Oneida COUNTY
Land & Water Conservation Department

Prairie Lake

Oneida County, Wisconsin

Page 1: **June 23, 2022** Aquatic Invasive Species Monitoring and Water Quality Report

Land & Water Conservation Department

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Prairie Lake AIS Monitoring and Water Clarity Report

Field Date:	June 23, 2022
WBIC:	1013000
Previous AIS Findings:	No previous AIS.
New AIS Findings:	No new AIS found.
Field Crew:	Aubrey Nycz, AIS Lead Program Assistant, and Madeline Hetland, AIS Project Assistant, Oneida County Land and Water Conservation Department
Report By:	Madeline Hetland

Purpose: Water is Wisconsin's most precious resource. It provides an essential lifeline between wildlife, recreation, public trust resources, agriculture, industry, health and safety, and environmental, urban and rural interests throughout the state. With a growing population and a treasured supply of fresh water, the protection of water for designated and beneficial uses is of paramount importance.

On June 21, 2022, County Board Supervisor Chris Schultz spoke to AIS Coordinator Stephanie Boismenue about Prairie Lake, located in the Town of Nokomis and the concerns that he and lake residents had about the lake's health. He explained that they have observed a sudden onset of silt in the lake that has settled as a bedded layer over the lake's natural sandy substrate. The residents on the lake believe that the silt is coming from a roadside culvert located on the north side of the lake, off of Lyla's Road. He also expressed concern about a significant increase in aquatic vegetation. The AIS team agreed to visit the lake in the next week to monitor for water clarity and collect data on AIS and native plant community.

Each year, the Oneida County Aquatic Invasive Species (AIS) Program staff conducts AIS early detection monitoring and baseline water quality monitoring in Oneida County waterbodies. In addition, staff conducts AIS monitoring at boat landings, rivers, streams, wetlands, roadsides, culverts, and Organisms in Trade. Monitoring takes place from June through September of each year.

AIS early detection monitoring is the most effective approach to locating pioneer populations of WI Chapter NR 40 regulated AIS, species not widely established, and newly introduced species to

Wisconsin. Early detection of AIS is crucial for rapid response, containment, management, preventing their spread, and reducing management costs. Implementation of rapid response activities is vital in maintaining the stability of a waterbodies ecosystem services, habitats, fisheries, recreational opportunities, property values, economy, and human health.

Water quality monitoring provides information on the physical, chemical, and biological characteristics of water. Monitoring aims at assessing the environmental state, detecting trends, and identifying potential problems in the water or watershed. The state of water quality is the result of complex natural and manmade conditions and the consequent of those interactions over time. Evaluating trends determines whether water quality is changing relative to land use and natural conditions. Water quality data provides important and useful information to lake groups, local and regional resource managers, community stakeholders, and provides guidance with protecting and enhancing our waters, watersheds and development to new approaches to water quality management.

Our monitoring program is in collaboration with the DNR, UW Extension's Citizens Lake Monitoring Network Program, and Great Lakes Indian Fish Wildlife Commission. All AIS staff are trained in the in the DNR's AIS monitoring, identification, collection, verification, reporting, and decontamination protocols.

Data Collected: AIS identification, live specimens, photos, population densities, distribution, locations and GPS coordinates. Other observations may include species size, characteristics, and impact to native habitat. Water quality data includes Secchi disc, dissolved oxygen, temperature, water characteristics, and GPS coordinates.

Areas Observed: Perimeter of lake's littoral zone, inlets and outlets, around culverts, under and around docks and piers, and other areas identified as most vulnerable to the introduction of AIS.

Methodology: Searching for AIS in the water and along the shoreline is achieved by slowly canoeing around the entire lake's littoral zone, meandering between shallow and maximum rooting depth or 100' from shore (whichever comes first). Additionally, targeted sites considered high risk of invasive species introductions, such as boat landings, access points, parks, beaches, and inlets receive comprehensive AIS monitoring. Several methods and tools are utilized to achieve the survey: survey from the canoe, walking along the shoreline and shallows, using aqua view scopes, snorkeling to examine underwater solid surfaces, sifting through vegetation, and analyzing plant rake samples, veliger tows, and D-net sediment samples.

Targeted Chapter NR40 Invasive Species Include: Asian clams, banded mystery snails, Chinese mystery snails, Faucet Snails, New Zealand mudsnail, quagga mussels, zebra mussels, rusty crayfish, spiny waterfleas, Eurasian watermilfoil, curly leaf pondweed, flowering rush, non-native phragmites, purple loosestrife, yellow iris, and variegated reed manna grass (Glyceria Maxima 'Variegated').

Other priority species include: red swamp crayfish, Japanese knotweed, Japanese hops, European frog-bit, yellow floating heart, water chestnut, Brazilian waterweed, Hydrilla, fanwort, parrot feather, water, hyacinth, water lettuce, and rock snot.

Prairie Lake Data: Prairie Lake, located in the Town of Nokomis, Oneida County, is a 59-acre seepage lake with a maximum depth of 10 feet (Figure 1.). There is no public boat landing or access point. The substrate is 60% sand, 15% gravel, 10% rock, and 15% muck. Along with reporting the depth and substrate, the Wisconsin Department of Natural Resources (WDNR) reports that the lake has panfish, largemouth bass, northern pike, and walleye.

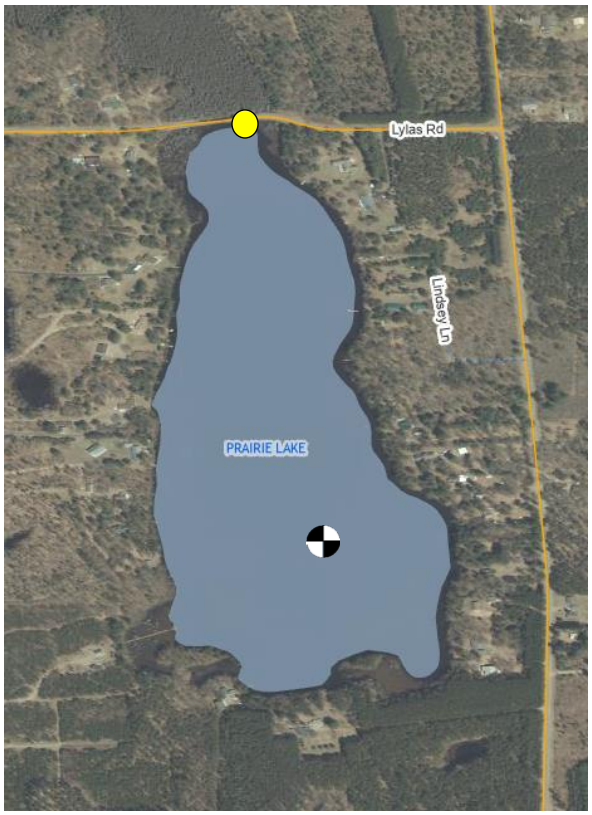
Field Notes (weather): The weather while conducting research on Prairie Lake was sunny and slightly windy. The air temperature was 77 degrees Fahrenheit, and there was 39% humidity. The wind was blowing at 11 miles per hour from the South West.

Field Notes (AIS monitoring): We completed a visual meander survey around the entire lake's perimeter, searching both sides of the canoe, and moving in and out between various water depths. Polarized sunglasses and aquascopes were used to aide in looking at the bottom substrate. Throughout our monitoring, we made note of the plants and animals we observed in the process (see table 1).

Field Notes (water quality monitoring): To observe the water clarity and quality on Prairie Lake, we used a depth finder and maps indicating where data had been collected in the past to locate the deep hole. After locating the deep hole, we used a Secchi disk to measure water clarity and a dissolved oxygen meter to measure water quality. Oxygen is needed for a healthy fish population, and also for plants to respire at night. The measurements from the dissolved oxygen meter can tell us if the organisms in the lake are under stress. The dissolved oxygen measurements on Prairie Lake looked healthy with high dissolved oxygen percentages. These measurements can be found in Table 2. The Secchi disk reading was at 9 feet out of a maximum depth of 9 feet.

Figure 1. Map of Oneida County, WI with Prairie Lake circled in red.

Figure 2. Map of Prairie Lake.



Location of dissolved oxygen and Secchi disk reading
Latitude: 45.600221
Longitude: -89.759609

Canoe Launch Site

Table 1. Common plants found in Prairie Lake while monitoring.

Needle Spikerush (*Eleocharis acicularis*)
Description: Submersed plant with stems rarely exceeding 3 inches tall and no more than .5mm wide, that terminates in a single spikelet. Small enough to be blown around in the wind or carried by currents of water. Root system is fibrous and rhizomatous, forming dense colonies of plants with a mat-like appearance.
Status: Native

Photo Credit: Illinoiswildflowers.info

Dwarf Watermilfoil (*Myriophyllum tenellum*)
Description: An aquatic plant that grows in a dense cluster of thin, toothpick like, unbranched stems from buried rhizomes. Sometimes large mats of interwoven rhizomes and stems will become dislodged from the bottom and float up. Flowers may rise above the water surface in shallow water.
Status: Native

Photo Credit: Aubrey Nycz

Common Bladderwort *(Utricularia macrorhiza)*
Description: Stems very leafy,floating just under the surface or occasionally upright from the sediment. Leaves are finely divided. Bladders are usually abundant on the leaflets, ranging from light green to black. Forms yellow-green winter buds at the tip of the plant in the fall.
Status: Native
Photo Credit: Donald Cameron

Bullhead Pond Lily *(Nuphar variegata)*
Description: Heart shaped leaves up to 40cm long, floating on surface. Has a cup-shaped yellow flower, often with dark patches at the base of each petal. Leaves originate from a thick, spongy rhizome, which can be uprooted.
Status: Native
Photo Credit: discoverlife.org

Water Shield *(Brasenia schreberi)*
Description: An aquatic plant with stems up to 2 meters long. This plant has small floating leaves and reddish purple flowers that have 6-8 petals.
Status: Native
Photo Credit: Shannon Sharp

Table 2. Dissolved oxygen levels and temperatures at the deep hole.

Depth (Feet)	Temperature (°F)	Percent of Dissolved Oxygen	Dissolved Oxygen Levels (mg/L)
1	76.1	97.3%	7.89
2	76	97.2%	7.89
3	75.9	96.9%	7.88
4	75.8	96.3%	7.84
5	75.2	91.7%	7.51
6	75.2	91.7%	7.51
7	75	92.6%	7.59
8	75	84.5%	6.93

Resources: https://dnr.wi.gov/lakes/lakepages/LakeDetail.aspx?wbic=1013000&page=facts