15.0 |

**#7 For how many years have you fished Indian Lake?**

| | Total | % |
|---|---|---|
| Never | 7 | *11.1* |
| 1-5 years | 12 | *19.0* |
| 6-10 years | 9 | *14.3* |
| 11-15 years | 8 | *12.7* |
| 16-20 years | 8 | *12.7* |
| 21-25 years | 4 | *6.3* |
| >25 years | 15 | *23.8* |
| | 63 | *100.0* |

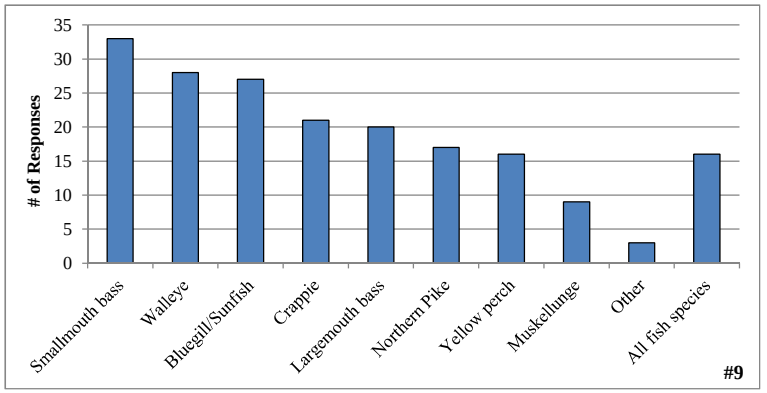



**#8 Have you personally fished on Indian Lake in the past three years?**

| | Total | % |
|---|---|---|
| Yes | 51 | *87.9* |
| No | 7 | *12.1* |
| | 58 | *100.0* |

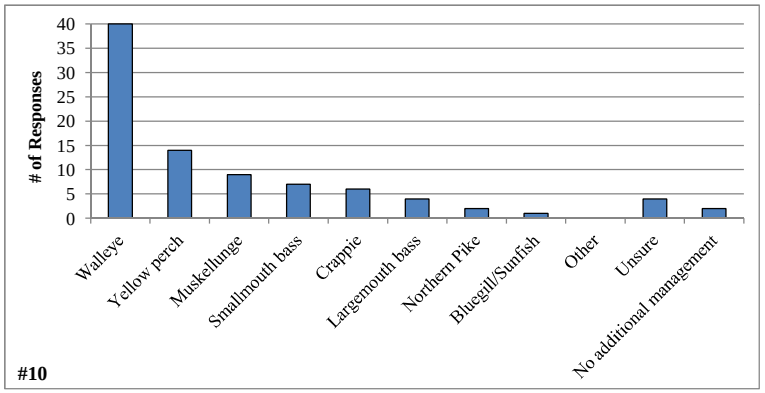
**#9 What species of fish do you like to catch on Indian Lake?**

| | Total |
|---|---|
| Smallmouth bass | 33 |
| Walleye | 28 |
| Bluegill/Sunfish | 27 |
| Crappie | 21 |
| Largemouth bass | 20 |
| Northern Pike | 17 |
| Yellow perch | 16 |
| Muskellunge | 9 |
| Other | 3 |
| All fish species | 16 |



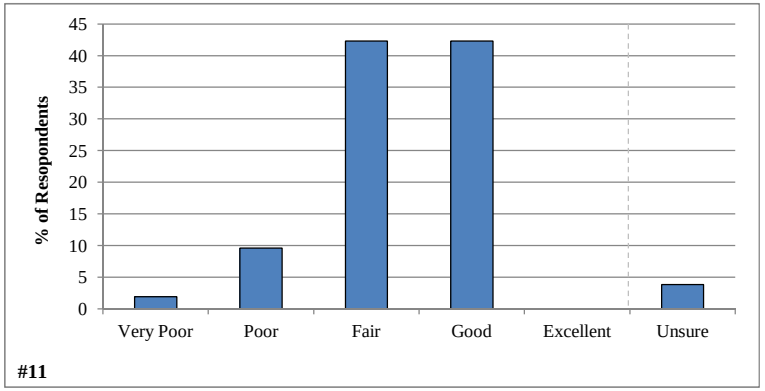

**#10 What species of fish, if any, would you like to see more management emphasis placed upon?**

| | Total |
|---|---|
| Walleye | 40 |
| Yellow perch | 14 |
| Muskellunge | 9 |
| Smallmouth bass | 7 |
| Crappie | 6 |
| Largemouth bass | 4 |
| Northern Pike | 2 |
| Bluegill/Sunfish | 1 |
| Other | 0 |
| Unsure | 4 |
| No additional management | 2 |



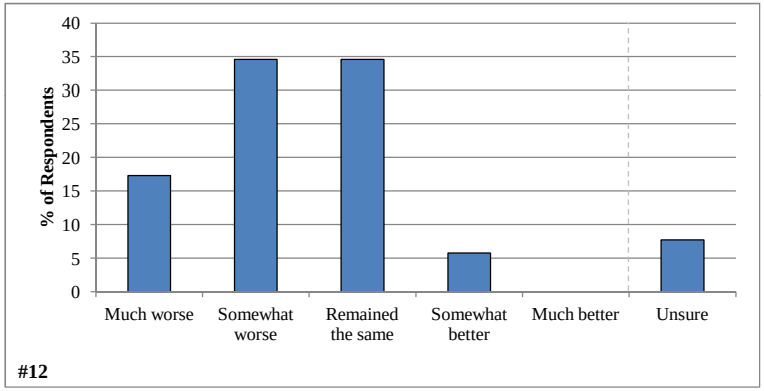
**#11 How would you describe the current quality of fishing on Indian Lake?**

| | Total | % |
|---|---|---|
| Very Poor | 1 | *1.9* |
| Poor | 5 | *9.6* |
| Fair | 22 | *42.3* |
| Good | 22 | *42.3* |
| Excellent | 0 | *0.0* |
| Unsure | 2 | *3.8* |
| | 52 | *100.0* |



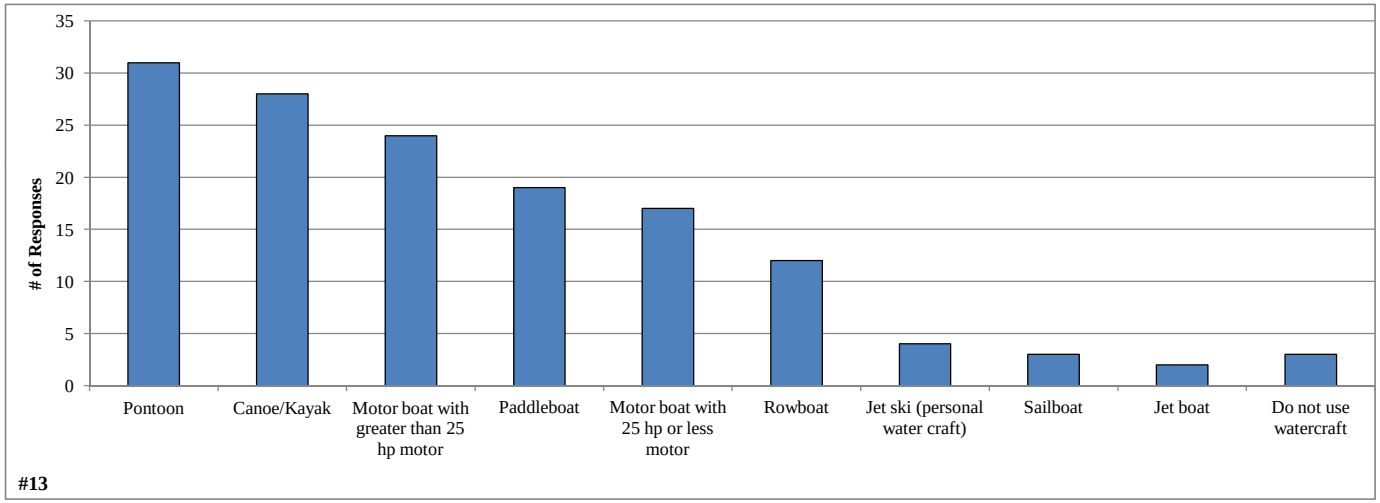

**#12 How has the quality of fishing changed since you started fishing on the lake?**

| | Total | % |
|---|---|---|
| Much worse | 9 | *17.3* |
| Somewhat worse | 18 | *34.6* |
| Remained the Same | 18 | *34.6* |
| Somewhat better | 3 | *5.8* |
| Much better | 0 | *0.0* |
| Unsure | 4 | *7.7* |
| | 52 | *100.0* |



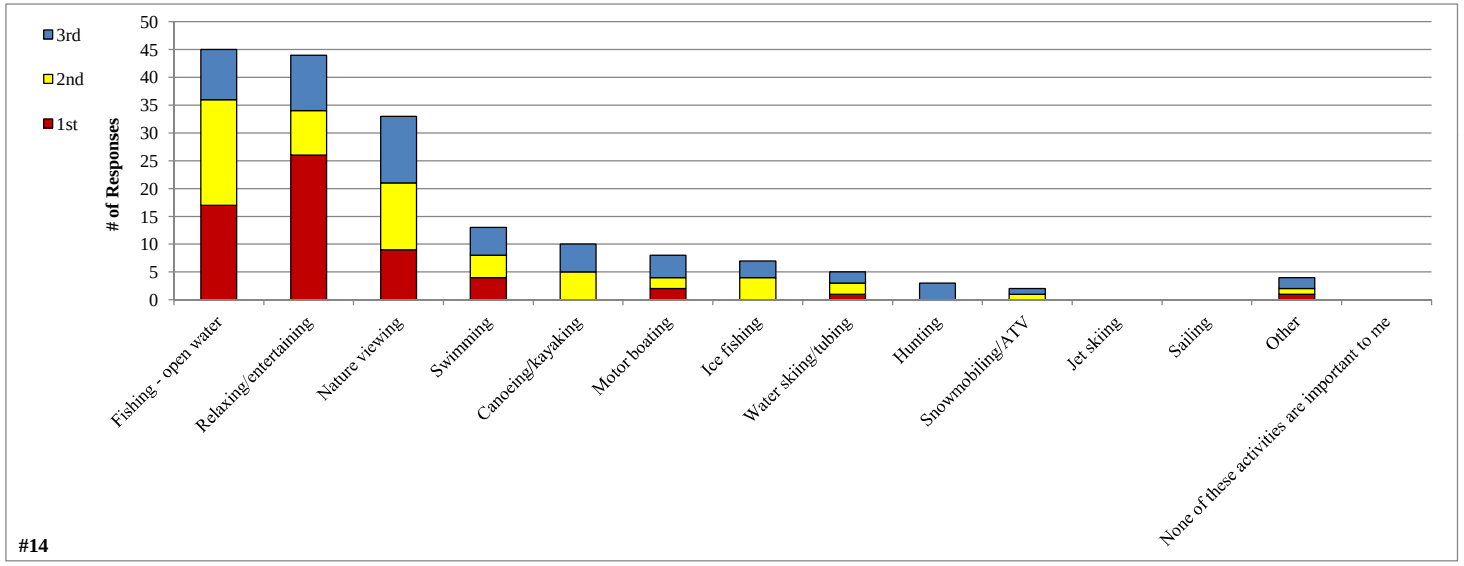
**#13 What types of watercraft do you currently use on the lake?**

| | Total |
|---|---|
| Pontoon | 31 |
| Canoe/Kayak | 28 |
| Motor boat with greater than 25 hp motor | 24 |
| Paddleboat | 19 |
| Motor boat with 25 hp or less motor | 17 |
| Rowboat | 12 |
| Jet ski (personal water craft) | 4 |
| Sailboat | 3 |
| Jet boat | 2 |
| Do not use watercraft | 3 |



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

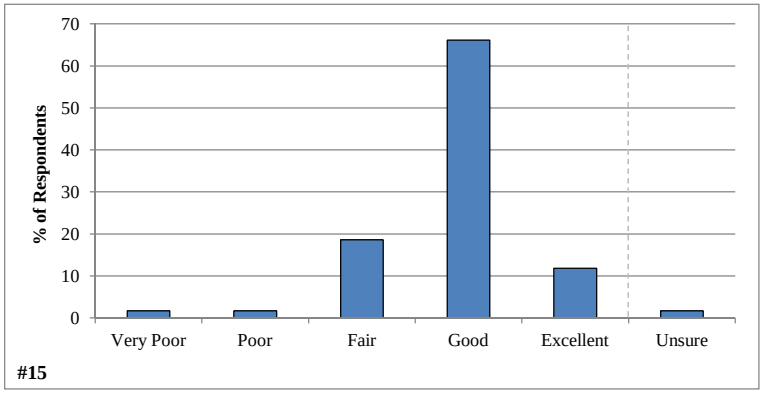
| | 1st | 2nd | 3rd | *% ranked* |
|---|---|---|---|---|
| Fishing - open water | 17 | 19 | 9 | *25.9* |
| Relaxing/entertaining | 26 | 8 | 10 | *25.3* |
| Nature viewing | 9 | 12 | 12 | *19.0* |
| Swimming | 4 | 4 | 5 | *7.5* |
| Canoeing/kayaking | 0 | 5 | 5 | *5.7* |
| Motor boating | 2 | 2 | 4 | *4.6* |
| Ice fishing | 0 | 4 | 3 | *4.0* |
| Water skiing/tubing | 1 | 2 | 2 | *2.9* |
| Hunting | 0 | 0 | 3 | *1.7* |
| Snowmobiling/ATV | 0 | 1 | 1 | *1.1* |
| Jet skiing | 0 | 0 | 0 | *0.0* |
| Sailing | 0 | 0 | 0 | *0.0* |
| Other | 1 | 1 | 2 | *2.3* |
| None of these activities are important to me | 0 | 0 | 0 | *0.0* |
| | 60 | 58 | 56 | *100.0* |



## INDIAN LAKE CURRENT AND HISTORIC CONDITION, HEALTH AND MANAGEMENT

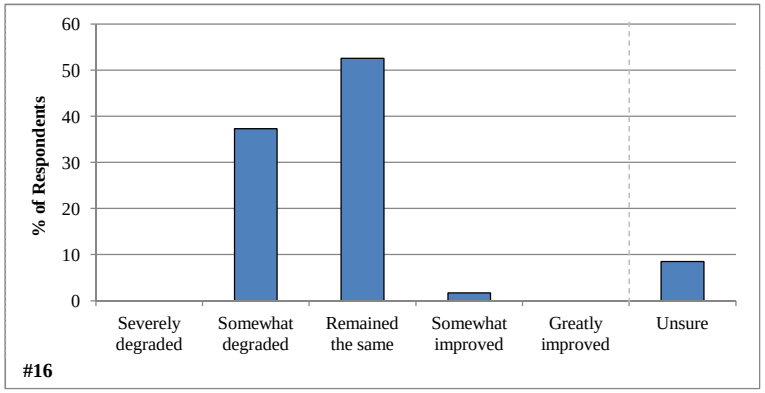
**#15 How would you describe the current water quality of Indian Lake?**

| | Total | % |
|---|---|---|
| Very Poor | 1 | *1.7* |
| Poor | 1 | *1.7* |
| Fair | 11 | *18.6* |
| Good | 39 | *66.1* |
| Excellent | 7 | *11.9* |
| Unsure | 1 | *1.7* |
| | 59 | *100.0* |




**#16 How has the water quality changed in Indian Lake since you first visited the lake?**

| | Total | % |
|---|---|---|
| Severely degraded | 0 | *0.0* |
| Somewhat degraded | 22 | *37.3* |
| Remained the same | 31 | *52.5* |
| Somewhat improved | 1 | *1.7* |
| Greatly improved | 0 | *0.0* |
| Unsure | 5 | *8.5* |
| | 59 | *100.0* |



**#17 Have you ever heard of aquatic invasive species?**

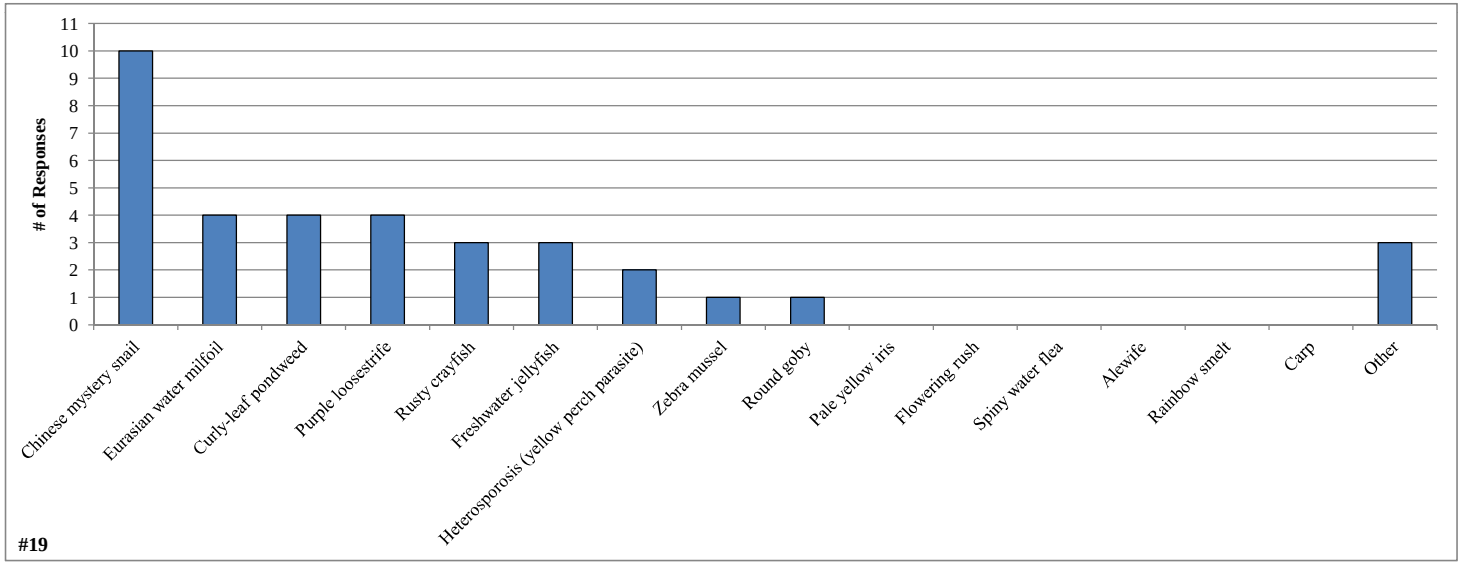
| | Total | % |
|---|---|---|
| Yes | 61 | *98.4* |
| No | 1 | *1.6* |
| | 62 | *100.0* |

**#18 Are you aware of aquatic invasive species in the lake?**

| | Total | % |
|---|---|---|
| Yes | 17 | *32.1* |
| No | 36 | *67.9* |
| | 53 | *100.0* |

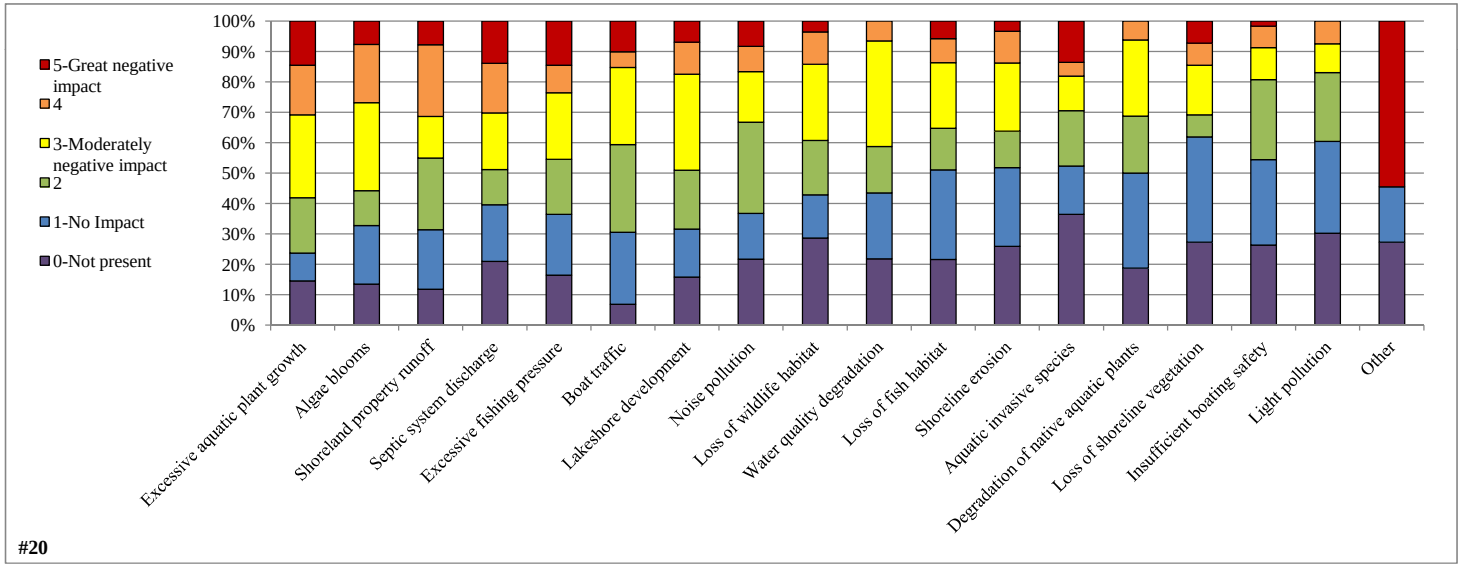
**#19 Which aquatic invasive species are you aware of in the lake?**

| | Total |
|---|---|
| Chinese mystery snail | 10 |
| Eurasian water milfoil | 4 |
| Curly-leaf pondweed | 4 |
| Purple loosestrife | 4 |
| Rusty crayfish | 3 |
| Freshwater jellyfish | 3 |
| Heterosporosis (yellow perch parasite) | 2 |
| Zebra mussel | 1 |
| Round goby | 1 |
| Pale yellow iris | 0 |
| Flowering rush | 0 |
| Spiny water flea | 0 |
| Alewife | 0 |
| Rainbow smelt | 0 |
| Carp | 0 |
| Other | 3 |



**#20 To what level do you believe each of the following factors may be negatively impacting Indian Lake?**

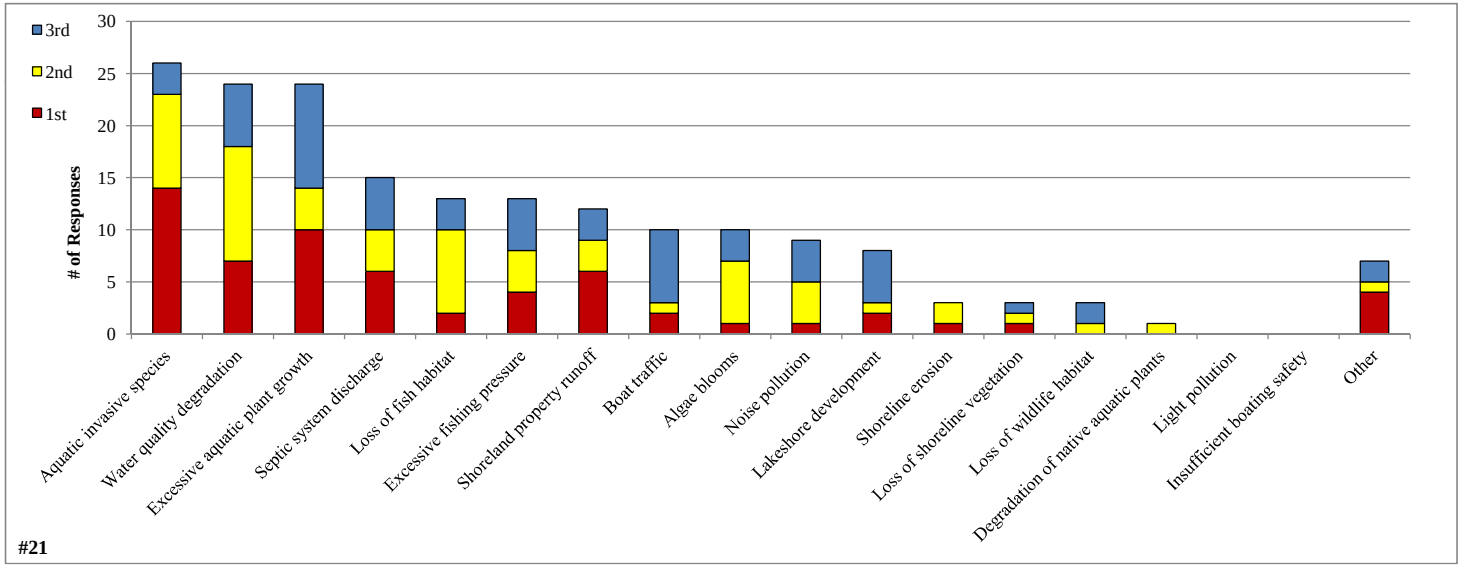
| | 0-Not present | 1-No Impact | 2 | 3-Moderately negative impact | 4 | 5-Great negative impact | Unsure | *Total* | *Average* |
|---|---|---|---|---|---|---|---|---|---|
| Excessive aquatic plant growth | 8 | 5 | 10 | 15 | 9 | 8 | 3 | *47* | *2.7* |
| Algae blooms | 7 | 10 | 6 | 15 | 10 | 4 | 9 | *45* | *2.4* |
| Shoreland property runoff | 6 | 10 | 12 | 7 | 12 | 4 | 9 | *45* | *2.4* |
| Septic system discharge | 9 | 8 | 5 | 8 | 7 | 6 | 17 | *34* | *2.3* |
| Excessive fishing pressure | 9 | 11 | 10 | 12 | 5 | 8 | 4 | *46* | *2.3* |
| Boat traffic | 4 | 14 | 17 | 15 | 3 | 6 | 2 | *55* | *2.3* |
| Lakeshore development | 9 | 9 | 11 | 18 | 6 | 4 | 3 | *48* | *2.3* |
| Noise pollution | 13 | 9 | 18 | 10 | 5 | 5 | 1 | *47* | *2.0* |
| Loss of wildlife habitat | 16 | 8 | 10 | 14 | 6 | 2 | 4 | *40* | *1.9* |
| Water quality degradation | 10 | 10 | 7 | 16 | 3 | 0 | 10 | *36* | *1.8* |
| Loss of fish habitat | 11 | 15 | 7 | 11 | 4 | 3 | 7 | *40* | *1.8* |
| Shoreline erosion | 15 | 15 | 7 | 13 | 6 | 2 | 2 | *43* | *1.8* |
| Aquatic invasive species | 16 | 7 | 8 | 5 | 2 | 6 | 12 | *28* | *1.7* |
| Degradation of native aquatic plants | 9 | 15 | 9 | 12 | 3 | 0 | 11 | *39* | *1.7* |
| Loss of shoreline vegetation | 15 | 19 | 4 | 9 | 4 | 4 | 2 | *40* | *1.6* |
| Insufficient boating safety | 15 | 16 | 15 | 6 | 4 | 1 | 3 | *42* | *1.5* |
| Light pollution | 16 | 16 | 12 | 5 | 4 | 0 | 6 | *37* | *1.3* |
| Other | 3 | 2 | 0 | 0 | 0 | 6 | 1 | *8* | *2.9* |



**#20**

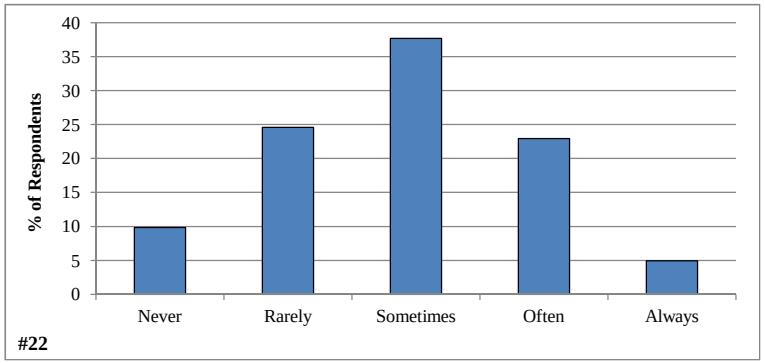
**#21 From the list below, please rank your top three concerns regarding Indian Lake.**

| | 1st | 2nd | 3rd | *% Ranked* |
|---|---|---|---|---|
| Aquatic invasive species | 14 | 9 | 3 | *14.4* |
| Water quality degradation | 7 | 11 | 6 | *13.3* |
| Excessive aquatic plant growth | 10 | 4 | 10 | *13.3* |
| Septic system discharge | 6 | 4 | 5 | *8.3* |
| Loss of fish habitat | 2 | 8 | 3 | *7.2* |
| Excessive fishing pressure | 4 | 4 | 5 | *7.2* |
| Shoreland property runoff | 6 | 3 | 3 | *6.6* |
| Boat traffic | 2 | 1 | 7 | *5.5* |
| Algae blooms | 1 | 6 | 3 | *5.5* |
| Noise pollution | 1 | 4 | 4 | *5.0* |
| Lakeshore development | 2 | 1 | 5 | *4.4* |
| Shoreline erosion | 1 | 2 | 0 | *1.7* |
| Loss of shoreline vegetation | 1 | 1 | 1 | *1.7* |
| Loss of wildlife habitat | 0 | 1 | 2 | *1.7* |
| Degradation of native aquatic plants | 0 | 1 | 0 | *0.6* |
| Light pollution | 0 | 0 | 0 | *0.0* |
| Insufficient boating safety | 0 | 0 | 0 | *0.0* |
| Other | 4 | 1 | 2 | *3.9* |
| | 61 | 61 | 59 | *100.0* |



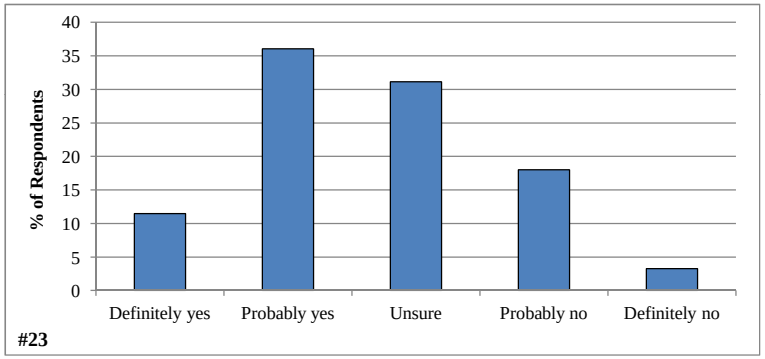
**#22 During open water season how often does aquatic plant growth, including algae, negatively impact your enjoyment of Indian Lake?**

| | Total | % |
|---|---|---|
| Never | 6 | *9.8* |
| Rarely | 15 | *24.6* |
| Sometimes | 23 | *37.7* |
| Often | 14 | *23.0* |
| Always | 3 | *4.9* |
| | 61 | *100.0* |



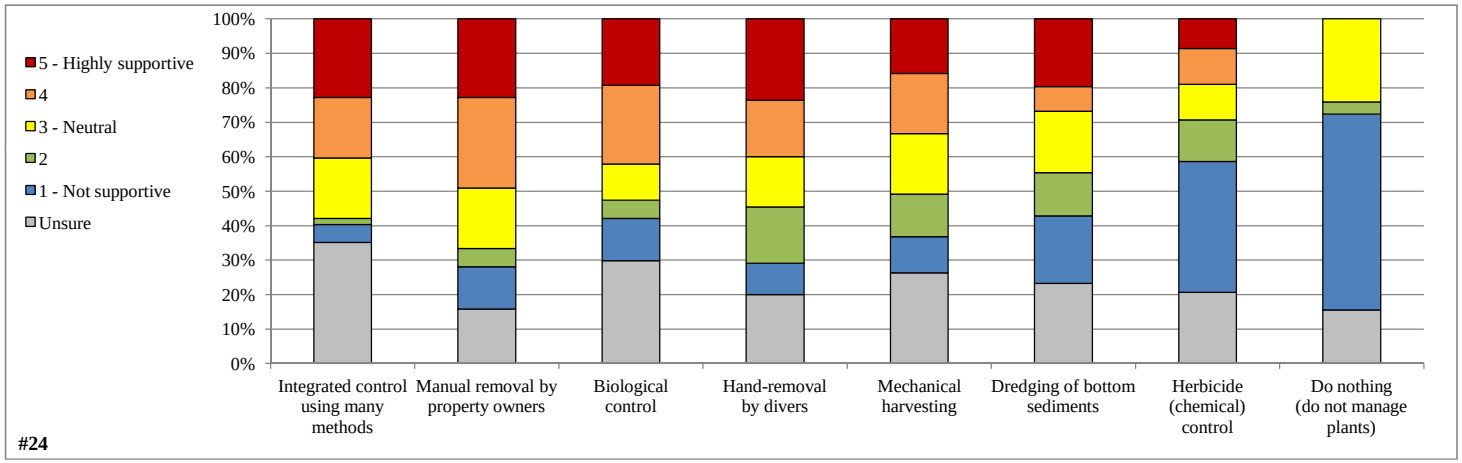

**#23 Considering your answer to the question #22, do you believe aquatic plant control is needed on Indian Lake?**

| | Total | % |
|---|---|---|
| Definitely yes | 7 | *11.5* |
| Probably yes | 22 | *36.1* |
| Unsure | 19 | *31.1* |
| Probably no | 11 | *18.0* |
| Definitely no | 2 | *3.3* |
| | 61 | *100.0* |



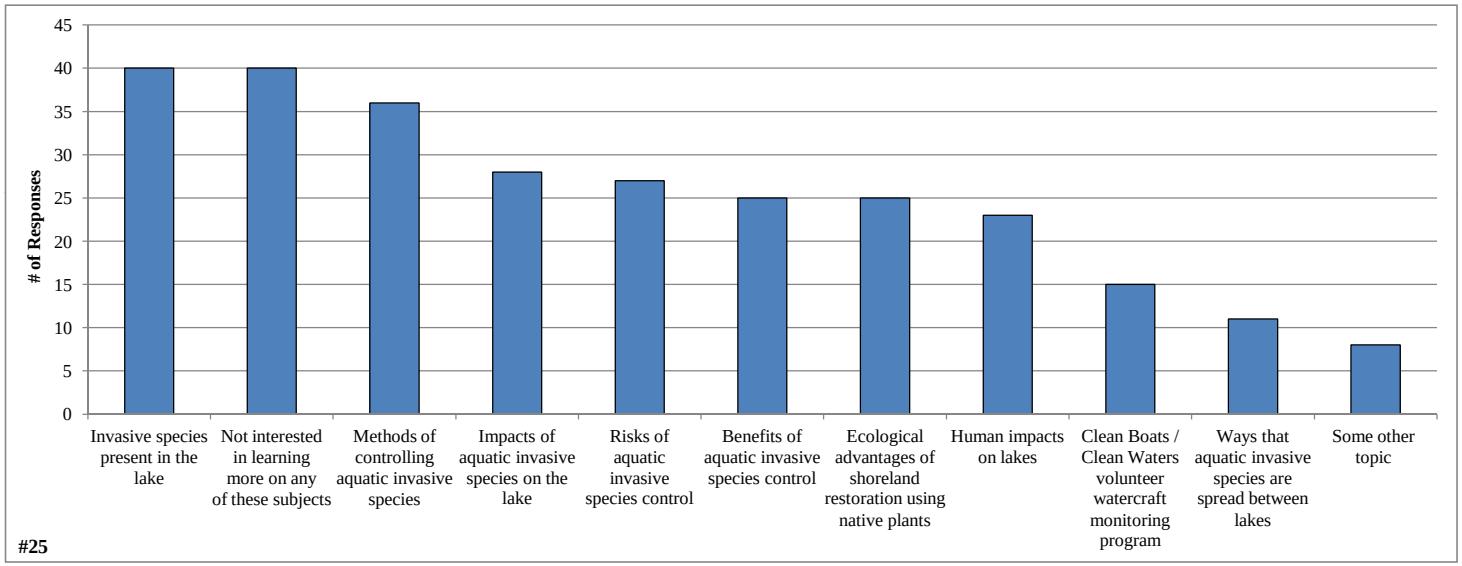
**#24 Aquatic plants can be professionally managed using many techniques. What is your level of support for the responsible use of the following techniques on Indian Lake?**

| | 1 - Not supportive | 2 | 3 - Neutral | 4 | 5 - Highly supportive | Unsure | Total | Average |
|---|---|---|---|---|---|---|---|---|
| Integrated control using many methods | 3 | 1 | 10 | 10 | 13 | 20 | *37* | *3.7* |
| Manual removal by property owners | 7 | 3 | 10 | 15 | 13 | 9 | *48* | *3.4* |
| Biological control | 7 | 3 | 6 | 13 | 11 | 17 | *40* | *3.4* |
| Hand-removal by divers | 5 | 9 | 8 | 9 | 13 | 11 | *44* | *3.3* |
| Mechanical harvesting | 6 | 7 | 10 | 10 | 9 | 15 | *42* | *3.1* |
| Dredging of bottom sediments | 11 | 7 | 10 | 4 | 11 | 13 | *43* | *2.9* |
| Herbicide (chemical) control | 22 | 7 | 6 | 6 | 5 | 12 | *46* | *2.2* |
| Do nothing (do not manage plants) | 33 | 2 | 14 | 0 | 0 | 9 | *49* | *1.6* |



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

| | Total |
|---|---|
| Invasive species present in the lake | 40 |
| Not interested in learning more on any of these subjects | 40 |
| Methods of controlling aquatic invasive species | 36 |
| Impacts of aquatic invasive species on the lake | 28 |
| Risks of aquatic invasive species control | 27 |
| Benefits of aquatic invasive species control | 25 |
| Ecological advantages of shoreland restoration using native plants | 25 |
| Human impacts on lakes | 23 |
| Clean Boats / Clean Waters volunteer watercraft monitoring program | 15 |
| Ways that aquatic invasive species are spread between lakes | 11 |
| Some other topic | 8 |



## INDIAN LAKE ASSOCIATION, INC.

**#26 Before receiving this mailing, have you ever heard of the Indian Lake Association?**

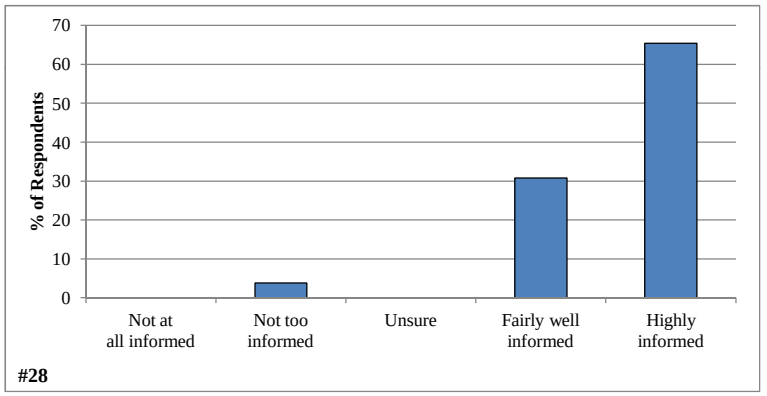
| | Total | % |
|---|---|---|
| Yes | 63 | *100.0* |
| No | 0 | *0.0* |
| | 63 | *100.0* |

**#27 What is your membership status with the Indian Lake Association?**

| | Total | % |
|---|---|---|
| Current member | 47 | *92.2* |
| Former member | 2 | *3.9* |
| Never been a member | 2 | *3.9* |
| | 51 | *100.0* |

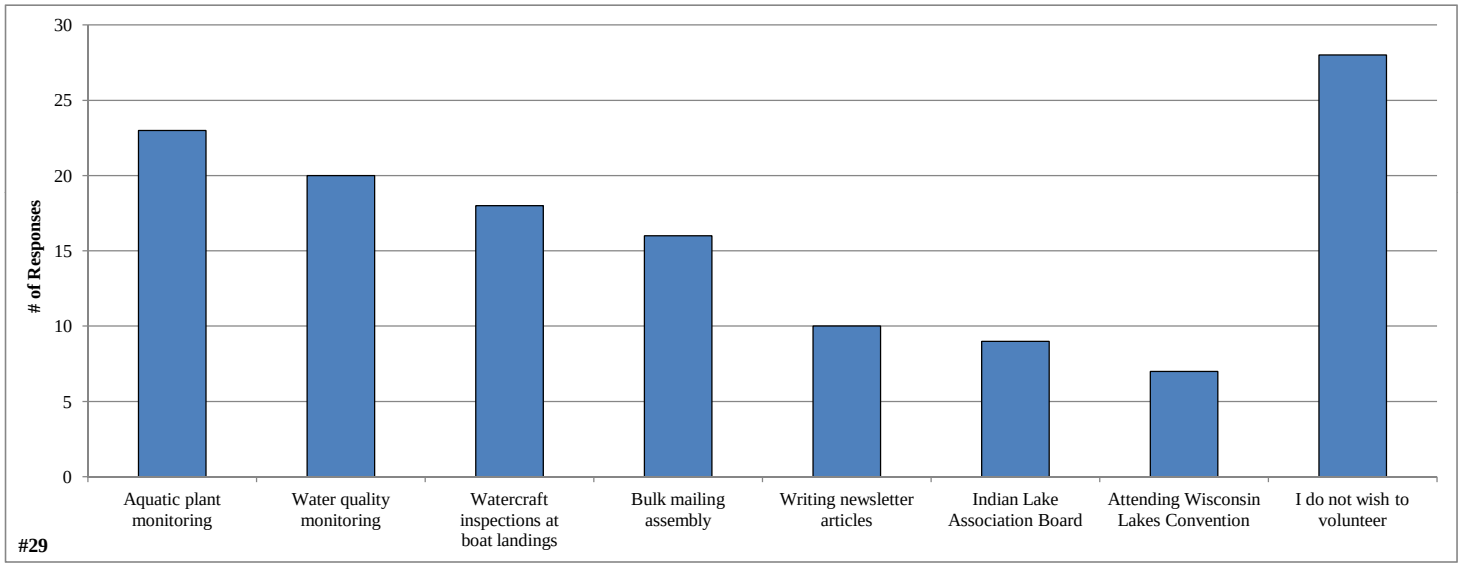
**#28 How informed has the Indian Lake Association kept you regarding issues with the lake and its management?**

| | Total | % |
|---|---|---|
| Not at all informed | 0 | *0.0* |
| Not too informed | 2 | *3.8* |
| Unsure | 0 | *0.0* |
| Fairly well informed | 16 | *30.8* |
| Highly informed | 34 | *65.4* |
| | 52 | *100.0* |



**#29 Please circle the activities you would be willing to participate in if the Indian Lake Association requires additional assistance.**

| | Total |
|---|---|
| Aquatic plant monitoring | 23 |
| Water quality monitoring | 20 |
| Watercraft inspections at boat landings | 18 |
| Bulk mailing assembly | 16 |
| Writing newsletter articles | 10 |
| Indian Lake Association Board | 9 |
| Attending Wisconsin Lakes Convention | 7 |
| I do not wish to volunteer | 28 |



| Survey Number | 1d Comment | 9i Comment | 10i Comment | 14m Comment | 19p Comment | 20r Comment | 21r Comment | 25l Comment | Other Comments (and Question 30) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | | | | | | | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | We woud like to thank everyone who works for the association for al of your hard work - it is appreciated by us. Thank you! |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |
| 6 | | | | | just more weedy | | | | Buoys for shallow rock bars, advise property owners to not "clean" shoreline. Allow trees to fall in lake, do not take excessive twigs. Ban jet ski's & airplances. Do not fertilize grass near lake that could runoff into lake. Promote catch and release. |
| 7 | | | | | | low lake level, rock bass | | | Our largest concern is the lake level. As a spring fed lake we believe the lake level should be raised by about a foot without being detrimental to any stakeholder! The rock bass would be less of a concern; however, they should still be marked along with any other areas. Some shorelines, especially the east end, is very shallow. |
| 8 | | | | | | | | | Thank you for all the hard work you are doing. |
| 9 | | | | | | | | | Are there plans to stock the lake with more fish? |
| 10 | | | | | None | | | | Selling home, may be leaving Indian Lake. We love this lake and everything it stands for. I fish every night all summer and do very well catching fish. My catch goes back into the water. I also fish many more lakes around this area and Indian by far is the best. Sorry about being so late on the $100 and other, if I owe more let us know. Keep up the Great work on this lake. |
| 11 | | | | | None | | | | We are glad & appreciative of the people who are managing this beautiful lake. We live on the south shore and feel sorry for those who live near the gravel pit. We hope it will soon be gone. Anything that can be done to get rid of it would be a plus for all of us. Thank you. |
| 12 | | None | | Purchase for Profit | | | | | |
| 13 | | | | snowshoeing | | | | | |
| 14 | | | | | | | | | |
| 15 | | | | | | Presence of boat landing - placing lake at significant risk of new invasive aquatice species and diseases; small septic systems - on small lots with large houses - cabins. | Presence of boat landing placing lake at significant risk of new aquatic invasives. | | 24.h. Better control of septic system inadequancy. |
| 16 | | | | | | | | | I would like to take care of invasive species as an individual NOT as an association. |
| 17 | | bullhead | | | | | | | Wish jet skiers and water skiers would respect and obey shoreline wake rules (boats as well). Wish people would respect natural shorelines (not clear cutting everything on this shoreline). |
| 18 | | | | | | | | | |
| 19 | | | | | | | | | |
| 20 | | | | | | | | | Set up a separate fish restocking fund, donate whatever dollar amount you wish! |
| 21 | | | | | | | | | |
| 22 | primary residence 7 months, Florida 5 months | | | | | see #20.d. and #20.f. - ? 2 answers | | methods for control of weeds | |
| 23 | | | | | | | | | We appreciate all the time and effort that has been done! We think the Indian Lake Association is wonderful! |
| 24 | | | | | | | | | |
| 25 | | | | pontooning | | | (f. jet skis) r. lake level | build dam | need dam to heighten lake level and keep plant growth down, improve fishing etc. |
| 26 | | | | | | | | | Hats off and a thank you to the few people that have done a great job trying to keep the Lake Association active and informed!!! |
| 27 | and used many weeks in the summer | | | | | | | | As someone who is not retired and not living at the lake, I only have certain times when I can help with these types of things. |
| 28 | winter in the south, Dec. thru March | | | | | | | | I am happy that we have a Lake Association. The leadership of ILA is very good and every stakeholder should be an active member. |
| 29 | | | | | | See 20.k.? - R. jet boats & skis | jet boats & skis | | Get risk of the jet skis and boats. They kill of the fish and users have no respect for other individuals utilizing the lake for fishing they also destroy the natural habitat of the lake. |
| 30 | | | | pontooning | | Review answers to 20.d. and 20.g. | | | |
| 31 | | | | | | Review answer 20.l. | | | |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |
| 36 | | | | | | | | | |
| 37 | | | | | | | | | |
| 38 | | | | | | | | | |
| 39 | | | | | | | | | We are new to the lake. As we learn more about our lake, we may become more involved. |
| 40 | | | | | | | | | |
| 41 | | | | | | review#20.l. | | | We are concerned about the increasing number of off shore platforms etc. They essentially take away from lake use by others as boating regulations require boating restrictions. We should also be concerned about lake level. Does the outflow used to be checked? Evaporation probably is the big culprit, nothing we can do about that. |
| 42 | | | | | | | | | Concerned about large amount of weed growth in bay areas. Hampering boat launch. Not necessarily invasive species. |
| 43 | | | | | | | | | We applaud the work being done by the ILA. If I spent extended time at our cabins I would surely volunteer my time on its behalf. Thank you for your efforts. |
| 44 | | | | | | | | | |
| 45 | | | | | | | | | |
| 46 | sometime weeks | | | | | | | Responded to 25.e.; shutdown public access | I feel we need to build a dam with trees at the run off creek to raise the water level. I also feel we need to build cribs in the lake to improve our fish quantity. I also feel we need to have beter control of illegal fishing on lakes. I saw a person fishing with 7 fishing poles at one time. Called both the DNR and sheriff and got no one that was interested to come out and do something about it. The best way to stop the aquatic plant problem and loss of quality and quantity of fish is to close the public ramp. Most lakes with AIS problems have public access. Think about it. Some people come to our lake from properties close to ours and come back the same day 5 times and take home their limit. We need to stop this soon or there will be no fish left in the lake and property value will decrease in unbelievable values. |

| Survey Number | 1d Comment | 9i Comment | 10i Comment | 14m Comment | 19p Comment | 20r Comment | 21r Comment | 25l Comment | Other Comments (and Question 30) |
|---|---|---|---|---|---|---|---|---|---|
| 47 | | | | | | low lake level, it gets worse every year | low lake level | | They cannot volunteer because "we are elderly and unable." It is a wonderful lake except in the past our frontage was a lot deeper. Now it is very shallow and receeding. The weeds in the lake are taking over all the shoreline. We use to be able to swim only a few feet from shore and now impossible. We also could fish from our pier and now impossible. I'm afraid the lake is shrinking. We need more rain and snow. The drought and heat have done much damage to the lake. We need to close the outlet to keep some of the water to stay in. The cutting of the woods and quarry have affected the lake. We have seen the changes in the last 36 years. |
| 48 | | | | | | should mark rock bars | | | We are notified that we have to have our septic pumped every 2-3 years. There are cottages/residences on Indian Lake (due to the fact of having never upgrading their septic/drain field) that do not adhere to this policy and are not reminded to do so. Tax records for this lake should all be reviewed and updated reminders sent to all in non-compliance. |
| 49 | 4 seasons, not full time | | | | | | | | A great concern remains about residents who continue to apply chemicals to their lawns, and disregard laws pertaining to cutting trees and removing shoreline buffering plants. |
| 50 | | | | | | | | | In regards to lake levels, understandint the drought levels, it seems as though when we gain levels due to rain we have a resident that allows water out of our creek opening somewhere on the lake, if this is true that should not be allowed. I purchased a boat lift 5 years ago and only been able to use it one year. Now it just sits on shore. This issue should be addressed. A permanent containment wall should be installed locaked and maintained to keep water levels constant. I would volunteer my time to monitor it but I am not there on a continual basis. Lake levels affect just about all of our concerns such as fishing, recreational activities, water quality, and invasive species. |
| 51 | | | | | | | | | Indian Lake is or seems unique in having several distinct shoreline characteristics, reedy to weedy to clear, etc. Because of this it is important to have as many representations for each of these microcosms engaged in a management plan. |
| 52 | | | | | | | | weed control | In the bay we are in ("Boathouse Bay") our primary issues are weeds and silt. The weeds are controllable mechanically, but siltification is a real tough issue for us. Not only has the lower water level over the past 7 years encouraged weed growth, but our bottom is coming up to us with silt. Raking is somewhat effective, but there is just too much silt. |
| 53 | | | | | | | | | |
| 54 | | | | | | | decrease in water level | | |
| 55 | | re: g. if available | re: f. too many stunted and g./h. like to see stocking for these species. | | | | | | In general, the fish habitat is strong although there needs to be attention made to lake weeds choking out lake areas. Larger predator fish need to be stocked to help reduce the explosion of stunted-growth fish including perch/panfish/northern (which seem to be severely stunted.) |
| 56 | | | | | | | | | Indian Lake shorelines differ markedly. It is difficult to separate the positives and negatives of "our" shoreline versus the lake as a whole. While our first priority needs to be our own property. The association should promote an awareness of the lake as a whole. |
| 57 | | | | 1st, 2nd, 3rd not picked but categories a. c. e. f. h. j. k . l. m. (cross country skiing & snowshoeing) | | | | | |
| 58 | | i. bullhead | | | | | | | We really appreciate all the work and effort that went into getting the Grant. We enjoy living here. We enjoy the lake and want it to be here for future generations. |
| 59 | | | | | | | | | |
| 60 | | | | | | | | Post sign by boat launch reinforcing clean boats coming in | |
| 61 | | | | | | | | | Ice fishing moratorium. DNR stocking of our lake with walleye, crappie and perch. I have not caught a walleye in about 10 years nor a crappie in about 5 years on Indian Lake. I'm a fair to good fisherman. |
| 62 | | | | | | | Water level | | |
| 63 | | | | | | | | | Doing a great job getting this done! Wish I could help out. |
| 64 | | | | | | | | | I think Indian lake is a scenic and beautiful lake in the Northwood's. There is always many sides to every argument. To someone with beautiful sand frontage his main concern is invasive species, to the person that has weedy and mucky frontage it might be all invasive species, because he/she has to fight to get there boat out every year. It was mentioned that haaving some kind of dyke to regulate the water at the creek that goes out of the lake. This would keep a more constant depth and less water fluctuation all year round. Someone on the other side of the lake is happy with the lake levels as they are. For the most part I believe that most people on the lake love to pontoon ride or watch the loons in the summer or just have a quiet drink on the dock (all great things). Water quality and invasive species are and should be top priorities, but I think the state of the fishing is a close second. At one time Indian lake was a premier musky and walleye lake known throughout the Northwood's. I would like to see this return. Like I said there is always many sides and not everyone fish's or could care less about the fisheries. To me if the fishing is good property values are higher. There are many lakes in the area that have some invasive species, mercury problems or other issues. But if it is a class A musky lake or excellent walleye fisheries, people want to be on it, or own property on it. We are lucky we have a great lake to work with and the upside is tremendous. I would hope the fisheries part is not overlooked and steps would be taken to take a good hard look at how to improve, not for today but the future.... |

# C

# APPENDIX C

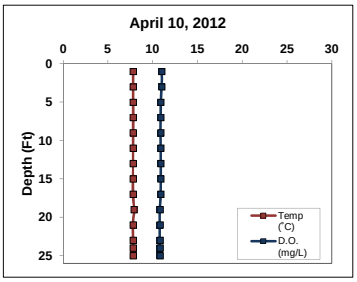
## Water Quality Data

**Indian Lake**

**Date:** 4/10/2012
**Time:** 12:20
**Weather:** 100% clouds, flurries, windy, 31 °F
**Entry:** TWH

**Max Depth:** 26.7
**ILS Depth (ft):** 3.0
**ILB Depth (ft):** 24.0
**Secchi Depth (ft):** 7.1

| Depth (ft) | Temp (°C) | D.O. (mg/L) | pH | Sp. Cond. (µS/cm) |
|---|---|---|---|---|
| 1 | 7.8 | 11.0 | 8.9 | 61.0 |
| 3 | 7.8 | 11.0 | 8.8 | 61.0 |
| 5 | 7.8 | 10.9 | 8.8 | 61.0 |
| 7 | 7.8 | 10.9 | 8.7 | 61.0 |
| 9 | 7.8 | 10.9 | 8.7 | 61.0 |
| 11 | 7.8 | 10.9 | 8.7 | 61.0 |
| 13 | 7.8 | 10.9 | 8.6 | 61.0 |
| 15 | 7.8 | 10.9 | 8.6 | 61.0 |
| 17 | 7.8 | 10.9 | 8.6 | 61.0 |
| 19 | 7.9 | 10.8 | 8.6 | 61.0 |
| 21 | 7.8 | 10.8 | 8.5 | 61.0 |
| 23 | 7.8 | 10.8 | 8.5 | 61.0 |
| 24 | 7.8 | 10.8 | 8.5 | 61.0 |
| 25 | 7.8 | 10.8 | 8.5 | 61.0 |




| Parameter | ILS | ILB |
|---|---|---|
| Total P (µg/L) | 20.00 | 10.00 |
| Dissolved P (µg/L) | ND | ND |
| Chl-*a* (µg/L) | 5.35 | NA |
| TKN (µg/L) | 450.00 | 440.00 |
| $NO_3 + NO_2$-N (µg/L) | 20.00 | 30.00 |
| $NH_3$-N (µg/L) | ND | ND |
| Total N (µg/L) | 470.00 | 470.00 |
| Lab Cond. (µS/cm) | 65.00 | 66.00 |
| Lab pH | 7.50 | 7.52 |
| Alkalinity (mg/L $CaCO_3$) | 24.20 | 24.40 |
| Total Susp. Solids (mg/L) | ND | ND |
| Calcium (mg/L) | 6.30 | NA |
| Magnesium (mg/L) | 2.50 | NA |
| Hardness (mg/L) | 26.00 | NA |
| Color (SU) | 10.00 | NA |
| Turbidity (NTU) | NA | NA |

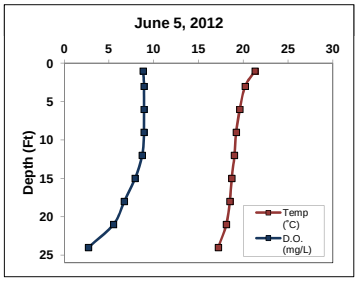
Data collected by TWH (Onterra)

**Indian Lake**

**Date:** 6/5/2012
**Time:** 12:35
**Weather:** sunny, no wind, 75 °F
**Entry:** TWH

**Max Depth:** 26.4
**ILS Depth (ft):** 3.0
**ILB Depth (ft):** 23.0
**Secchi Depth (ft):** 8.1

| Depth (ft) | Temp (°C) | D.O. (mg/L) | pH | Sp. Cond. (µS/cm) |
|---|---|---|---|---|
| 1 | 21.3 | 8.8 | 8.0 | |
| 3 | 20.2 | 8.9 | 8.0 | |
| 6 | 19.6 | 8.9 | 8.0 | |
| 9 | 19.2 | 8.9 | 8.0 | |
| 12 | 19.0 | 8.7 | 8.0 | |
| 15 | 18.7 | 7.9 | 8.0 | |
| 18 | 18.5 | 6.7 | 7.9 | |
| 21 | 18.1 | 5.5 | 7.9 | |
| 24 | 17.2 | 2.7 | 7.8 | |




| Parameter | ILS | ILB |
|---|---|---|
| Total P (µg/L) | 15.00 | 28.00 |
| Dissolved P (µg/L) | NA | NA |
| Chl-*a* (µg/L) | 5.05 | NA |
| TKN (µg/L) | NA | NA |
| $NO_3 + NO_2$-N (µg/L) | NA | NA |
| $NH_3$-N (µg/L) | NA | NA |
| Total N (µg/L) | NA | NA |
| Lab Cond. (µS/cm) | NA | NA |
| Lab pH | NA | NA |
| Alkalinity (mg/L $CaCO_3$) | NA | NA |
| Total Susp. Solids (mg/L) | NA | NA |
| Calcium (mg/L) | NA | NA |
| Magnesium (mg/L) | NA | NA |
| Hardness (mg/L) | NA | NA |
| Color (SU) | NA | NA |
| Turbidity (NTU) | NA | NA |

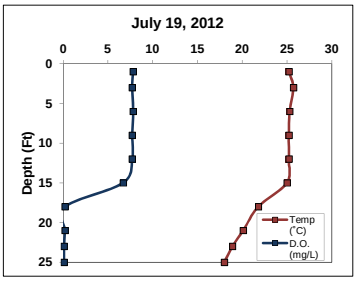
Data collected by TAH and DAC (Onterra)

**Indian Lake**

**Date:** 7/19/2012
**Time:** 10:00
**Weather:** Clear, light breeze
**Entry:** EEC

**Max Depth:** 27.2
**ILS Depth (ft):** 3.0
**ILB Depth (ft):** 24.0
**Secchi Depth (ft):** 8.0

| Depth (ft) | Temp (˚C) | D.O. (mg/L) | pH | Sp. Cond. (µS/cm) |
|---|---|---|---|---|
| 1 | 25.2 | 7.8 | | |
| 3 | 25.7 | 7.7 | | |
| 6 | 25.3 | 7.8 | | |
| 9 | 25.2 | 7.7 | | |
| 12 | 25.2 | 7.7 | | |
| 15 | 25.0 | 6.7 | | |
| 18 | 21.8 | 0.2 | | |
| 21 | 20.1 | 0.2 | | |
| 23 | 18.9 | 0.1 | | |
| 25 | 18.0 | 0.1 | | |




| Parameter | ILS | ILB |
|---|---|---|
| Total P (µg/L) | 16.00 | 48.00 |
| Dissolved P (µg/L) | ND | ND |
| Chl-*a* (µg/L) | 4.99 | NA |
| TKN (µg/L) | 370.00 | 1470.00 |
| $NO_3$ + $NO_2$-N (µg/L) | ND | ND |
| $NH_3$-N (µg/L) | ND | 567.00 |
| Total N (µg/L) | 370.00 | 1470.00 |
| Lab Cond. (µS/cm) | 66.00 | 99.00 |
| Lab pH | 7.70 | 6.83 |
| Alkalinity (mg/L $CaCO_3$) | 25.90 | 43.80 |
| Total Susp. Solids (mg/L) | ND | 9.00 |
| Calcium (mg/L) | 6.10 | NA |
| Magnesium (mg/L) | 2.50 | NA |
| Hardness (mg/L) | 25.60 | NA |
| Color (SU) | 10.00 | NA |
| Turbidity (NTU) | NA | NA |

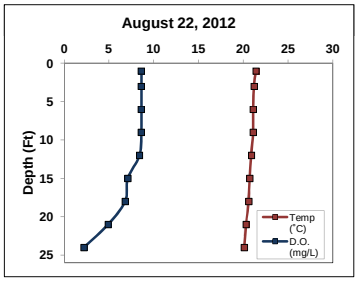
Data collected by TAH (Onterra)

**Indian Lake**

**Date:** 8/22/2012
**Time:** 10:00
**Weather:** 0% clouds, 65F breezy
**Entry:**

**Max Depth:** 25.8
**ILS Depth (ft):** 3
**ILB Depth (ft):** 23
**Secchi Depth (ft):** 6.8

| Depth (ft) | Temp (˚C) | D.O. (mg/L) | pH | Sp. Cond. (µS/cm) |
|---|---|---|---|---|
| 1 | 21.4 | 8.6 | | |
| 3 | 21.2 | 8.6 | | |
| 6 | 21.1 | 8.6 | | |
| 9 | 21.1 | 8.6 | | |
| 12 | 20.9 | 8.4 | | |
| 15 | 20.7 | 7.1 | | |
| 18 | 20.6 | 6.8 | | |
| 21 | 20.3 | 4.9 | | |
| 24 | 20.1 | 2.2 | | |




| Parameter | ILS | ILB |
|---|---|---|
| Total P (µg/L) | 19 | 52 |
| Dissolved P (µg/L) | NA | NA |
| Chl-*a* (µg/L) | 8.51 | NA |
| TKN (µg/L) | NA | NA |
| $NO_3$ + $NO_2$-N (µg/L) | NA | NA |
| $NH_3$-N (µg/L) | NA | NA |
| Total N (µg/L) | NA | NA |
| Lab Cond. (µS/cm) | NA | NA |
| Lab pH | NA | NA |
| Alkalinity (mg/L $CaCO_3$) | NA | NA |
| Total Susp. Solids (mg/L) | NA | NA |
| Calcium (mg/L) | NA | NA |
| Magnesium (mg/L) | NA | NA |
| Hardness (mg/L) | NA | NA |
| Color (SU) | NA | NA |
| Turbidity (NTU) | NA | NA |

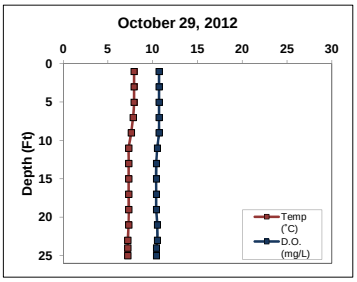
Data collected by TAH, MJH, and MKH (Onterra)

**Indian Lake**

**Date:** 10/29/2012
**Time:** 3:30
**Weather:** 10% clouds, calm, 40F
**Entry:** EEC

**Max Depth:** 26.9
**ILS Depth (ft):** 3
**ILB Depth (ft):** 24
**Secchi Depth (ft):** 7.2

| Depth (ft) | Temp (˚C) | D.O. (mg/L) | pH | Sp. Cond. (µS/cm) |
|---|---|---|---|---|
| 1 | 7.9 | 10.7 | 8.5 | 62 |
| 3 | 7.9 | 10.7 | 8.5 | 62 |
| 5 | 7.9 | 10.7 | 8.5 | 62 |
| 7 | 7.8 | 10.7 | 8.6 | 62 |
| 9 | 7.6 | 10.7 | 8.6 | 62 |
| 11 | 7.3 | 10.5 | 8.5 | 62 |
| 13 | 7.3 | 10.4 | 8.5 | 62 |
| 15 | 7.3 | 10.4 | 8.5 | 62 |
| 17 | 7.3 | 10.4 | 8.5 | 62 |
| 19 | 7.3 | 10.4 | 8.5 | 62 |
| 21 | 7.3 | 10.5 | 8.5 | 62 |
| 23 | 7.2 | 10.5 | 8.5 | 62 |
| 24 | 7.2 | 10.4 | 8.5 | 62 |
| 25 | 7.2 | 10.4 | 8.5 | 62 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |




| Parameter | ILS | ILB |
|---|---|---|
| Total P (µg/L) | 22 | 26 |
| Dissolved P (µg/L) | NA | NA |
| Chl-*a* (µg/L) | 8.94 | NA |
| TKN (µg/L) | NA | NA |
| $NO_3$ + $NO_2$-N (µg/L) | NA | NA |
| $NH_3$-N (µg/L) | NA | NA |
| Total N (µg/L) | NA | NA |
| Lab Cond. (µS/cm) | NA | NA |
| Lab pH | NA | NA |
| Alkalinity (mg/L $CaCO_3$) | NA | NA |
| Total Susp. Solids (mg/L) | ND | 2 |
| Calcium (mg/L) | NA | NA |
| Magnesium (mg/L) | NA | NA |
| Hardness (mg/L) | NA | NA |
| Color (SU) | NA | NA |
| Turbidity (NTU) | NA | NA |

Data collected by TWH (Onterra)

**Indian Lake**

**Date:** 2/13/2013
**Time:** 15:00
**Weather:** 95% clouds, calm, 22 *F
**Entry:** TWH

**Max Depth:** 25.8
**ILS Depth (ft):** 3
**ILB Depth (ft):** 23
**Secchi Depth (ft):** 6.7

| Depth (ft) | Temp (˚C) | D.O. (mg/L) | pH | Sp. Cond. (µS/cm) |
|---|---|---|---|---|
| 1 | 1 | 14.3 | | |
| 3 | 1.2 | 12.7 | | |
| 6 | 2.6 | 9.8 | | |
| 9 | 3.1 | 9.8 | | |
| 12 | 3.5 | 8.8 | | |
| 15 | 3.9 | 6.3 | | |
| 18 | 4.2 | 5 | | |
| 21 | 4.4 | 3.8 | | |
| 23 | 4.7 | 2.1 | | |
| | | | | |
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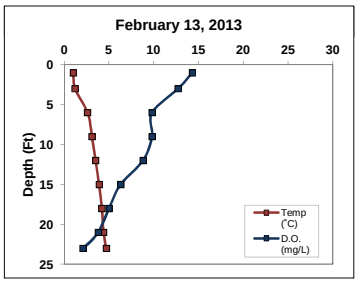


| Parameter | ILS | ILB |
|---|---|---|
| Total P (µg/L) | 15 | 19 |
| Dissolved P (µg/L) | ND | ND |
| Chl-*a* (µg/L) | | |
| TKN (µg/L) | 420 | 590 |
| $NO_3$ + $NO_2$-N (µg/L) | 23 | 33 |
| $NH_3$-N (µg/L) | 20 | 256 |
| Total N (µg/L) | | |
| Lab Cond. (µS/cm) | | |
| Lab pH | | |
| Alkalinity (mg/L $CaCO_3$) | | |
| Total Susp. Solids (mg/L) | | |
| Calcium (mg/L) | | |
| Magnesium (mg/L) | NA | NA |
| Hardness (mg/L) | NA | NA |
| Color (SU) | NA | NA |
| Turbidity (NTU) | NA | NA |

Data collected by TWH and EJG (Onterra) Ice thickness: 1.6'

**Water Quality Data**

| 2012-2013 | Surface | | Bottom | |
|---|---|---|---|---|
| Parameter | Count | Mean | Count | Mean |
| Secchi Depth (feet) | 6 | 7.3 | NA | NA |
| Total P (µg/L) | 6 | 17.8 | 6 | 30.5 |
| Dissolved P (µg/L) | 3 | ND | 3 | ND |
| Chl a (µg/L) | 5 | 6.6 | 0 | NA |
| TKN (µg/L | 3 | 413.3 | 3 | 833.3 |
| NO3+NO2-N (µg/L) | 3 | 21.5 | 3 | 31.5 |
| NH3-N (µg/L) | 3 | 20.0 | 3 | 411.5 |
| Total N (µg/L) | 2 | 420.0 | 2 | 970.0 |
| Lab Cond. (µS/cm) | 2 | 65.5 | 2 | 82.5 |
| Lab pH | 2 | 7.6 | 2 | 7.2 |
| Alkal (mg/l CaCO3) | 2 | 25.1 | 2 | 34.1 |
| Total Susp. Solids (mg/l) | 3 | ND | 3 | 5.5 |
| Calcium (µg/L) | 2 | 6.2 | 0 | NA |
| Magnesium (mg/L) | 2 | 2.5 | 0 | NA |
| Hardness (mg/L) | 2 | 25.8 | 0 | NA |
| Color (SU) | 2 | 10.0 | 0 | NA |
| Turbidity (NTU) | 0 | NA | 0 | NA |

**Trophic State Index (TSI)**

| Year | TP | Chl-a | Secchi |
|---|---|---|---|
| 1976 | | | |
| 1979 | | | |
| 1986 | | | 46.5 |
| 1987 | | | 46.5 |
| 1988 | | | 45.3 |
| 1989 | | | 44.0 |
| 1990 | | | 46.0 |
| 1991 | | | 44.7 |
| 1992 | | | 44.6 |
| 1993 | | | 46.5 |
| 1994 | | | 46.2 |
| 1995 | | | 44.8 |
| 1996 | 42.2 | 47.9 | 46.7 |
| 1997 | | | 45.1 |
| 1998 | | | 47.8 |
| 1999 | | | 47.8 |
| 2000 | | | 47.0 |
| 2001 | | | 47.8 |
| 2004 | 47.3 | 51.6 | 48.1 |
| 2007 | | | 44.3 |
| 2008 | | | 44.4 |
| 2009 | | | 42.1 |
| 2010 | | | 43.9 |
| 2011 | | | 44.3 |
| 2012 | 44.7 | 48.5 | 44.5 |
| **All Years (Weighted)** | 44.8 | 49.1 | 45.4 |
| **Shallow, Headwater Drainage Lakes NLF Ecoregion** | 52.7<br>48.1 | 50.4<br>47.5 | 52.4<br>45.7 |

| | Secchi (feet) | | | | Chlorophyll-a (µg/L) | | | | Total Phosphorus (µg/L) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Growing Season | | Summer | | Growing Season | | Summer | | Growing Season | | Summer | |
| Year | Count | Mean | Count | Mean | Count | Mean | Count | Mean | Count | Mean | Count | Mean |
| 1976 | | | | | | | | | 1 | 30.0 | 0.0 | |
| 1979 | 1 | 6.0 | 0 | | 1 | 14.4 | 0 | | 1 | 20.0 | 0.0 | |
| 1986 | 14 | 8.3 | 13 | 8.4 | | | | | | | | |
| 1987 | 15 | 8.3 | 11 | 8.4 | | | | | | | | |
| 1988 | 21 | 9.2 | 13 | 9.1 | | | | | | | | |
| 1989 | 17 | 9.2 | 13 | 9.9 | | | | | | | | |
| 1990 | 21 | 9.5 | 13 | 8.7 | | | | | | | | |
| 1991 | 20 | 9.0 | 12 | 9.5 | | | | | | | | |
| 1992 | 17 | 9.0 | 10 | 9.6 | | | | | | | | |
| 1993 | 11 | 8.0 | 9 | 8.4 | | | | | | | | |
| 1994 | 17 | 8.9 | 11 | 8.5 | | | | | | | | |
| 1995 | 22 | 8.8 | 14 | 9.4 | 2 | 12.9 | 0 | | 2 | 16.5 | 0.0 | |
| 1996 | 22 | 8.1 | 14 | 8.3 | 2 | 6.3 | 1 | 5.8 | 2 | 13.0 | 1.0 | 14.0 |
| 1997 | 19 | 8.5 | 13 | 9.3 | | | | | | | | |
| 1998 | 16 | 7.9 | 10 | 7.7 | | | | | | | | |
| 1999 | 15 | 7.6 | 10 | 7.6 | | | | | | | | |
| 2000 | 15 | 8.5 | 11 | 8.1 | | | | | | | | |
| 2001 | 11 | 7.6 | 6 | 7.7 | | | | | | | | |
| 2004 | 2 | 8.0 | 1 | 7.5 | 1 | 8.5 | 1 | 8.5 | 2 | 16.5 | 1.0 | 20.0 |
| 2007 | 7 | 10.0 | 2 | 9.8 | | | | | | | | |
| 2008 | 12 | 10.0 | 8 | 9.7 | | | | | | | | |
| 2009 | 15 | 12.1 | 10 | 11.4 | | | | | | | | |
| 2010 | 15 | 12.3 | 9 | 10.0 | | | | | | | | |
| 2011 | 17 | 9.8 | 11 | 9.7 | | | | | | | | |
| 2012 | 18 | 9.7 | 14 | 9.6 | 5 | 6.6 | 3 | 6.2 | 5 | 17.4 | 3.0 | 16.7 |
| **All Years (Weighted)** | | 9.1 | | 9.0 | | 8.6 | | 6.6 | | 17.6 | | 16.8 |
| **Shallow, Headwater Drainage Lakes** | | | | 5.6 | | | | 7.5 | | | | 29.0 |
| **NLF Ecoregion** | | | | 8.9 | | | | 5.6 | | | | 21.0 |

**July 2012 N:** 370.0
**July 2012 P:** 16.0

**Summer 2012 N:P** 23 :1

# D

# APPENDIX D

## Watershed Analysis WiLMS Results

**Date: 5/6/2013 Scenario: Indian Lake Watershed Current**

Lake Id: Indian_WS_Current

Watershed Id: 0

**Hydrologic and Morphometric Data**

Tributary Drainage Area: 566.0 acre
Total Unit Runoff: 12.2 in.
Annual Runoff Volume: 575.4 acre-ft
Lake Surface Area <As>: 357 acre
Lake Volume <V>: 3633 acre-ft
Lake Mean Depth <z>: 10.2 ft
Precipitation - Evaporation: 5.8 in.
Hydraulic Loading: 748.0 acre-ft/year
Areal Water Load <qs>: 2.1 ft/year
Lake Flushing Rate <p>: 0.21 1/year
Water Residence Time: 4.86 year
Observed spring overturn total phosphorus (SPO): 14.0 mg/m^3
Observed growing season mean phosphorus (GSM): 16.3 mg/m^3
% NPS Change: 0%
% PS Change: 0%

**NON-POINT SOURCE DATA**

| Land Use | Acre | Low | Most Likely | High | Loading % | Low | Most Likely | High |
|---|---|---|---|---|---|---|---|---|
| | (ac) | Loading (kg/ha-year) | | | | Loading (kg/year) | | |
| Pine plantations | 26 | 0.50 | 1.00 | 3.00 | 13.0 | 5 | 11 | 32 |
| Mixed AG | 0.0 | 0.30 | 0.80 | 1.40 | 0.0 | 0 | 0 | 0 |
| Pasture/Grass | 20 | 0.10 | 0.30 | 0.50 | 3.0 | 1 | 2 | 4 |
| 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) | 59 | 0.05 | 0.10 | 0.25 | 3.0 | 1 | 2 | 6 |
| Wetlands | 201 | 0.10 | 0.10 | 0.10 | 10.1 | 8 | 8 | 8 |
| Forest | 260 | 0.05 | 0.09 | 0.18 | 11.7 | 5 | 9 | 19 |
| Lake Surface | 357.0 | 0.10 | 0.30 | 1.00 | 53.7 | 14 | 43 | 144 |

**POINT SOURCE DATA**

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

**SEPTIC TANK DATA**

| Description | | Low | Most Likely | High | Loading % |
|---|---|---|---|---|---|
| Septic Tank Output (kg/capita-year) | | 0.3 | 0.5 | 0.8 | |
| # capita-years | 90 | | | | |
| % Phosphorus Retained by Soil | | 98 | 90 | 80 | |
| Septic Tank Loading (kg/year) | | 0.54 | 4.50 | 14.40 | 5.6 |

**TOTALS DATA**

| Description | Low | Most Likely | High | Loading % |
|---|---|---|---|---|
| Total Loading (lb) | 78.6 | 178.1 | 501.6 | 100.0 |
| Total Loading (kg) | 35.6 | 80.8 | 227.5 | 100.0 |
| Areal Loading (lb/ac-year) | 0.22 | 0.50 | 1.41 | 0.0 |
| Areal Loading (mg/m^2-year) | 24.67 | 55.92 | 157.49 | 0.0 |
| Total PS Loading (lb) | 0.0 | 0.0 | 0.0 | 0.0 |
| Total PS Loading (kg) | 0.0 | 0.0 | 0.0 | 0.0 |
| Total NPS Loading (lb) | 45.5 | 72.6 | 151.4 | 94.4 |
| Total NPS Loading (kg) | 20.7 | 32.9 | 68.7 | 94.4 |

## Phosphorus Prediction and Uncertainty Analysis Module

Date: 5/6/2013  Scenario: Indian Lake Watershed Current
Observed spring overturn total phosphorus (SPO): 14.0 mg/m^3
Observed growing season mean phosphorus (GSM): 16.3 mg/m^3
Back calculation for SPO total phosphorus: 0.0 mg/m^3
Back calculation GSM phosphorus: 0.0 mg/m^3
% Confidence Range: 70%
Nurenberg Model Input - Est. Gross Int. Loading: 0 kg

| Lake Phosphorus Model | Low Total P (mg/m^3) | Most Likely Total P (mg/m^3) | High Total P (mg/m^3) | Predicted -Observed (mg/m^3) | % Dif. |
|---|---|---|---|---|---|
| Walker, 1987 Reservoir | 16 | 37 | 103 | 21 | 129 |
| Canfield-Bachmann, 1981 Natural Lake | 13 | 22 | 43 | 6 | 37 |
| Canfield-Bachmann, 1981 Artificial Lake | 13 | 22 | 37 | 6 | 37 |
| Rechow, 1979 General | 2 | 5 | 13 | -11 | -67 |
| Rechow, 1977 Anoxic | 20 | 45 | 126 | 29 | 178 |
| Rechow, 1977 water load<50m/year | 5 | 11 | 32 | -5 | -31 |
| Rechow, 1977 water load>50m/year | N/A | N/A | N/A | N/A | N/A |
| Walker, 1977 General | 14 | 33 | 92 | 19 | 136 |
| Vollenweider, 1982 Combined OECD | 12 | 23 | 55 | 8 | 53 |
| Dillon-Rigler-Kirchner | 9 | 20 | 58 | 6 | 43 |
| Vollenweider, 1982 Shallow Lake/Res. | 9 | 19 | 47 | 4 | 26 |
| Larsen-Mercier, 1976 | 12 | 27 | 77 | 13 | 93 |
| Nurnberg, 1984 Oxic | 8 | 17 | 48 | 1 | 6 |

| Lake Phosphorus Model | Confidence Lower Bound | Confidence Upper Bound | Parameter Fit? | Back Calculation (kg/year) | Model Type |
|---|---|---|---|---|---|
| Walker, 1987 Reservoir | 21 | 79 | Tw | 0 | GSM |
| Canfield-Bachmann, 1981 Natural Lake | 7 | 63 | FIT | 1 | GSM |
| Canfield-Bachmann, 1981 Artificial Lake | 7 | 63 | FIT | 1 | GSM |
| Rechow, 1979 General | 3 | 10 | L qs | 0 | GSM |
| Rechow, 1977 Anoxic | 26 | 97 | FIT | 0 | GSM |
| Rechow, 1977 water load<50m/year | 6 | 25 | FIT | 0 | GSM |
| Rechow, 1977 water load>50m/year | N/A | N/A | N/A | N/A | N/A |
| Walker, 1977 General | 16 | 74 | FIT | 0 | SPO |
| Vollenweider, 1982 Combined OECD | 11 | 48 | FIT | 0 | ANN |
| Dillon-Rigler-Kirchner | 11 | 44 | P L qs p | 0 | SPO |
| Vollenweider, 1982 Shallow Lake/Res. | 9 | 40 | FIT | 0 | ANN |
| Larsen-Mercier, 1976 | 16 | 58 | P Pin | 0 | SPO |
| Nurnberg, 1984 Oxic | 9 | 38 | FIT | 0 | ANN |

E

# APPENDIX E

## Aquatic Plant Survey Data

| Point Number | LATITUDE | LONGITUDE | DEPTH | SEDIMENT | POLE_ROPE | COMMENTS | NOTES | NUISANCE | Total Rake Fullness | Brasenia schreberi | Ceratophyllum demersum | Ceratophyllum echinatum | Chara spp. | Dulichium arundinaceum | Elatine minima | Eleocharis acicularis | Eleocharis erythropoda | Eleocharis palustris | Elodea canadensis | Eriocaulon aquaticum | Isoetes spp. | Juncus pelocarpus | Lemna turionifera | Lobelia dortmanna | Bidens beckii | Myriophyllum tenellum | Najas flexilis | Najas gracillima | Nitella spp. | Nuphar variegata | Nymphaea odorata | Pontederia cordata | Potamogeton amplifolius | Potamogeton epihydrus | Potamogeton gramineus | Potamogeton praelongus | Potamogeton pusillus | Potamogeton robbinsii | Potamogeton spirillus | Potamogeton zosteriformis | Sagittaria cristata | Sparganium sp. | Sparganium androcladum | Sparganium angustifolium | Sparganium fluctuans | Spirodela polyrhiza | Utricularia intermedia | Utricularia vulgaris | Vallisneria americana | Aquatic moss | Freshwater sponge | Filamentous algae |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 45.807462 | -89.296366 | 4 | Sand | Pole | | | | 1 | 1 | 1 | | | | | | | | 1 | | | | | | | | | | | | 1 | | | | | | | 1 | | | | | | | | | | | | | | | |
| 2 | 45.807947 | -89.297724 | 8 | Muck | Pole | | | | 3 | | | | 1 | | | | | | | | | | | | | | | | | | | | 1 | | | | | 2 | | | | | | | | | | | | | | |
| 3 | 45.807943 | -89.297042 | 7 | Muck | Pole | | | | 3 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | |
| 4 | 45.807939 | -89.296360 | 5 | Rock | Pole | | | | 3 | | | | | | | | | | 1 | | | | | | 2 | | | | 1 | | | | 1 | | | | | | 2 | | | | | | | | | | | | | |
| 5 | 45.807935 | -89.295678 | 14 | | Rope | | | | 3 | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 45.807931 | -89.294996 | 16 | | Pole | | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 45.808420 | -89.297036 | 14 | | Rope | | | | 1 | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | 1 | | | | | | | | | | | | | | | |
| 8 | 45.808416 | -89.296354 | 16 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 45.808412 | -89.295672 | 17 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 45.808408 | -89.294990 | 18 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | 45.808403 | -89.294308 | 20 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | 45.808399 | -89.293626 | 4 | Rock | Pole | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | 45.808897 | -89.297030 | 11 | Rock | Pole | | | | 1 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | 45.808893 | -89.296348 | 15 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | 45.808889 | -89.295666 | 17 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | 45.808885 | -89.294984 | 18 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | 45.808880 | -89.294302 | 20 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | 45.808876 | -89.293620 | 23 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | 45.808872 | -89.292938 | 11 | Rock | Pole | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | 1 | | | | | | | | | | | | | | |
| 20 | 45.808868 | -89.292256 | 17 | | Rope | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | |
| 21 | 45.808864 | -89.291574 | 5 | Rock | Pole | | | | 1 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | |
| 22 | 45.809370 | -89.296342 | 17 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | 45.809366 | -89.295660 | 19 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24 | 45.809362 | -89.294978 | 20 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 45.809357 | -89.294296 | 23 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | 45.809353 | -89.293614 | 24 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | 45.809349 | -89.292932 | 19 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | 45.809345 | -89.292250 | 17 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29 | 45.809341 | -89.291568 | 3 | Sand | Pole | | | | 1 | | | | | | | | | | 1 | | 1 | | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | |
| 30 | 45.809876 | -89.301111 | 3 | Sand | Pole | | | | 2 | | | | 1 | | | | | | 1 | | | | | | | | | | | | 1 | | | | | | | 1 | | | | | | | | | | | | 1 | | |
| 31 | 45.809847 | -89.296336 | 18 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32 | 45.809843 | -89.295654 | 21 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 33 | 45.809839 | -89.294972 | 22 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 34 | 45.809834 | -89.294290 | 23 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35 | 45.809830 | -89.293608 | 21 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 36 | 45.809826 | -89.292926 | 18 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 37 | 45.809822 | -89.292244 | 3 | Rock | Pole | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 38 | 45.810424 | -89.312700 | 0 | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 39 | 45.810420 | -89.312018 | 0 | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 45.810416 | -89.311336 | 4 | Muck | Pole | | | | 2 | | | | | | | | | | 1 | | | | | | 1 | | | | | | | | | | | | | 3 | | | | | | | | | | | | 1 | | |
| 41 | 45.810411 | -89.310654 | 5 | Muck | Pole | | | | 3 | | | | | | | | | | 1 | | | | | | | | 1 | | | | | | 1 | | | | | 3 | | | | | | | | | | | | | |
| 42 | 45.810407 | -89.309972 | 2 | Sand | Pole | | | | 1 | | | | | | | | | | | | | | | | 1 | | 1 | | | | 1 | | | | | | | 1 | | | | | | | | | | | | | |
| 43 | 45.810358 | -89.301787 | 8 | Sand | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | |
| 44 | 45.810353 | -89.301105 | 16 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | 45.810349 | -89.300423 | 20 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 46 | 45.810345 | -89.299741 | 18 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 47 | 45.810341 | -89.299059 | 14 | Sand | Pole | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 48 | 45.810324 | -89.296330 | 22 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 49 | 45.810320 | -89.295648 | 22 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50 | 45.810316 | -89.294966 | 23 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 51 | 45.810311 | -89.294284 | 20 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 52 | 45.810307 | -89.293602 | 8 | Sand | Pole | | | | 3 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | 2 | | | | | | | | | | | | | |
| 53 | 45.810303 | -89.292920 | 12 | Sand | Pole | | | | 2 | | | | | | | | | | 1 | | | | | | | | | | 2 | | | | | | | | 1 | | | | | | | | | | | | | 1 |
| 54 | 45.810905 | -89.313377 | 0 | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 55 | 45.810901 | -89.312695 | 2 | Muck | Pole | | | | 2 | 1 | | | 1 | | | | | | 1 | | | | | | | | 1 | | | | 1 | | | | | | 1 | | | | | | | | | | | | | |
| 56 | 45.810897 | -89.312012 | 4 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | 3 | | | | | | | | | | | | | |
| 57 | 45.810893 | -89.311330 | 10 | Muck | Pole | | | | 3 | | 1 | | | | | | | | 1 | | | | | | | | | | | | | | 1 | | | 1 | | 3 | | | | | | | | | | | | | |
| 58 | 45.810888 | -89.310648 | 9 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | |
| 59 | 45.810884 | -89.309966 | 9 | Muck | Pole | | | | 3 | | 1 | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | 2 | | | | | | | | | | | | | |
| 60 | 45.810843 | -89.303145 | 13 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 61 | 45.810839 | -89.302463 | 14 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 62 | 45.810835 | -89.301781 | 18 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 63 | 45.810830 | -89.301099 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 64 | 45.810826 | -89.300417 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 65 | 45.810822 | -89.299735 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 66 | 45.810818 | -89.299053 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 67 | 45.810814 | -89.298371 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 68 | 45.810809 | -89.297688 | 11 | Rock | Pole | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 69 | 45.810805 | -89.297006 | 24 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 70 | 45.810801 | -89.296324 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 71 | 45.810797 | -89.295642 | 24 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 72 | 45.810793 | -89.294960 | 23 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 73 | 45.810788 | -89.294278 | 22 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 74 | 45.810784 | -89.293596 | 0 | Rock | Pole | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 75 | 45.811386 | -89.314053 | 0 | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 76 | 45.811382 | -89.313371 | 3 | Muck | Pole | | | | 3 | 1 | 3 | | | | | | | | 1 | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | |
| 77 | 45.811378 | -89.312689 | 8 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | |
| 78 | 45.811374 | -89.312007 | 11 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | |
| 79 | 45.811370 | -89.311324 | 13 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | |
| 80 | 45.811365 | -89.310642 | 13 | | Rope | | | | 3 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | |
| 81 | 45.811361 | -89.309960 | 13 | Muck | Pole | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | |
| 82 | 45.811357 | -89.309278 | 10 | Muck | Pole | | | | 3 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | |
| 83 | 45.811337 | -89.305868 | 2 | Muck | Pole | | | | 3 | 1 | | 2 | | | | | | | 1 | | | | | | | | | | | 1 | | | | | | | 1 | | | | | | | | | | | | | |
| 84 | 45.811332 | -89.305186 | 1 | Rock | Pole | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 85 | 45.811328 | -89.304503 | 7 | Sand | Pole | | | | 3 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | 1 | | |
| 86 | 45.811324 | -89.303821 | 14 | | Rope | | | | 2 | | | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | |
| 87 | 45.811320 | -89.303139 | 16 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 88 | 45.811316 | -89.302457 | 17 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 89 | 45.811312 | -89.301775 | 15 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 90 | 45.811307 | -89.301093 | 9 | Rock | Pole | | | | 1 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 91 | 45.811303 | -89.300411 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 92 | 45.811299 | -89.299729 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 93 | 45.811295 | -89.299047 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 94 | 45.811291 | -89.298365 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 95 | 45.811286 | -89.297682 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 96 | 45.811282 | -89.297000 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 97 | 45.811278 | -89.296318 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 98 | 45.811274 | -89.295636 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 99 | 45.811270 | -89.294954 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 100 | 45.811265 | -89.294272 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 101 | 45.811261 | -89.293590 | 11 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 102 | 45.811249 | -89.291544 | 13 | Muck | Pole | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | |
| 103 | 45.811244 | -89.290861 | 6 | Sand | Pole | | | | 2 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | 3 | | | | | | | | | | | | 1 | | |
| 104 | 45.811863 | -89.314047 | 2 | Muck | Pole | | | | 3 | 1 | 2 | | 1 | | | | | | 1 | | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | |
| 105 | 45.811859 | -89.313365 | 7 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | |
| 106 | 45.811855 | -89.312683 | 12 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | | | | | | | | |
| 107 | 45.811851 | -89.312001 | 13 | Muck | Pole | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 108 | 45.811847 | -89.311319 | 15 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 109 | 45.811842 | -89.310636 | 14 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 110 | 45.811838 | -89.309954 | 13 | | Rope | | | | 1 | | | | | | | | | | 1 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | |
| 111 | 45.811834 | -89.309272 | 15 | | Rope | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | |
| 112 | 45.811830 | -89.308590 | 3 | Rock | Pole | | | | 1 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | 1 | | 1 |
| 113 | 45.811814 | -89.305862 | 2 | Rock | Pole | | | | 1 | 1 | | | | | | | | | | | 1 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | |
| 114 | 45.811809 | -89.305180 | 4 | Sand | Pole | | | | 1 | | | | 1 | | | 1 | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | |
| 115 | 45.811805 | -89.304498 | 11 | Muck | Pole | | | | 2 | | | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | | | | |
| 116 | 45.811801 | -89.303815 | 12 | | Rope | | | | 2 | | | | | | | | | | 1 | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | | | | |
| 117 | 45.811797 | -89.303133 | 17 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 118 | 45.811793 | -89.302451 | 18 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 119 | 45.811789 | -89.301769 | 19 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 120 | 45.811784 | -89.301087 | 19 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 121 | 45.811780 | -89.300405 | 20 | | Pole | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | Point Number | LATITUDE | LONGITUDE | DEPTH | SEDIMENT | POLE_ROPE | COMMENTS | NOTES | NUISANCE | Total Rake Fullness | Brasenia schreberi | Ceratophyllum demersum | Ceratophyllum echinatum | Chara spp. | Dulichium arundinaceum | Elatine minima | Eleocharis acicularis | Eleocharis erythropoda | Eleocharis palustris | Elodea canadensis | Eriocaulon aquaticum | Isoetes spp. | Juncus pelocarpus | Lemna turionifera | Lobelia dortmanna | Bidens beckii | Myriophyllum tenellum | Najas flexilis | Najas gracillima | Nitella spp. | Nuphar variegata | Nymphaea odorata | Pontederia cordata | Potamogeton amplifolius | Potamogeton ephydrus | Potamogeton gramineus | Potamogeton praelongus | Potamogeton pusillus | Potamogeton robbinsii | Potamogeton spirillus | Potamogeton zosteriformis | Sagittaria cristata | Sparganium sp. | Sparganium androcladum | Sparganium angustifolium | Sparganium fluctuans | Spirodela polyrhiza | Utricularia intermedia | Utricularia vulgaris | Vallisneria americana | Aquatic moss | Freshwater sponge | Filamentous algae |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 122 | | 45.811776 | -89.299723 | 22 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 123 | | 45.811772 | -89.299041 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 124 | | 45.811768 | -89.298359 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 125 | | 45.811763 | -89.297676 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 126 | | 45.811759 | -89.296994 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 127 | | 45.811755 | -89.296312 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 128 | | 45.811751 | -89.295630 | 20 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 129 | | 45.811747 | -89.294948 | 19 | | Rope | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | |
| 130 | | 45.811742 | -89.294266 | 19 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 131 | | 45.811738 | -89.293584 | 20 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 132 | | 45.811734 | -89.292902 | 19 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 133 | | 45.811730 | -89.292220 | 17 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 134 | | 45.811726 | -89.291537 | 14 | | Rope | | | | 1 | | | | | | | | | | 1 | | | | | | | | | | 1 | | | | | | | | | 1 | | | | | | | | | | | | 1 |
| 135 | | 45.811721 | -89.290855 | 12 | Sand | Pole | | | | 2 | | | | 1 | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | |
| 136 | | 45.812340 | -89.314041 | 6 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | |
| 137 | | 45.812336 | -89.313359 | 11 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | | | | | | | | |
| 138 | | 45.812332 | -89.312677 | 12 | Muck | Pole | | | | 2 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 1 | | | | | | | | | | | | |
| 139 | | 45.812328 | -89.311995 | 13 | Muck | Pole | | | | 2 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | |
| 140 | | 45.812324 | -89.311313 | 13 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 141 | | 45.812319 | -89.310631 | 13 | | Rope | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | |
| 142 | | 45.812315 | -89.309948 | 12 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | 1 | | | | | | | | | | | | |
| 143 | | 45.812311 | -89.309266 | 11 | Muck | Pole | | | | 3 | | 2 | | | | | | | | 1 | | | | | | | 1 | | | | | | | | | | | | 2 | | | | | | | | | | | | |
| 144 | | 45.812307 | -89.308584 | 11 | Muck | Pole | | | | 3 | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | |
| 145 | | 45.812303 | -89.307902 | 11 | Muck | Pole | | | | 3 | | 1 | 1 | | | | | | | 1 | | | | | | | | | | | | | | | | | | 3 | 1 | | | | | | | | | | | | |
| 146 | | 45.812299 | -89.307220 | 5 | Rock | Pole | | | | 2 | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | | | | |
| 147 | | 45.812278 | -89.303809 | 9 | Sand | Pole | | | | 3 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | 1 | | | | 3 | | | | | | | | | | | | |
| 148 | | 45.812274 | -89.303127 | 14 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 149 | | 45.812270 | -89.302445 | 17 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 150 | | 45.812266 | -89.301763 | 18 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 151 | | 45.812261 | -89.301081 | 18 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 152 | | 45.812257 | -89.300399 | 17 | | Rope | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 153 | | 45.812253 | -89.299717 | 18 | | Rope | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 154 | | 45.812249 | -89.299035 | 19 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 155 | | 45.812245 | -89.298353 | 19 | | Rope | | | | 1 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | |
| 156 | | 45.812240 | -89.297670 | 19 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 157 | | 45.812236 | -89.296988 | 19 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 158 | | 45.812232 | -89.296306 | 19 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 159 | | 45.812228 | -89.295624 | 19 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 160 | | 45.812224 | -89.294942 | 18 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 161 | | 45.812219 | -89.294260 | 18 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 162 | | 45.812215 | -89.293578 | 16 | | Rope | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | |
| 163 | | 45.812211 | -89.292896 | 16 | | Rope | | | | 1 | | | | | | | | | | 1 | | | | | | | | | | 1 | | | | | | | | | 1 | | | | | | | | | | | | |
| 164 | | 45.812207 | -89.292214 | 14 | | Rope | | | | 1 | | | | | | | | | | 1 | | | | | | | | | | 1 | | | | | | | | | 1 | | | | | | | | | | | | |
| 165 | | 45.812203 | -89.291531 | 10 | Sand | Pole | | | | 3 | | | | | | | | | | 1 | | | | | | | | 1 | | | | | | | | | 3 | 1 | | | | | | | | | | | | |
| 166 | | 45.812198 | -89.290849 | 2 | Sand | Pole | | | | 1 | | | | | | | | | | | | | 1 | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| 167 | | 45.812817 | -89.314035 | 4 | Muck | Pole | | | | 3 | | 3 | 1 | 1 | | | | | | 1 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | |
| 168 | | 45.812813 | -89.313353 | 9 | Muck | Pole | | | | 3 | | 1 | | 3 | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | | | | | | |
| 169 | | 45.812809 | -89.312671 | 11 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | |
| 170 | | 45.812805 | -89.311989 | 12 | Muck | Pole | | | | 3 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | |
| 171 | | 45.812801 | -89.311307 | 11 | Muck | Pole | | | | 3 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | 3 | 1 | | | | | | | | | | | | |
| 172 | | 45.812796 | -89.310625 | 11 | Muck | Pole | | | | 3 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | |
| 173 | | 45.812792 | -89.309943 | 11 | Muck | Pole | | | | 3 | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | |
| 174 | | 45.812788 | -89.309260 | 11 | Muck | Pole | | | | 3 | | 2 | | | | | | | | 1 | | | | | | | | | | | | | | | | 1 | 3 | | | | | | | | | | | | | |
| 175 | | 45.812784 | -89.308578 | 6 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 3 | | | | | | | | | | | | |
| 176 | | 45.812780 | -89.307896 | 5 | Muck | Pole | | | | 2 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | | | | |
| 177 | | 45.812776 | -89.307214 | 8 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | |
| 178 | | 45.812772 | -89.306532 | 9 | Muck | Pole | | | | 3 | | | | | | | | | | 1 | | | | | | | | | | 3 | | | | | | | | | | | | | | | | | | | | |
| 179 | | 45.812767 | -89.305850 | 4 | Rock | Pole | | | | 2 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | | 1 | | | |
| 180 | | 45.812763 | -89.305168 | 8 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | 1 |
| 181 | | 45.812751 | -89.303121 | 10 | Rock | Pole | | | | 1 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | |
| 182 | | 45.812747 | -89.302439 | 14 | | Rope | | | | 2 | | | | | | | | | | 1 | | | | | | | | | | 2 | | | | | | | | | 1 | | | | | | | | | | | | |
| 183 | | 45.812743 | -89.301757 | 13 | Rock | Pole | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 184 | | 45.812738 | -89.301075 | 17 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 185 | | 45.8127342 | -89.3003929 | 17 | | Rope | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 186 | | 45.81273 | -89.29971078 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 187 | | 45.8127259 | -89.29902866 | 18 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 188 | | 45.8127217 | -89.29834654 | 18 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 189 | | 45.8127175 | -89.29766442 | 18 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 190 | | 45.8127133 | -89.2969823 | 19 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 191 | | 45.8127091 | -89.29630018 | 19 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 192 | | 45.8127049 | -89.29561806 | 18 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 193 | | 45.8127007 | -89.29493595 | 18 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 194 | | 45.8126965 | -89.29425383 | 16 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 195 | | 45.8126922 | -89.29357171 | 14 | | Rope | | | | 1 | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | |
| 196 | | 45.812688 | -89.29288959 | 14 | | Rope | | | | 2 | | | | | | | | | | | | | | | | | | | | 2 | | | | | | | | 1 | | | | | | | | | | | | |
| 197 | | 45.8126838 | -89.29220747 | 11 | Sand | Pole | | | | 2 | | | | | | | | | | | | | | | | | | | 1 | | | | | | 2 | | | 1 | | | | | | | | | | | | |
| 198 | | 45.8126796 | -89.29152535 | 6 | Sand | Pole | | | | 2 | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | | 2 | 1 | 1 | | | | | | | | | | | | |
| 199 | | 45.8132939 | -89.31402948 | 2 | Muck | Pole | | | | 2 | 2 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | |
| 200 | | 45.8132898 | -89.31334735 | 4 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | |
| 201 | | 45.8132857 | -89.31266522 | 10 | Muck | Pole | | | | 3 | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 202 | | 45.8132816 | -89.31198309 | 11 | Muck | Pole | | | | 3 | | | | 3 | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 203 | | 45.8132775 | -89.31130096 | 7 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | |
| 204 | | 45.8132734 | -89.31061884 | 6 | Muck | Pole | | | | 3 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | |
| 205 | | 45.8132693 | -89.30993671 | 8 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | |
| 206 | | 45.8132652 | -89.30925458 | 7 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | |
| 207 | | 45.813261 | -89.30857245 | 5 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | |
| 208 | | 45.8132569 | -89.30789032 | 3 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | |
| 209 | | 45.8132528 | -89.3072082 | 4 | Muck | Pole | | | | 3 | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | |
| 210 | | 45.8132486 | -89.30652607 | 5 | Muck | Pole | | | | 3 | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | |
| 211 | | 45.8132445 | -89.30584394 | 4 | Muck | Pole | | | | 3 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | 3 | | 2 | | | | | | | | | | 2 | | | |
| 212 | | 45.8132404 | -89.30516182 | 6 | Muck | Pole | | | | 3 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | 2 | | | | | | | | | | | 1 | | | |
| 213 | | 45.8132362 | -89.30447969 | 6 | Muck | Pole | | | | 3 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | 2 | | 1 | | | | | | | | | 1 | | | |
| 214 | | 45.813232 | -89.30379756 | 6 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | | 2 | | | |
| 215 | | 45.8132237 | -89.30243331 | 3 | Rock | Pole | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 216 | | 45.8132196 | -89.30175118 | 8 | Rock | Pole | | | | 1 | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | 1 |
| 217 | | 45.8132154 | -89.30106906 | 5 | Rock | Pole | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 218 | | 45.8132112 | -89.30038693 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 219 | | 45.813207 | -89.2997048 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 220 | | 45.8132029 | -89.29902268 | 18 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 221 | | 45.8131987 | -89.29834055 | 18 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 222 | | 45.8131945 | -89.29765843 | 18 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 223 | | 45.8131903 | -89.2969763 | 18 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 224 | | 45.8131861 | -89.29629418 | 18 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 225 | | 45.8131819 | -89.29561205 | 18 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 226 | | 45.8131777 | -89.29492993 | 17 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 227 | | 45.8131735 | -89.2942478 | 7 | Rock | Pole | | | | 2 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | |
| 228 | | 45.8131692 | -89.29356568 | 14 | Muck | Pole | | | | 1 | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | |
| 229 | | 45.813165 | -89.29288355 | 13 | Muck | Pole | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 230 | | 45.8131608 | -89.29220143 | 8 | Sand | Pole | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | | 1 | | |
| 231 | | 45.8131566 | -89.2915193 | 4 | Sand | Pole | | | | 2 | | | | 1 | | | | | | | | 1 | | | | | | | 1 | | | | | | | | 1 | | | | | | | | | | 1 | | | |
| 232 | | 45.8137709 | -89.31402362 | 0 | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 233 | | 45.8137668 | -89.31334149 | 4 | Muck | Pole | | | | 2 | 1 | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | 2 | | | | | | | | | | | | |
| 234 | | 45.8137627 | -89.31265935 | 7 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | |
| 235 | | 45.8137586 | -89.31197722 | 6 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | |
| 236 | | 45.8137545 | -89.31129508 | 5 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | |
| 237 | | 45.8137504 | -89.31061295 | 5 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | |
| 238 | | 45.8137463 | -89.30993082 | 6 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | |
| 239 | | 45.8137422 | -89.30924868 | 4 | Muck | Pole | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | | 1 | | |
| 240 | | 45.8137339 | -89.30788442 | 2 | Muck | Pole | | | | 3 | 1 | | 1 | | | | 1 | | | 1 | | | | | | | | | | | | 1 | 1 | | | | | | | | 1 | | | | | | | | 1 | | 1 |
| 241 | | 45.8137298 | -89.30720228 | 2 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | |
| 242 | | 45.8137256 | -89.30652015 | 4 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | |

| | Point Number | LATITUDE | LONGITUDE | DEPTH | SEDIMENT | POLE_ROPE | COMMENTS | NOTES | NUISANCE | Total Rake Fullness | Brasenia schreberi | Ceratophyllum demersum | Ceratophyllum echinatum | Chara spp. | Dulichium arundinaceum | Elatine minima | Eleocharis acicularis | Eleocharis erythropoda | Eleocharis palustris | Elodea canadensis | Eriocaulon aquaticum | Isoetes spp. | Juncus pelocarpus | Lemna turionifera | Lobelia dortmanna | Bidens beckii | Myriophyllum tenellum | Najas flexilis | Najas gracillima | Nitella spp. | Nuphar variegata | Nymphaea odorata | Pontederia cordata | Potamogeton amplifolius | Potamogeton ephydrus | Potamogeton gramineus | Potamogeton praelongus | Potamogeton pusillus | Potamogeton robbinsii | Potamogeton spirillus | Potamogeton zosteriformis | Sagittaria cristata | Sparganium sp. | Sparganium androcladum | Sparganium angustifolium | Sparganium fluctuans | Spirodela polyrhiza | Utricularia intermedia | Utricularia vulgaris | Vallisneria americana | Aquatic moss | Freshwater sponge | Filamentous algae |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 243 | 45.8137215 | -89.30583802 | 3 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 244 | 45.8137173 | -89.30515588 | 5 | Muck | Pole | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 245 | 45.8137132 | -89.30447375 | 6 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| 246 | 45.813709 | -89.30379162 | 8 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 247 | 45.8137049 | -89.30310949 | 5 | Rock | Pole | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| 248 | 45.8136966 | -89.30174522 | 5 | Sand | Pole | | | | 2 | | | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | | | 1 | | 1 | | | | | | 1 | | | |
| 249 | 45.8136882 | -89.30038096 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 250 | 45.813684 | -89.29969882 | 5 | Rock | Pole | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 251 | 45.8136799 | -89.29901669 | 18 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 252 | 45.8136757 | -89.29833456 | 17 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 253 | 45.8136715 | -89.29765243 | 17 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 254 | 45.8136673 | -89.2969703 | 18 | | Rope | | | | 1 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 255 | 45.8136631 | -89.29628817 | 18 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 256 | 45.8136589 | -89.29560604 | 17 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 257 | 45.8136547 | -89.29492391 | 14 | | Rope | | | | 2 | | | | | | | | | | | | | | | | | | | | 1 | | 2 | | | | | | | | | | | | | | | | | | | |
| 258 | 45.8136505 | -89.29424178 | 11 | Sand | Pole | | | | 2 | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | | 1 | | | | | | | | 1 | | |
| 259 | 45.8136462 | -89.29355965 | 12 | Muck | Pole | | | | 2 | | | | | | | | | | | 1 | | | | | | | | | | | 1 | | | | | | | | 2 | | | | | | | | | | |
| 260 | 45.813642 | -89.29287752 | 12 | Muck | Pole | | | | 1 | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 261 | 45.8136378 | -89.29219539 | 7 | Sand | Pole | | | | 2 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | | 2 | | | | | | | 1 | | |
| 262 | 45.8136336 | -89.29151326 | 2 | Sand | Pole | | | | 1 | | | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | | 1 | | | | | | | | | | |
| 263 | 45.8142438 | -89.31333563 | 0 | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 264 | 45.8142397 | -89.31265348 | 2 | Muck | Pole | | | | 3 | | | | 1 | 1 | | | | | | 2 | | | | | | | | | | | 1 | | | | | | | | | 1 | | | | | | | | | |
| 265 | 45.8142356 | -89.31197134 | 4 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | 3 | | | | | | | | | | |
| 266 | 45.8142315 | -89.3112892 | 4 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | |
| 267 | 45.8142274 | -89.31060706 | 5 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | 3 | | | | | | | | | | |
| 268 | 45.8142233 | -89.30992492 | 2 | Rock | Pole | | | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | 1 | | | | | | |
| 269 | 45.8142109 | -89.30787851 | 0 | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 270 | 45.8142068 | -89.30719637 | 0 | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 271 | 45.8141985 | -89.30583209 | 2 | Rock | Pole | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 272 | 45.8141943 | -89.30514995 | 5 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | |
| 273 | 45.8141902 | -89.30446781 | 6 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | |
| 274 | 45.814186 | -89.30378567 | 8 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | |
| 275 | 45.8141819 | -89.30310354 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 276 | 45.8141777 | -89.3024214 | 18 | | Rope | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | |
| 277 | 45.8141736 | -89.30173926 | 20 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 278 | 45.8141694 | -89.30105712 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 279 | 45.8141652 | -89.30037498 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 280 | 45.814161 | -89.29969285 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 281 | 45.8141568 | -89.29901071 | 16 | | Rope | | | | 1 | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | | | | | | | | | | |
| 282 | 45.8141527 | -89.29832857 | 17 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 283 | 45.8141485 | -89.29764643 | 17 | | Rope | | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | |
| 284 | 45.8141443 | -89.2969643 | 18 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 285 | 45.8141401 | -89.29628216 | 18 | | Rope | | | | 1 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 286 | 45.8141359 | -89.29560002 | 6 | Muck | Pole | | | | 2 | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | 1 | | 1 | 1 | | | | | | | | | | |
| 287 | 45.8141317 | -89.29491789 | 2 | Rock | Pole | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 288 | 45.8141275 | -89.29423575 | 7 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | |
| 289 | 45.8141232 | -89.29355361 | 10 | Muck | Pole | | | | 2 | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | 1 | | |
| 290 | 45.814119 | -89.29287148 | 10 | Muck | Pole | | | | 2 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | |
| 291 | 45.8141148 | -89.29218934 | 6 | Sand | Pole | | | | 3 | | | | | | | | | | | 1 | | | | | | | 1 | | | 1 | | | | | | | | | 2 | | | | | | | | 2 | | |
| 292 | 45.8141106 | -89.29150721 | 2 | Sand | Pole | | | | 1 | | | | | | | | | 1 | | | | | 1 | | | | 1 | | | | | | | | | | | | | | | | | | | | | | |
| 293 | 45.8147167 | -89.31264762 | 0 | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 294 | 45.8147126 | -89.31196547 | 0 | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 295 | 45.8147085 | -89.31128332 | 0 | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 296 | 45.8147044 | -89.31060118 | 0 | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 297 | 45.8147003 | -89.30991903 | 2 | Muck | Pole | | | | 3 | | | | | | | | | | | 1 | | | | | | | | | | | 1 | | | | | | | | 3 | | | | | | | | 1 | | 1 | |
| 298 | 45.8146962 | -89.30923689 | 0 | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 299 | 45.8146879 | -89.3078726 | 0 | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 300 | 45.8146838 | -89.30719045 | 1 | Muck | | | | | | | 1 | 1 | | | | 1 | | | | | | | | | | | | | | | | 1 | 1 | | | | | 1 | | | | | | | | 1 | | | |
| 301 | 45.8146796 | -89.30650831 | 3 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | |
| 302 | 45.8146755 | -89.30582616 | 5 | Muck | Pole | | | | 3 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | |
| 303 | 45.8146713 | -89.30514402 | 6 | Muck | Pole | | | | 3 | | | | | | | | | | | 1 | | | | | | | 1 | | | | | | | | | | | | 3 | | | | | | | | | | |
| 304 | 45.8146672 | -89.30446187 | 6 | Rock | Pole | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | |
| 305 | 45.814663 | -89.30377973 | 13 | Muck | Pole | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 306 | 45.8146589 | -89.30309759 | 16 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 307 | 45.8146547 | -89.30241544 | 17 | | Rope | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | |
| 308 | 45.8146506 | -89.3017333 | 19 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 309 | 45.8146464 | -89.30105115 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 310 | 45.8146422 | -89.30036901 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 311 | 45.814638 | -89.29968687 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 312 | 45.8146338 | -89.29900472 | 16 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 313 | 45.8146297 | -89.29832258 | 16 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 314 | 45.8146255 | -89.29764044 | 14 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 315 | 45.8146213 | -89.29695829 | 17 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 316 | 45.8146171 | -89.29627615 | 18 | | Rope | | | | 1 | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | | | | | | | | | | |
| 317 | 45.8146129 | -89.29559401 | 8 | Rock | Pole | | | | 1 | | | | | 1 | | | | | | 1 | | | | | | | | | | 1 | | | | | | | | 1 | | | | | | | | | | |
| 318 | 45.8146087 | -89.29491187 | 2 | Sand | Pole | | | | 1 | | | | | | | 1 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | |
| 319 | 45.8146045 | -89.29422973 | 8 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | |
| 320 | 45.8146002 | -89.29354758 | 8 | Muck | Pole | | | | 3 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | | |
| 321 | 45.814596 | -89.29286544 | 8 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | |
| 322 | 45.8145918 | -89.2921833 | 5 | Sand | Pole | | | | 2 | | | | | | | 1 | | | | | | | | | | | | | 1 | 1 | | | | | | | | 1 | | | | | | | | 1 | | |
| 323 | 45.8145876 | -89.29150116 | 2 | Sand | Pole | | | | 1 | | | | | 1 | | | | | | | | 1 | | | | | 1 | | | | | 1 | | | | | | | | | | | | 1 | | | | | |
| 324 | 45.8151896 | -89.3119596 | 0 | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 325 | 45.8151855 | -89.31127744 | 0 | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 326 | 45.8151814 | -89.31059529 | 0 | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 327 | 45.8151773 | -89.30991314 | 0 | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 328 | 45.8151732 | -89.30923099 | 0 | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 329 | 45.815169 | -89.30854884 | 0 | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 330 | 45.8151649 | -89.30786669 | 3 | Muck | Pole | | | | 3 | 1 | | | | | | | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | | | | | 1 | | 1 | 1 |
| 331 | 45.8151608 | -89.30718454 | 3 | Muck | Pole | | | | 3 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | |
| 332 | 45.8151566 | -89.30650239 | 5 | Muck | Pole | | | | 3 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | |
| 333 | 45.8151525 | -89.30582024 | 8 | Muck | Pole | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | | |
| 334 | 45.8151483 | -89.30513809 | 10 | Muck | Pole | | | | 2 | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | |
| 335 | 45.8151442 | -89.30445594 | 12 | Muck | Pole | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 336 | 45.81514 | -89.30377379 | 15 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| 337 | 45.8151359 | -89.30309164 | 16 | | Rope | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | 1 |
| 338 | 45.8151317 | -89.30240949 | 17 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 339 | 45.8151276 | -89.30172734 | 19 | | Rope | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | |
| 340 | 45.8151234 | -89.30104519 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 341 | 45.8151192 | -89.30036304 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 342 | 45.815115 | -89.29968089 | 0 | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 343 | 45.8151108 | -89.29899874 | 17 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 344 | 45.8151067 | -89.29831659 | 15 | | Rope | | | | 1 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 345 | 45.8151025 | -89.29763444 | 15 | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 346 | 45.8150983 | -89.29695229 | 15 | | Rope | | | | 1 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 347 | 45.8150941 | -89.29627014 | 18 | | Rope | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | |
| 348 | 45.8150899 | -89.295588 | 5 | Rock | Pole | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 349 | 45.8150814 | -89.2942237 | 5 | Muck | Pole | | | | 2 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | | |
| 350 | 45.8150772 | -89.29354155 | 5 | Muck | Pole | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | | |
| 351 | 45.815073 | -89.2928594 | 5 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | |
| 352 | 45.8150688 | -89.29217726 | 6 | Muck | Pole | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | | |
| 353 | 45.8150646 | -89.29149511 | 1 | Sand | Pole | | | | 1 | | | | | | | | | 1 | 1 | 1 | | 1 | 1 | 1 | | | | 1 | | | | | 1 | 1 | | | | | | | | | | | | | | | |
| 354 | 45.8156584 | -89.31058941 | 0 | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 355 | 45.8156543 | -89.30990725 | 0 | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 356 | 45.8156502 | -89.30922509 | 0 | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 357 | 45.815646 | -89.30854294 | 0 | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 358 | 45.8156419 | -89.30786078 | 1 | Sand | Pole | | | | 1 | 1 | | | | | | | | 1 | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | 1 | | | |
| 359 | 45.8156378 | -89.30717862 | 3 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | |
| 360 | 45.8156336 | -89.30649647 | 6 | Muck | Pole | | | | 3 | | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | |
| 361 | 45.8156295 | -89.30581431 | 9 | Muck | Pole | | | | 3 | | 1 | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | 2 | 1 | | | | | | | | | |
| 362 | 45.8156253 | -89.30513215 | 10 | Muck | Pole | | | | 3 | | 3 | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | 1 | 1 | | | | | | | | | |
| 363 | 45.8156212 | -89.30445 | 12 | Muck | Pole | | | | 1 | | | | | | | | | | | 1 | | | | | | | | | | | 1 | | | | | | | | 1 | | | | | | | | | | |

| | Point Number | LATITUDE | LONGITUDE | DEPTH | SEDIMENT | POLE_ROPE | COMMENTS | NOTES | NUISANCE | Total Rake Fullness | Brasenia schreberi | Ceratophyllum demersum | Ceratophyllum echinatum | Chara spp. | Dulichium arundinaceum | Elatine minima | Eleocharis acicularis | Eleocharis erythropoda | Eleocharis palustris | Elodea canadensis | Eriocaulon aquaticum | Isoetes spp. | Juncus pelocarpus | Lemna turionifera | Lobelia dortmanna | Bidens beckii | Myriophyllum tenellum | Najas flexilis | Najas gracillima | Nitella spp. | Nuphar variegata | Nymphaea odorata | Pontederia cordata | Potamogeton amplifolius | Potamogeton epihydrus | Potamogeton gramineus | Potamogeton praelongus | Potamogeton pusillus | Potamogeton robbinsii | Potamogeton spirillus | Potamogeton zosteriformis | Sagittaria cristata | Sparganium sp. | Sparganium androcladum | Sparganium angustifolium | Sparganium fluctuans | Spirodela polyrhiza | Utricularia intermedia | Utricularia vulgaris | Vallisneria americana | Aquatic moss | Freshwater sponge | Filamentous algae |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 364 | 45.815617 | -89.30376784 | 15 | | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 365 | 45.8156129 | -89.30308568 | 14 | | | Rope | | | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | 1 | | | | | | | | | | | | | | |
| 366 | 45.8156087 | -89.30240353 | 16 | | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| 367 | 45.8156046 | -89.30172137 | 18 | | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 368 | 45.8156004 | -89.30103922 | 0 | | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 369 | 45.8155962 | -89.30035706 | 0 | | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 370 | 45.815592 | -89.29967491 | 0 | | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 371 | 45.8155878 | -89.29899275 | 17 | | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 372 | 45.8155837 | -89.2983106 | 16 | | | Rope | | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | |
| 373 | 45.8155795 | -89.29762844 | 14 | | | Rope | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | |
| 374 | 45.8155753 | -89.29694629 | 15 | | | Rope | | | | 1 | | | | | | | | | | 1 | | | | | | | | | 1 | | | | | | | | | | 1 | | | | | | | | | | | | | | |
| 375 | 45.8155711 | -89.29626414 | 16 | | | Rope | | | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | 1 | | | | | | | | | | | | | | |
| 376 | 45.8155669 | -89.29558198 | 7 | Sand | Pole | | | | | 2 | | | | | | | | | | 1 | | | | | | | 1 | 1 | | | | | 1 | | | | | 1 | | | | | | | | | | | | | 1 | |
| 377 | 45.8155542 | -89.29353552 | 4 | Muck | Pole | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | |
| 378 | 45.81555 | -89.29285337 | 4 | Muck | Pole | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | |
| 379 | 45.8155458 | -89.29217121 | 5 | Muck | Pole | | | | | 2 | | | | 1 | | | | | | 1 | | | | | | | | | | | | | | | 2 | | | | 1 | | | | | | | | | | | | | | |
| 380 | 45.8155416 | -89.29148906 | 0 | | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 381 | 45.8161189 | -89.30785487 | 2 | Sand | Pole | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | |
| 382 | 45.8161148 | -89.30717271 | 3 | Muck | Pole | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | |
| 383 | 45.8161106 | -89.30649054 | 5 | Muck | Pole | | | | | 3 | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | 1 | 3 | | | | | | | | | | | | | | |
| 384 | 45.8161065 | -89.30580838 | 9 | Muck | Pole | | | | | 3 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 385 | 45.8161023 | -89.30512622 | 10 | Muck | Pole | | | | | 2 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | |
| 386 | 45.8160982 | -89.30444406 | 11 | Muck | Pole | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | |
| 387 | 45.816094 | -89.3037619 | 12 | | | Rope | | | | 2 | | | | | | | | | | 2 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| 388 | 45.8160899 | -89.30307973 | 10 | Muck | Pole | | | | | 3 | | | | | | | | | | 2 | | | | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | |
| 389 | 45.8160857 | -89.30239757 | 5 | Rock | Pole | | | | | 3 | | 1 | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | |
| 390 | 45.8160815 | -89.30171541 | 18 | | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 391 | 45.8160774 | -89.30103325 | 18 | | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 392 | 45.8160732 | -89.30035109 | 0 | | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 393 | 45.816069 | -89.29966893 | 0 | | | | DEEP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 394 | 45.8160648 | -89.29898677 | 17 | | | Rope | | | | 1 | | | | | | | | | | 1 | | | | | | | | | 1 | | | | | | | | | | 1 | | | | | | | | | | | | | | |
| 395 | 45.8160607 | -89.29830461 | 14 | | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 396 | 45.8160565 | -89.29762245 | 14 | | | Rope | | | | 1 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | |
| 397 | 45.8160523 | -89.29694029 | 16 | | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 398 | 45.8160481 | -89.29625813 | 8 | Sand | Pole | | | | | 2 | | | | 1 | | | | | | | | | | | | | | | 1 | | | | | | | | | | 2 | 1 | | | | | | | | | | | | | | |
| 399 | 45.8160439 | -89.29557597 | 4 | Sand | Pole | | | | | 2 | | | | 1 | | | | | | | | | | | | | | 1 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 400 | 45.8160312 | -89.29352949 | 3 | Muck | Pole | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | |
| 401 | 45.816027 | -89.29284733 | 4 | Muck | Pole | | | | | 3 | | | | 1 | | | | | | 1 | | | | | | | | | 3 | | | 1 | | | | | | | 1 | | | | | | | | | | | | | | |
| 402 | 45.8160228 | -89.29216517 | 3 | Muck | Pole | | | | | 2 | | 1 | | | | | | | | 1 | | | | | | | | | 1 | | 1 | 1 | | | | | 1 | | | | | | | | | | | | | | | |
| 403 | 45.8160186 | -89.29148301 | 0 | | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 404 | 45.8165918 | -89.30716679 | 4 | Muck | Pole | | | | | 3 | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | 3 | | | | | | | | | | | | | | |
| 405 | 45.8165876 | -89.30648462 | 5 | Muck | Pole | | | | | 3 | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | |
| 406 | 45.8165835 | -89.30580245 | 8 | Muck | Pole | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | | |
| 407 | 45.8165793 | -89.30512029 | 10 | Muck | Pole | | | | | 2 | | 2 | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | 1 | | | | | | | | | | | | | | |
| 408 | 45.8165752 | -89.30443812 | 10 | Muck | Pole | | | | | 3 | | 1 | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 3 | 1 | | | | | | | | | | | | | | |
| 409 | 45.816571 | -89.30375595 | 11 | Muck | Pole | | | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 410 | 45.8165669 | -89.30307378 | 12 | Muck | Pole | | | | | 2 | | | | | | | | | | 1 | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | 1 |
| 411 | 45.8165627 | -89.30239162 | 15 | | | Rope | | | | 1 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | |
| 412 | 45.8165585 | -89.30170945 | 14 | | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 413 | 45.8165544 | -89.30102728 | 9 | Rock | Pole | | | | | 2 | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | |
| 414 | 45.8165502 | -89.30034512 | 15 | | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 415 | 45.816546 | -89.29966295 | 18 | | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 416 | 45.8165418 | -89.29898078 | 15 | | | Rope | | | | 2 | | | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | |
| 417 | 45.8165377 | -89.29829862 | 15 | | | Rope | | | | 1 | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| 418 | 45.8165335 | -89.29761645 | 16 | | | Rope | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | |
| 419 | 45.8165293 | -89.29693428 | 9 | Sand | Pole | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| 420 | 45.8165251 | -89.29625212 | 4 | Sand | Pole | | | | | 1 | | | | 1 | | | | | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| 421 | 45.8165082 | -89.29352346 | 0 | | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 422 | 45.816504 | -89.29284129 | 0 | | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 423 | 45.8164998 | -89.29215913 | 2 | Muck | Pole | | | | | 2 | 1 | | | | | 1 | | | | 1 | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 | | 1 | 1 | | | |
| 424 | 45.8170729 | -89.30784305 | 1 | Sand | Pole | | | | | 3 | 1 | 1 | 1 | | | | | | | | | | | | | | 1 | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | |
| 425 | 45.8170688 | -89.30716087 | 3 | Muck | Pole | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | |
| 426 | 45.8170646 | -89.3064787 | 6 | Muck | Pole | | | | | 3 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | |
| 427 | 45.8170605 | -89.30579653 | 8 | Muck | Pole | | | | | 3 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | |
| 428 | 45.8170563 | -89.30511435 | 7 | Muck | Pole | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | 2 | | | | | | | | | | | | | | |
| 429 | 45.8170522 | -89.30443218 | 10 | Muck | Pole | | | | | 2 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | | |
| 430 | 45.817048 | -89.30375001 | 10 | Muck | Pole | | | | | 3 | | 1 | | | | | | | | 1 | | | | | | | | | | | | | | | 1 | | | | 2 | | | | | | | | | | | | | | |
| 431 | 45.8170439 | -89.30306783 | 12 | Muck | Pole | | | | | 3 | | | | | | | | | | 1 | | | | | | | | | | | | | | | 1 | | | 3 | 1 | | | | | | | | | | | | | | |
| 432 | 45.8170397 | -89.30238566 | 17 | | | Rope | | | | 1 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | |
| 433 | 45.8170355 | -89.30170349 | 11 | Sand | Pole | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | |
| 434 | 45.8170314 | -89.30102131 | 3 | Rock | Pole | | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| 435 | 45.8170272 | -89.30033914 | 14 | | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 436 | 45.817023 | -89.29965697 | 15 | | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 437 | 45.8170188 | -89.2989748 | 13 | | | Rope | | | | 1 | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| 438 | 45.8170146 | -89.29829262 | 13 | Muck | Pole | | | | | 2 | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 439 | 45.8170105 | -89.29761045 | 14 | | | Rope | | | | 1 | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| 440 | 45.8170063 | -89.29692828 | 10 | Sand | Pole | | | | | 2 | | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | |
| 441 | 45.8170021 | -89.29624611 | 1 | Rock | Pole | | | | | 1 | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 442 | 45.8175458 | -89.30715496 | 3 | Muck | Pole | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | |
| 443 | 45.8175416 | -89.30647278 | 5 | Muck | Pole | | | | | 3 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | |
| 444 | 45.8175375 | -89.3057906 | 5 | Sand | Pole | | | | | 3 | | | | | | | | | | 1 | | | | | | | 1 | | 1 | | | | | | | | | | 2 | | | | | | | | | | | | | 0 | |
| 445 | 45.8175333 | -89.30510842 | 7 | Muck | Pole | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | |
| 446 | 45.8175292 | -89.30442624 | 8 | Muck | Pole | | | | | 3 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | |
| 447 | 45.817525 | -89.30374406 | 10 | Muck | Pole | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | |
| 448 | 45.8175209 | -89.30306188 | 12 | Muck | Pole | | | | | 3 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | |
| 449 | 45.8175167 | -89.3023797 | 12 | Muck | Pole | | | | | 2 | | | | | | | | | | 1 | | | | | | | | | | 1 | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | |
| 450 | 45.8175125 | -89.30169752 | 2 | Rock | Pole | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 1 |
| 451 | 45.8175084 | -89.30101535 | 8 | Sand | Pole | | | | | 2 | | | | 1 | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | 1 |
| 452 | 45.8175042 | -89.30033317 | 13 | Muck | Pole | | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 453 | 45.8175 | -89.29965099 | 15 | | | Rope | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 454 | 45.8174958 | -89.29896881 | 13 | Muck | Pole | | | | | 2 | | | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | |
| 455 | 45.8174916 | -89.29828663 | 13 | Muck | Pole | | | | | 1 | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| 456 | 45.8174875 | -89.29760446 | 13 | Muck | Pole | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| 457 | 45.8174833 | -89.29692228 | 5 | Sand | Pole | | | | | 1 | | | | 1 | | | | | | | | 1 | | | | | | 1 | | | | | | | 1 | | | | | | | | | | | | | | | | | | |
| 458 | 45.8180228 | -89.30714904 | 3 | Muck | Pole | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | |
| 459 | 45.8180186 | -89.30646686 | 4 | Muck | Pole | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | |
| 460 | 45.8180145 | -89.30578467 | 2 | Sand | Pole | | | | | 1 | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| 461 | 45.8180103 | -89.30510249 | 7 | Muck | Pole | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | |
| 462 | 45.8180062 | -89.3044203 | 5 | Muck | Pole | | | | | 3 | | | | 1 | | | | | | 1 | | | | | | | | 1 | | | | | | | 2 | | | | 1 | | | | | | | | | | | | | | |
| 463 | 45.818002 | -89.30373812 | 8 | Muck | Pole | | | | | 3 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | 1 | |
| 464 | 45.8179979 | -89.30305593 | 9 | Muck | Pole | | | | | 2 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | |
| 465 | 45.8179937 | -89.30237375 | 9 | Muck | Pole | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 2 | | | | | | | | | | | | | | |
| 466 | 45.8179895 | -89.30169156 | 0 | Rock | Pole | | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| 467 | 45.8179854 | -89.30100938 | 11 | Muck | Pole | | | | | 2 | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | 1 | | | 1 | | | 1 | | | | | | | | | | | |
| 468 | 45.8179812 | -89.30032719 | 12 | Muck | Pole | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | |
| 469 | 45.817977 | -89.29964501 | 10 | Sand | Pole | | | | | 1 | | | | | | | | | | 1 | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | 1 | |
| 470 | 45.8179728 | -89.29896283 | 6 | Sand | Pole | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | |
| 471 | 45.8179686 | -89.29828064 | 6 | Sand | Pole | | | | | 3 | | | | | | | | | | 3 | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | 1 | |
| 472 | 45.8179645 | -89.29759846 | 5 | Sand | Pole | | | | | 1 | | | | 1 | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | 1 | |
| 473 | 45.8185039 | -89.30782532 | 1 | Rock | Pole | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | | 1 | | | | |
| 474 | 45.8184998 | -89.30714313 | 3 | Muck | Pole | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | |
| 475 | 45.8184956 | -89.30646094 | 5 | Muck | Pole | | | | | 3 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | |
| 476 | 45.8184915 | -89.30577874 | 6 | Muck | Pole | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | |
| 477 | 45.8184873 | -89.30509655 | 6 | Muck | Pole | | | | | 3 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | |
| 478 | 45.8184832 | -89.30441436 | 6 | Muck | Pole | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | |
| 479 | 45.818479 | -89.30373217 | 6 | Muck | Pole | | | | | 3 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | |
| 480 | 45.8184749 | -89.30304998 | 9 | Muck | Pole | | | | | 3 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | |
| 481 | 45.8184707 | -89.30236779 | 7 | Muck | Pole | | | | | 3 | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | 3 | | | | | | | | | | | | | | |
| 482 | 45.8184665 | -89.3016856 | 9 | Muck | Pole | | | | | 2 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | |
| 483 | 45.8184624 | -89.30100341 | 7 | Sand | Pole | | | | | 3 | | | | | | | | | | | | | | | | | | 1 | | 1 | | 1 | | | | | | | 2 | | | | | | | | | | | | | | |
| 484 | 45.8184582 | -89.30032122 | 7 | Muck | Pole | | | | | 2 | | | | | | | | | | 1 | | | | | | | | 1 | | | | | | | | | | | 2 | | | | | | | | | | | | | 1 | |

| Point Number | LATITUDE | LONGITUDE | DEPTH | SEDIMENT | POLE_ROPE | COMMENTS | NOTES | NUISANCE | Total Rake Fullness | Brasenia schreberi | Ceratophyllum demersum | Ceratophyllum echinatum | Chara spp. | Dulichium arundinaceum | Elatine minima | Eleocharis acicularis | Eleocharis erythropoda | Eleocharis palustris | Elodea canadensis | Eriocaulon aquaticum | Isoetes spp. | Juncus pelocarpus | Lemna turionifera | Lobelia dortmanna | Bidens beckii | Myriophyllum tenellum | Najas flexilis | Najas gracillima | Nitella spp. | Nuphar variegata | Nymphaea odorata | Pontederia cordata | Potamogeton amplifolius | Potamogeton epihydrus | Potamogeton gramineus | Potamogeton praelongus | Potamogeton pusillus | Potamogeton robbinsii | Potamogeton spirillus | Potamogeton zosteriformis | Sagittaria cristata | Sparganium sp. | Sparganium androcladum | Sparganium angustifolium | Sparganium fluctuans | Spirodela polyrhiza | Utricularia intermedia | Utricularia vulgaris | Vallisneria americana | Aquatic moss | Freshwater sponge | Filamentous algae |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 485 | 45.818454 | -89.29963903 | 1 | Sand | Pole | | | | 1 | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 486 | 45.8189768 | -89.30713721 | 3 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | | | |
| 487 | 45.8189726 | -89.30645501 | 4 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | | | |
| 488 | 45.8189685 | -89.30577282 | 5 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | | | |
| 489 | 45.8189643 | -89.30509062 | 5 | Muck | Pole | | | | 3 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | | | |
| 490 | 45.8189602 | -89.30440842 | 6 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | | | |
| 491 | 45.818956 | -89.30372623 | 5 | Muck | Pole | | | | 3 | | | | | | | | | | 1 | | | | | | | 1 | | | | | | | | | | | | 3 | | | | | | | | | | | | | | | | |
| 492 | 45.8189519 | -89.30304403 | 6 | Sand | Pole | | | | 3 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | | | |
| 493 | 45.8189477 | -89.30236183 | 5 | Muck | Pole | | | | 3 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | | | |
| 494 | 45.8189435 | -89.30167964 | 6 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | | | |
| 495 | 45.8189394 | -89.30099744 | 6 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | 3 | | | | | | | | | | | | | | | | |
| 496 | 45.8189352 | -89.30031524 | 2 | Sand | Pole | | | | 2 | | | | | | | | | | 1 | | | 1 | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 497 | 45.8194538 | -89.30713129 | 1 | Muck | Pole | | | | 3 | 2 | 1 | | | | | | | | | | | | 1 | | | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | |
| 498 | 45.8194496 | -89.30644909 | 2 | Muck | Pole | | | | 2 | | | | 2 | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | |
| 499 | 45.8194455 | -89.30576689 | 4 | Muck | Pole | | | | 2 | | | | | | | | | | 1 | | | | | | | | | | 1 | | | | | | | | | 2 | | | | | | | | | | | | | | | | |
| 500 | 45.8194413 | -89.30508468 | 5 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | | | |
| 501 | 45.8194372 | -89.30440248 | 3 | Muck | Pole | | | | 3 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | | | |
| 502 | 45.819433 | -89.30372028 | 4 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | | | |
| 503 | 45.8194289 | -89.30303808 | 0 | Sand | Pole | | | | 1 | | | | | 1 | 1 | 1 | | | | | | | | | 1 | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | |
| 504 | 45.8194247 | -89.30235588 | 4 | Muck | Pole | | | | 2 | 1 | 1 | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | |
| 505 | 45.8194205 | -89.30167367 | 4 | Muck | Pole | | | | 3 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | | | |
| 506 | 45.8194164 | -89.30099147 | 4 | Muck | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | | | |
| 507 | 45.8194122 | -89.30030927 | 0 | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 508 | 45.8199225 | -89.30576096 | 0 | | | TERRESTRIAL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 509 | 45.8199183 | -89.30507875 | 0 | | | TERRESTRIAL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 510 | 45.8199142 | -89.30439654 | 0 | Muck | Pole | | | | 2 | 1 | | | | | | | | 1 | | | | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | |
| 511 | 45.81991 | -89.30371433 | 2 | Muck | Pole | | | | 2 | | 1 | | | | | | | | | | | | | | | | | | | | 1 | 1 | | | | | 1 | | | | | | | | | | | | | | | | |
| 512 | 45.8199017 | -89.30234992 | 0 | | | NONNAVIGABLE (PLANTS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 513 | 45.8198975 | -89.30166771 | 2 | Muck | Pole | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 514 | 45.8198934 | -89.3009855 | 3 | Rock | Pole | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | | | |
| 515 | 45.8198892 | -89.30030329 | 2 | Muck | Pole | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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# APPENDIX F

## WDNR 2008 Comprehensive Survey

# Comprehensive Fisheries Survey of Indian Lake, Oneida County Wisconsin during 2004.

Waterbody Identification Code 1598900

John Kubisiak
Senior Fisheries Biologist
Rhinelander
June, 2007

WISCONSIN
DEPT. OF NATURAL RESOURCES

SPORT FISH RESTORATION

Your purchase of fishing equipment and motor boat fuel supports boating access and Sport Fish Restoration.

# Comprehensive Fisheries Survey of Indian Lake, Oneida County Wisconsin during 2004.

John Kubisiak
Senior Fisheries Biologist
June, 2007

EXECUTIVE SUMMARY
A comprehensive fisheries survey of Indian Lake was conducted during spring, 2004. Indian Lake has a diverse, high-quality fishery. Northern pike (population estimate, PE = 4.3 per acre) were the dominant gamefish, with good populations of walleye (PE = 1.4 adults and 1.6 total walleyes per acre), largemouth bass (PE = 1.2 per acre), and smallmouth bass (PE = 1.0 per acre). A few muskellunge were also present. Panfish species include black crappie, bluegill, pumpkinseed, bluegillxpumpkinseed hybrids, yellow perch, rock bass and bullheads. Panfish were abundant, with good size structure. Bass growth rates were average or above, while growth was slow for northern pike and older walleye. Growth rates were below regional averages for yellow perch and for bluegill and pumpkinseed younger than age 6, but average or above for rock bass, black crappie and age 6 and older bluegill and pumpkinseed.

Indian Lake supports good fisheries for panfish, northern pike, and lower density, quality-size walleye and bass. Fish populations show adequate natural reproduction, and no stocking is currently needed, but walleye recruitment should be periodically monitored.

Lake and location:
Indian Lake, Oneida County, T39N R9E Sec36
Located in north-east Oneida County in the town of Sugar Camp, about 9 miles south of Eagle River. It is part of the Upper Wisconsin River watershed and is drained by Indian Chain Creek.

Physical/Chemical attributes (Andrews and Threinen 1966):
**Morphometry:** 397 acres, maximum depth 26 feet.
**Watershed:** 2 square miles, including 464 acres of adjoining wetlands.
**Lake type:** Spring (No inlet; outlet is Indian Chain Creek).
**Basic water chemistry:** Soft – alkalinity 28 mg/l, conductance 62 μmhos.
**Water clarity:** Clear water of moderate transparency.
**Littoral substrate:** 55% sand, 20% muck, 15% gravel and some rock.
**Aquatic vegetation:** Submerged vegetation dense in the east bay and the northeast portion of the lake, moderate elsewhere. Floating and emergent plants adjoin the bog wetland in the east bay.
**Winterkill:** None.
**Boat landing:** Asphalt and gravel ramp with parking for four vehicles with trailers.
**Other features:** Shoreline 70% upland with significant areas of shrub-conifer bog wetland.

Purpose of Survey: Assess status of gamefish, panfish and non-game species and develop management recommendations.

Dates of fieldwork: Walleye netting, April 20-25 2004.
Panfish netting June 14-18 2004.
Mini-fyke netting August 31 - September 1 2004.
Hook & line bass marking May 26 2004.
Electroshocking (entire shoreline) April 26, May 7, May 20, June 9, June 15 and September 9 2004.

## BACKGROUND

After a single electroshocking run on July 22, 1963, Morehouse (1963) indicated "Panfish are quite abundant … and will result in a greater problem in the near future." Muskellunge stocking was recommended to increase predation on panfish. "Ideal walleye spawning areas" were described and the walleye population was termed "good". No bass were found, but it was noted that local residents had reported good bass fishing in the past. In a summary paragraph from the Oneida County annual report, it was noted "Bullheads are numerous and are of good size which should make removal by commercial means economical." Commercial fisherman's reports indicate that 1,395 pounds of 10-12 inch bullheads were removed during October 1963.

A spring survey was conducted in 1972 (Berndt 1973). Gamefish were netted (24 net lifts from May 15-19), an electroshocking survey was performed on the night of May 19 and 8 seine hauls were collected on June 22. Gamefish populations were characterized as "a good population of walleyes… natural reproduction is occurring. Other predator game fish captured were muskellunge, northern pike, smallmouth bass, and largemouth bass." Yellow perch and bluegills were the most abundant panfish. Under Fish Stocking, the report recommended "No additional walleye stocking is recommended for a five-year period. Walleye year classes are represented from years when the lake wasn't stocked." Walleye reproduction was to be evaluated after five years (no evaluation is recorded). "Periodic support stocking of muskellunge is recommended on the assumption natural reproduction is limited."

Great Lakes Indian Fish and Wildlife Commission (GLIFWC) conducted a mark-recapture adult walleye population estimate in 1991 and 1992. They estimated 2.23 ($\pm$ 0.73 SD) adult and 3.43 ($\pm$ 1.0 SD) total walleyes per acre in 1991 and 1.47 ($\pm$ 0.10 SD) adults per acre in 1992.

Fall young-of-year surveys were conducted in 1990, 91, 92, 93, 94 (GLIFWC) and 2004 (DNR).

## METHODS

The ice went off Indian Lake the night of April 18, 2004. Eight standard fyke nets (3/4" bar mesh) were set April 20. These nets targeted walleye and were fished through April 25. Eight standard fyke nets were fished June 14-18 (targeting panfish). Six mini-fyke nets (3/16" bar mesh with 1" bar mesh exclusion netting across the mouth) were fished one night on August 31-September 1 (targeting juvenile and non-game fish). A WDNR-standard alternating current electrofishing boat was used to collect fish on April 26, May 7, May 20, June 9, June 15 and September 9, 2004 (the June 15 collection was an extra sample to better estimate largemouth and smallmouth bass populations). Hook and line marking of bass was attempted on May 26, after numerous beds were noted during the May 20 shocking survey, but cold weather had pushed most of the fish offshore. Length or length category (nearest half-inch) was recorded for all gamefish and on panfish during June. Adult gamefish were given a right-ventral fin clip and juveniles were given a top-tail clip for use in mark-recapture population estimates. Age structures (scales or spines) were removed from ten fish per species, per half-inch group.

## RESULTS AND DISCUSSION

### Walleye

During walleye netting, 379 walleyes were captured in 5 nights (including 1 juvenile and 80 recaptures), at a rate of 7.9 walleyes per net day (Table 1). Another 18 walleyes (8 were recaptures)

were captured during panfish netting. The first electrofishing sample on April 26 yielded 65 walleyes (12.7 fish per mile), and subsequent electrofishing runs produced 23, 25, 20 and 0 walleyes. The mark-recapture population estimate of 566 adult walleyes (± 89.4 SD), or 1.4 per acre, is below the predicted population of 1,437 (from a regression model of naturally reproducing northern Wisconsin walleye populations), but is still above 476, the lower 95% prediction interval of the model. Indian Lake was true to its reputation for producing "a few, nice-size walleye," and it appears that the population is maintaining itself at a moderate to low abundance.

The total walleye population (all fish 7 inches and larger) is estimated at 646 (± 153.0 SD). Fish less than 15 inches usually make up a large proportion of a naturally-reproducing walleye population. However, these sizes comprised only 15% of adult walleyes (Figure 1) and 28% of total walleyes estimated in Indian Lake, indicating weak to moderate yearclasses in recent years. Fall surveys show weak recruitment in early 1990s, while the September 2004 survey indicated a moderate yearclass (11.2 age 0 and 1.8 age 1 walleye per mile of shoreline).

Only males less than 17 inches are included in growth summaries. Slow growth of larger fish made scale ages suspect, and time constraints prevented additional ageing of spines. Growth of male walleye was about average out to age 6, but was very slow for older fish (Appendix A). Four larger male walleyes 20.2 to 21.1 inches in length were assigned ages of 11, 12, 16 and 17, indicating that growth rates of individual fish range from average to well below average.

Walleye were stocked sporadically from 1954 to 1991 (Table 2). In years past, it was common to stock on top of naturally reproducing populations. However, recent studies indicate that stocking to supplement natural reproduction is usually ineffective (Li et al. 1996). The walleye population in Indian Lake was below average in 2004, but still within the normal range in lakes supported by natural reproduction. The low population may simply be a result of weak recruitment in recent years, rather than a long-term decline. Fall surveys to monitor future recruitment are warranted.

Figure 1. Length-frequency of adult walleyes during 2004 in Indian Lake, Oneida County Wisconsin.

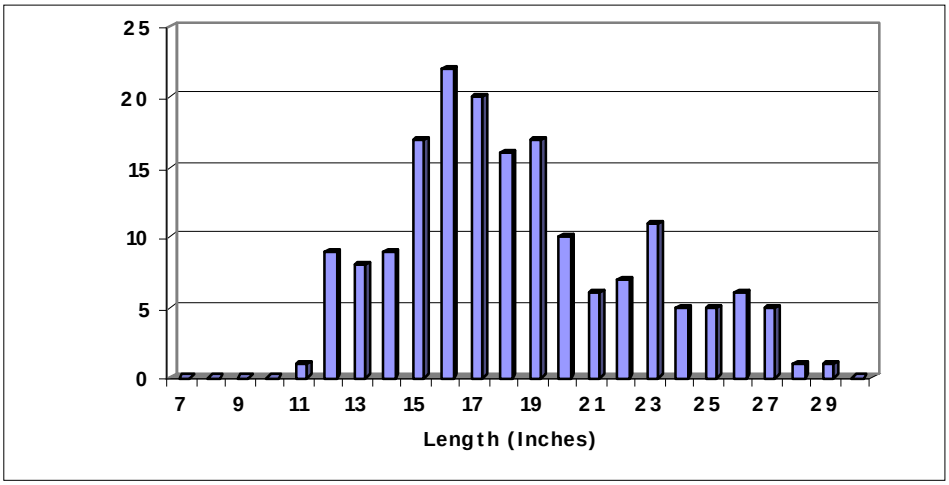


Table 1. Catch per unit effort of gamefish and panfish species during spring, 2004 comprehensive survey of Indian Lake, Oneida County Wisconsin. Netting catch rates are reported as number of fish per net night, while electrofishing catch rates are number of fish per mile of shoreline. Panfish data were not collected during all sampling events and were only collected on two 0.5-mile index stations on September 9.

| species | walleye netting | April 26 shocking | May 7 shocking | May 20 shocking | June 9 shocking | June 15 shocking | panfish netting | Sept 9 shocking |
|---|---|---|---|---|---|---|---|---|
| walleye | 7.9 | 12.7 | 4.5 | 4.9 | 3.9 | 0 | 0.6 | 14.1 |
| largemouth bass | 0.8 | 1.8 | 2.0 | 2.7 | 4.1 | 5.7 | 2.0 | 6.9 |
| smallmouth bass | 0.7 | 1.0 | 4.9 | 8.6 | 7.1 | 9.0 | 1.4 | 7.5 |
| northern pike | 2.5 | 6.3 | 4.9 | 5.1 | 3.7 | 2.3 | 1.0 | 5.1 |
| black bullhead | 0.02 | | | | | | 0.2 | 0 |
| black crappie | 1.8 | | | | | | 4.1 | 9 |
| bluegill | 3.7 | | | | | | 83.3 | 408 |
| hybrid bluegill xpumpkinseed | 0 | | | | | | 0.3 | 2 |
| pumpkinseed | 0.7 | | | | | | 31.0 | 6 |
| rock bass | 0.6 | | | | | | 5.8 | 23 |
| yellow bullhead | 3.2 | | | | | | 57.8 | 14 |
| yellow perch | 3.9 | | | | | | 0.4 | 51 |

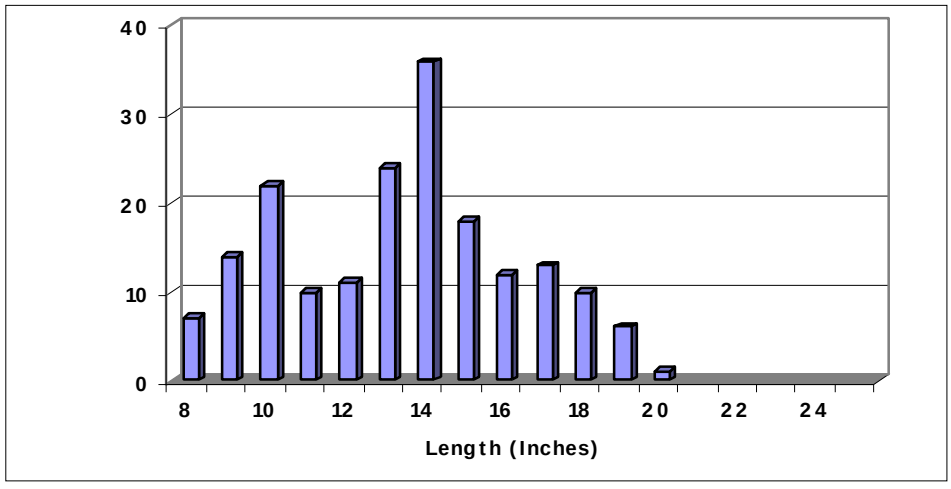
Smallmouth Bass

The current Wisconsin state hook and line record smallmouth is a 9 pound, 1 ounce fish caught in Indian Lake in 1950, and the lake continues to show some quality-size bass. Two hundred thirty-seven smallmouth bass were captured (including recaptures and juvenile fish) during spring sampling. The adult (greater than 8 inches) smallmouth bass population was estimated at 379 ($\pm$ 82 SD), or 0.95 per acre. Smallmouth bass length-frequency (Figure 2) indicates adult size centered on 14 inches, with good numbers of fish out to 20 inches. Growth rates of smallmouth were average or above, with very good potential for producing quality-size fish (Appendix A). The largest smallmouth handled was 20.9 inches.

Table 2. Fish stocking record through 2006 in Indian Lake, Oneida County Wisconsin.

| Year | Species | Size | Number |
|---|---|---|---|
| 1954 | walleye | fingerling | 800 |
| 1955 | muskellunge | fingerling | 397 |
| 1957 | muskellunge | fingerling | 1,300 |
| 1958 | muskellunge | fingerling | 214 |
| 1964 | muskellunge | fingerling | 4,000 |
| 1965 | muskellunge | fingerling | 4,250 |
| 1966 | walleye | fingerling | 15,000 |
| 1968 | walleye | fingerling | 27,000 |
| 1969 | muskellunge | fingerling | 752 |
| 1970 | walleye | fingerling | 5,000 |
| 1971 | muskellunge | fingerling | 1,711 |
| 1973 | muskellunge | fingerling | 800 |
| 1976 | walleye | fingerling | 12,000 |
| 1977 | muskellunge | fingerling (7inch) | 800 |
| 1979 | muskellunge | fingerling (9 inch) | 411 |
| 1982 | muskellunge | fingerling (12 inch) | 800 |
| 1983 | walleye | fingerling (2 inch) | 20,000 |
| 1984 | muskellunge | fingerling | 300 |
| 1985 | walleye | fingerling | 20,000 |
| 1986 | muskellunge | fingerling | 800 |
| 1989 | walleye | fingerling (2 inch) | 20,000 |
| 1991 | walleye | fingerling (2.8 inch) | 10,100 |

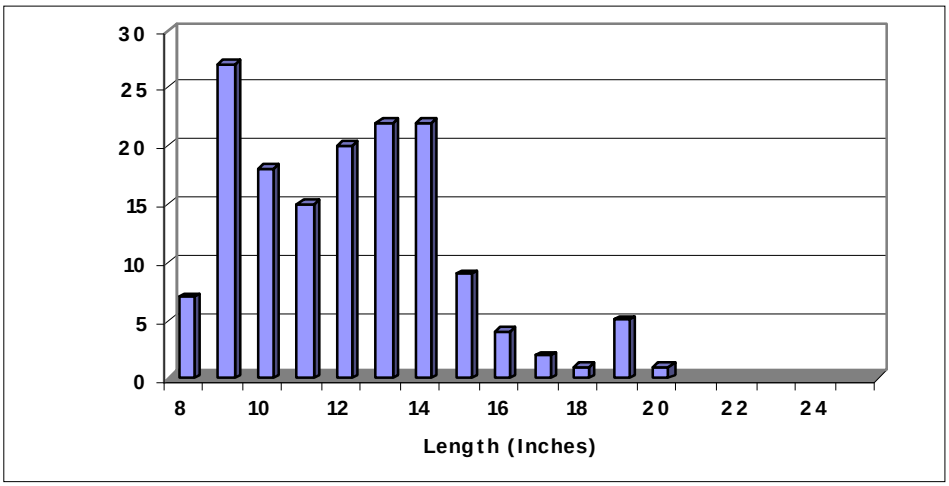
Figure 2. Length-frequency of smallmouth bass during 2004 in Indian Lake, Oneida County Wisconsin.



Largemouth Bass

The adult largemouth bass population was estimated at 461 (± 181 SD), or 1.2 per acre. The largest largemouth was 20.8 inches, but most of the 187 handled were less than 15 inches (Figure 3). A length-frequency that is truncated just after the legal length limit suggests that angler harvest may be impacting the number of larger fish. Similar to smallmouth, growth rates of largemouth bass were somewhat above regional averages.

Figure 3. Length-frequency of largemouth bass during 2004 in Indian Lake, Oneida County Wisconsin.

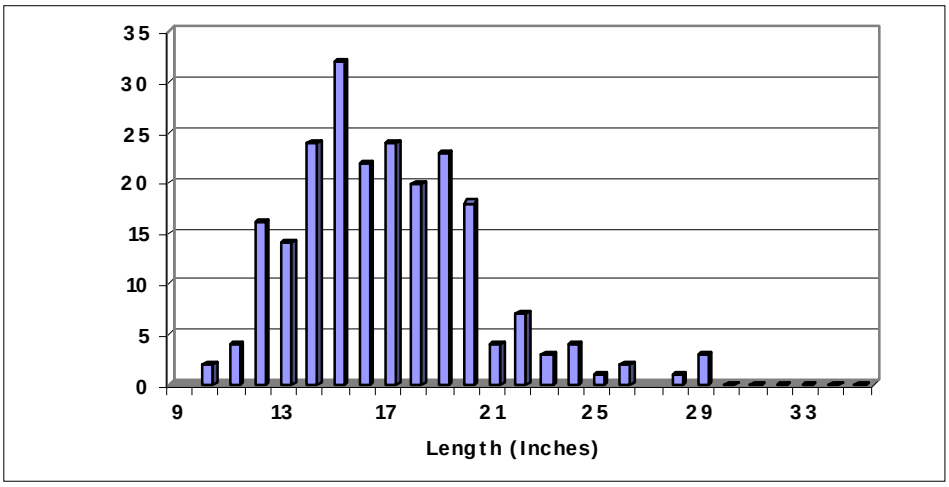



Northern Pike and Muskellunge

Two hundred sixty-four northern pike were captured (including 11 juveniles and 15 recaptures), all gears combined. The northern pike population (including sexually mature fish and all fish over 12 inches) was estimated at 1,718 (± 443 SD), or 4.3 per acre using the Schnabel multiple-capture method (Ricker 1975). Average size of adult northern pike was 17.2 inches, and low numbers of fish greater than 21 inches in length were observed (Figure 4). The largest northern pike was 29.9 inches. The relatively small average size can be attributed to slow growth. Female northern pike lengths-at-age were about a year behind average until age 6, and they were even further behind at older ages (Appendix A). Male pike were also growing at average to below average rates.

No muskellunge were captured during the survey, but several large ones were observed during the May 20 electroshocking survey. Muskellunge spawning habitat is available, but recruitment is likely suppressed by the abundant northern pike. Muskellunge were last stocked in Indian Lake in 1986 (Table 2). Fingerling muskellunge are vulnerable to predation by northern pike, making it difficult to establish muskies by stocking on top of an abundant northern pike population (Margenau 1999).

Figure 4. Length-frequency of adult northern pike during 2004 in Indian Lake, Oneida County Wisconsin.




Panfish

April netting produced good catches of yellow perch, bluegill, and yellow bullhead. Bluegill, yellow bullhead and pumpkinseed dominated June panfish netting (Table 1). Size structure of all panfish species was quite good, indicating adequate populations of predator fish (Figures 5 – 10). June bluegill catch rates of 83 per net night are high, but are below the 'high density' threshold of 100 fish per net night. The strong peak in bullhead size (Figure 10) suggests that most of the population is from one or two large yearclasses.

Bluegill and pumpkinseed were growing about a year behind regional averages at the smaller sizes, with lots of variation between individual fish lengths-at-age (Appendix A). Fish larger than about 7 inches were generally growing well. One possible explanation is panfish that remain in the shallow, vegetated areas of the lake are limited by food, but have good survival. Faster-growing fish may be living in areas with more food and more vulnerability to predators. One exception to the fast-growing larger fish was a 9.1-inch bluegill. Growth increments on this fish's scales were very small, but at 14 years of age, it had survived long enough to achieve a large size. Yellow perch were growing slowly, with length-at-age averaging over a year behind regional values. In contrast to other panfish, black crappie and rock bass were growing about average throughout their size range.

Figure 5. Length-frequency of bluegill during 2004 in Indian Lake, Oneida County Wisconsin.

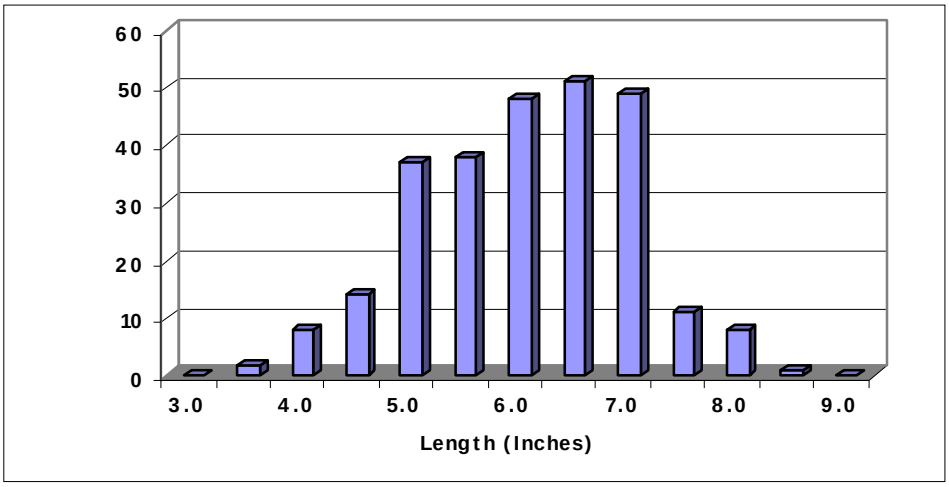



Figure 6. Length-frequency of pumpkinseed during 2004 in Indian Lake, Oneida County WI.

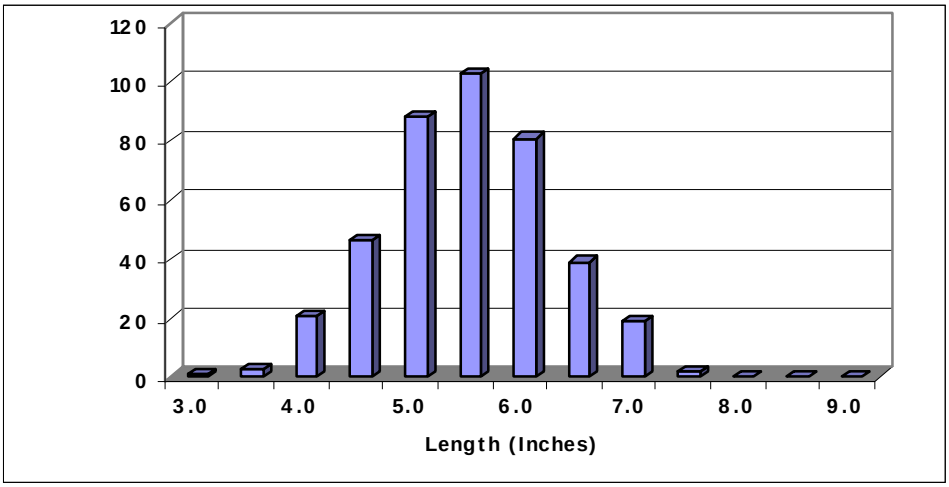



Figure 7. Length-frequency of black crappie during 2004 in Indian Lake, Oneida County WI.

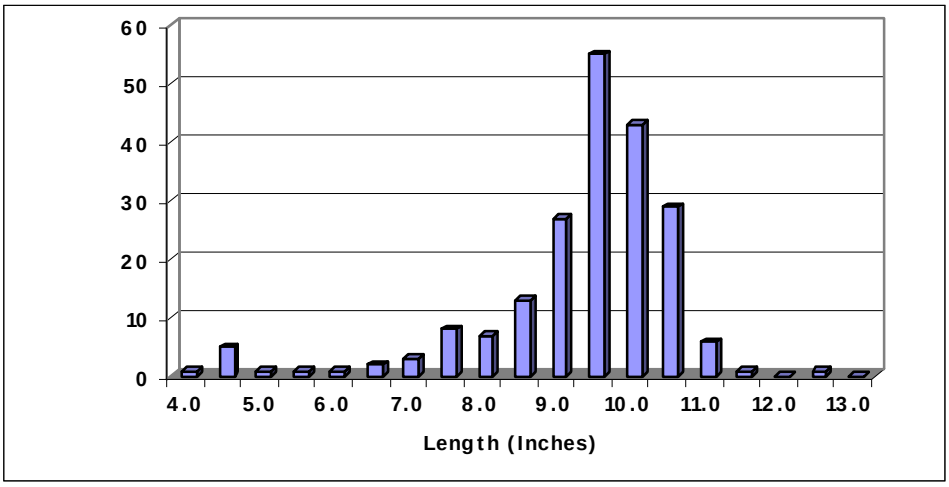


Figure 8. Length-frequency of yellow perch during 2004 in Indian Lake, Oneida County WI.

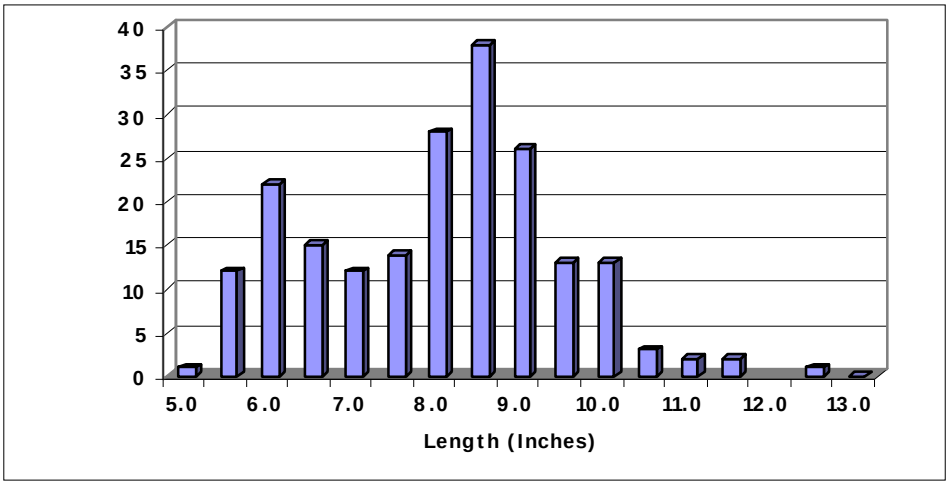



Figure 9. Length-frequency of rock bass during 2004 in Indian Lake, Oneida County Wisconsin.

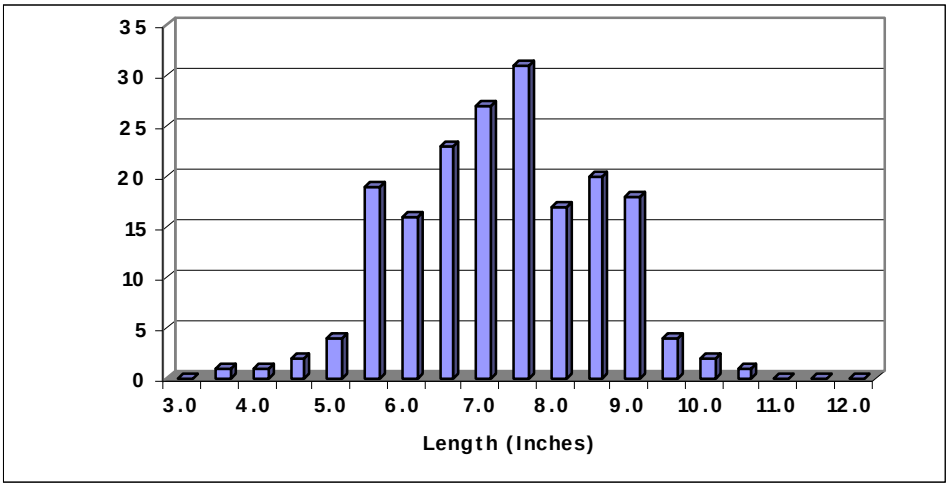
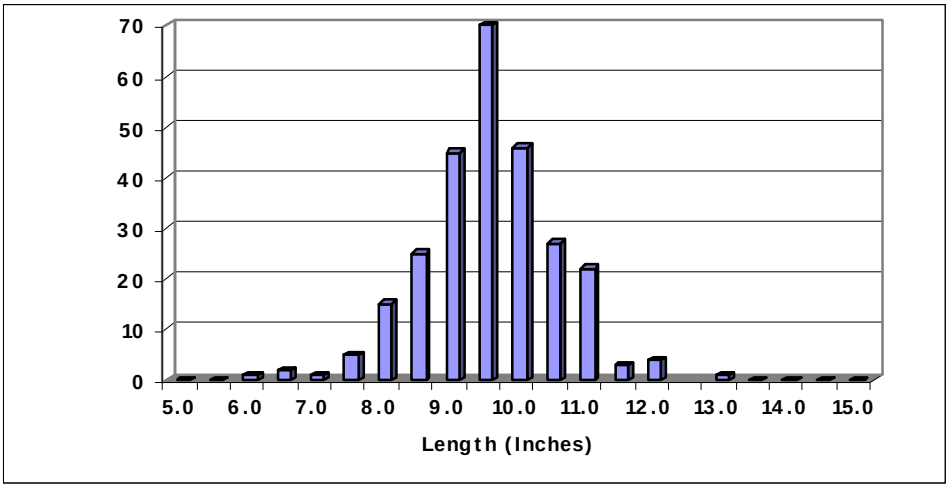



Figure 10. Length-frequency of yellow bullhead during 2004 in Indian Lake, Oneida County Wisconsin.



## MANAGEMENT RECOMMENDATIONS

Indian Lake supports a diverse gamefish community. Northern pike are the dominant gamefish and likely control recruitment of other species. Northern pike are abundant with poor size structure and slow growth at older ages. The walleye population is moderate in density, with good numbers of fish larger than 15 inches. Walleye recruitment appears to be low to moderate. They may be affected by predation from the abundant northern pike. Smallmouth bass show moderate numbers and good size structure. Largemouth bass are slightly more abundant than smallmouth, but most fish were less than 14 inches. This could reflect angler harvest of legal-sized bass, especially largemouth. Both bass species are growing at average or above. Muskellunge are present in the lake, but survival of naturally reproduced or stocked muskies is probably very poor due to the abundant northern pike. Despite high panfish abundance, growth rates and size structure were generally good, with the exception of the slow-growing yellow perch. This indicates that the gamefish populations are in balance and are providing adequate predation on most panfish species. I recommend continuing to manage Indian Lake for panfish, northern pike, and moderate density, quality-size walleye and bass. No stocking is currently needed, but walleye recruitment should be periodically monitored.

## ACKNOWLEDGEMENTS

Matt Andre, Tom Bashaw, Kevin Gauthier, Steve Gilbert, Dennis Goulee, Nate Guldan, Ben Heimbach, Steve Timler, Joelle Underwood, Brian Uttech and Keith Worrall assisted in the field. Steve Timler and I assigned ages from scales and spines. Matt Andre entered and summarized data. Mike Coshun calculated walleye and bass population estimates.

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Cover image courtesy of TerraServer-USA website and the United States Geological Survey. http://terraserver-usa.com

# APPENDIX A
# FISH AGE RESULTS

When 50 or more fish were measured, the aged sub-samples were applied against the full length-frequency to eliminate bias from a non-random subsample. Too few female walleye were aged to accurately represent age and growth.

Table A.1. Male walleye length-at-age in Indian Lake, Oneida County Wisconsin during 2000 and 2004.

| Age | Number of fish | Indian avg length | Northern WI avg |
|---|---|---|---|
| 2 | | | 10.6 |
| 3 | 16 | 12.1 | 11.6 |
| 4 | 12 | 13.9 | 13.0 |
| 5 | 3 | 15.0 | 14.5 |
| 6 | 8 | 15.4 | 15.8 |
| 7 | 6 | 16.0 | 16.9 |
| 8 | 2 | 16.7 | 18.1 |
| 9 | 2 | 16.5 | 18.9 |
| 10 | 1 | 16.3 | 19.7 |
| 11 | | | 20.4 |
| 12 | | | 20.6 |
| 13 | | | 21.3 |
| 14 | | | 22.0 |

Table A.2. Smallmouth bass length-at-age in Indian Lake, Oneida County Wisconsin during 2004.

| Age | Number of fish | Indian avg length | Northern WI avg |
|---|---|---|---|
| 2 | 16 | 6.6 | 6.9 |
| 3 | 21 | 8.8 | 9.3 |
| 4 | 16 | 11.5 | 11.8 |
| 5 | 18 | 13.3 | 13.5 |
| 6 | 13 | 15.4 | 15.2 |
| 7 | 14 | 17.0 | 16.1 |
| 8 | 5 | 17.3 | 17.1 |
| 9 | 6 | 18.1 | 17.7 |
| 10 | 3 | 18.6 | 18.3 |
| 11 | 2 | 18.9 | 18.5 |
| 12 | 3 | 20.7 | 19.8 |

Table A.3. Largemouth bass length-at-age in Indian Lake, Oneida County Wisconsin during 2004.

| Age | Number of fish | Indian avg length | Northern WI avg |
|---|---|---|---|
| 2 | 13 | 6.6 | 6.6 |
| 3 | 23 | 8.7 | 8.9 |
| 4 | 12 | 11.3 | 10.5 |
| 5 | 11 | 12.4 | 12.1 |
| 6 | 14 | 13.9 | 13.6 |
| 7 | 9 | 14.5 | 14.9 |
| 8 | 9 | 16.4 | 15.8 |
| 9 | 2 | 17.5 | 16.2 |
| 10 | 3 | 20.6 | 17.1 |
| 11 | 1 | 18.2 | 17.8 |
| 12 | 3 | 19.2 | 18.2 |

Table A.4. Female northern pike length-at-age in Indian Lake, Oneida County Wisconsin during 2004.

| Age | Number of fish | Indian avg length | Northern WI avg |
|---|---|---|---|
| 1 | 1 | 10.3 | 13.1 |
| 2 | 5 | 13.6 | 14.4 |
| 3 | 5 | 15.4 | 16.9 |
| 4 | 6 | 17.7 | 20.4 |
| 5 | 3 | 19.4 | 23.1 |
| 6 | 2 | 22.2 | 24.4 |
| 7 | 4 | 20.0 | 27.3 |
| 8 | 3 | 22.5 | 28.8 |
| 9 | 2 | 19.3 | 32.1 |
| 10 | 0 | | 33.8 |
| 11 | 1 | 26.7 | |

Table A.5. Male northern pike length-at-age in Indian Lake, Oneida County Wisconsin during 2004.

| Age | Number of fish | Indian avg length | Northern WI avg |
|---|---|---|---|
| 1 | | | 10.7 |
| 2 | 17 | 11.8 | 13.4 |
| 3 | 13 | 15.2 | 16.2 |
| 4 | 7 | 15.9 | 18.9 |
| 5 | 16 | 17.5 | 20.6 |
| 6 | 11 | 22.3 | 22.3 |
| 7 | 4 | 23.1 | 23.4 |
| 8 | 2 | 21.2 | 24.8 |
| 9 | 1 | 22.0 | 23.9 |
| 10 | 0 | | 21.5 |
| 11 | 1 | 20.2 | |

Table A.6. Bluegill length-at-age in Indian Lake, Oneida County Wisconsin during 2004.

| Age | Number of fish | Indian avg length | Northern WI avg |
|---|---|---|---|
| 1 | | | 2.5 |
| 2 | 2 | 3.2 | 3.9 |
| 3 | 9 | 3.8 | 5.0 |
| 4 | 20 | 4.6 | 6.2 |
| 5 | 36 | 5.9 | 6.8 |
| 6 | 17 | 7.5 | 7.8 |
| 7 | 6 | 8.7 | 8.2 |
| 8 | 4 | 8.2 | 8.7 |
| 9 | 1 | 7.5 | 8.7 |
| 10 | 1 | 8.0 | 9.2 |
| 14 | 1 | 9.1 | |

Table A.7. Pumpkinseed length-at-age in Indian Lake, Oneida County Wisconsin during 2004.

| Age | Number of fish | Indian avg length | Northern WI avg |
|---|---|---|---|
| 1 | | | 2.2 |
| 2 | 2 | 3.3 | 3.6 |
| 3 | 10 | 3.8 | 4.8 |
| 4 | 10 | 4.5 | 5.7 |
| 5 | 34 | 6.0 | 6.5 |
| 6 | 20 | 6.9 | 6.8 |
| 7 | 1 | 7.4 | 7.3 |
| 8 | 1 | 7.5 | 7.3 |
| 9 | 1 | 7.3 | |

Table A.8. Rock bass length-at-age in Indian Lake, Oneida County Wisconsin during 2004.

| Age | Number of fish | Indian avg length | Northern WI avg |
|---|---|---|---|
| 1 | | | 1.5 |
| 2 | 2 | 4.0 | 3.6 |
| 3 | 4 | 4.9 | 5.1 |
| 4 | 16 | 5.7 | 6.4 |
| 5 | 26 | 6.8 | 7.2 |
| 6 | 16 | 7.9 | 7.9 |
| 7 | 10 | 9.3 | 8.4 |
| 8 | 13 | 9.1 | 9.0 |
| 9 | 2 | 9.7 | 9.4 |
| 10 | 2 | 10.7 | |
| 11 | 1 | 10.0 | |

Table A.9. Black crappie length-at-age in Indian Lake, Oneida County Wisconsin during 2004.

| Age | Number of fish | Indian avg length | Northern WI avg |
|---|---|---|---|
| 1 | | | 3.4 |
| 2 | 6 | 5.8 | 5.3 |
| 3 | 8 | 7.6 | 7.1 |
| 4 | 23 | 7.5 | 9.0 |
| 5 | 9 | 9.9 | 10.0 |
| 6 | 10 | 11.1 | 10.7 |
| 7 | 4 | 11.2 | 11.6 |
| 8 | 1 | 11.9 | 11.7 |
| 9 | 1 | 12.7 | 10.4 |
| 10 | 1 | 13.8 | 11.6 |

Table A.10. Yellow perch length-at-age in Indian Lake, Oneida County Wisconsin during 2000 and 2004.

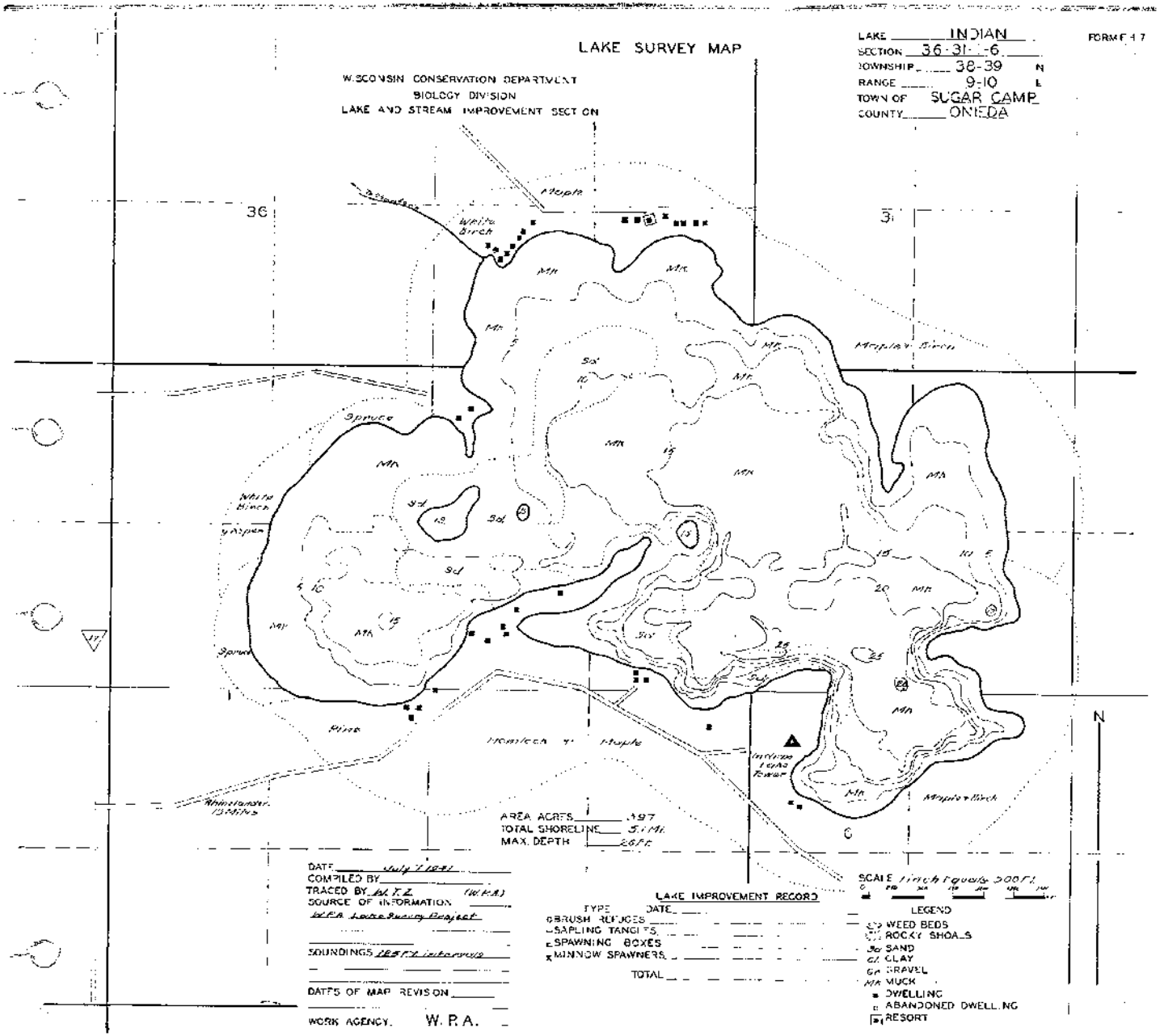
| Age | Number of fish | Indian avg length | Northern WI avg |
|---|---|---|---|
| 1 | | | 3.4 |
| 2 | | | 5.3 |
| 3 | 12 | 5.9 | 7.1 |
| 4 | 12 | 5.3 | 9.0 |
| 5 | 18 | 7.4 | 10.0 |
| 6 | 23 | 7.9 | 10.7 |
| 7 | 16 | 9.1 | 11.6 |
| 8 | 11 | 11.1 | 11.7 |
| 9 | 136 | 11.0 | 10.4 |
| 10 | 5 | 12.5 | 11.6 |
| 11 | 1 | 11.9 | |

# LAKE SURVEY MAP

WISCONSIN CONSERVATION DEPARTMENT
BIOLOGY DIVISION
LAKE AND STREAM IMPROVEMENT SECTION

FORM E 4 7

LAKE INDIAN
SECTION 36-31--6
TOWNSHIP 38-39 N
RANGE 9-10 E
TOWN OF SUGAR CAMP
COUNTY ONEIDA




AREA ACRES 197
TOTAL SHORELINE 5.1 MI.
MAX. DEPTH 26 FT.

DATE July 1 1941
COMPILED BY
TRACED BY M.K.T.L. (W.P.A.)
SOURCE OF INFORMATION
W.P.A. Lake Survey Project
SOUNDINGS 10 FT. intervals
DATES OF MAP REVISION
WORK AGENCY W. P. A.

LAKE IMPROVEMENT RECORD

| TYPE | DATE |
|---|---|
| BRUSH REFUGES | |
| SAPLING TANGLES | |
| SPAWNING BOXES | |
| MINNOW SPAWNERS | |
| TOTAL | |

SCALE 1 inch equals 500 ft.

LEGEND
- WEED BEDS
- ROCKY SHOALS
- Sd SAND
- Cl CLAY
- Gr GRAVEL
- MK MUCK
- DWELLING
- ABANDONED DWELLING
- RESORT