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Conservation That Works!

Long Lake, Waushara County, WBIC 191100
Aquatic Invasive Species Early Detection Survey
July 23rd, 2024

Golden Sands Resource Conservation & Development Council, Inc (RC&D) completed an Aquatic Invasive Species (AIS) Early Detection Survey (ED survey) on Long Lake on July 23rd, 2024. The survey was contracted by the Long Lake Association. ED surveys are a thorough survey of the lake's nearshore area looking for any AIS, both animals and plants, like zebra mussels and Eurasian watermilfoil (EWM). This monitoring protocol is used to locate pioneer populations of AIS, allowing for a rapid response strategy that may mean the difference between long-term management and potential eradication. The survey was completed by Golden Sands RC&D staff Andrew Senderhauf and Mara Lince. No new AIS were observed during the survey.

Aquatic Invasive Species

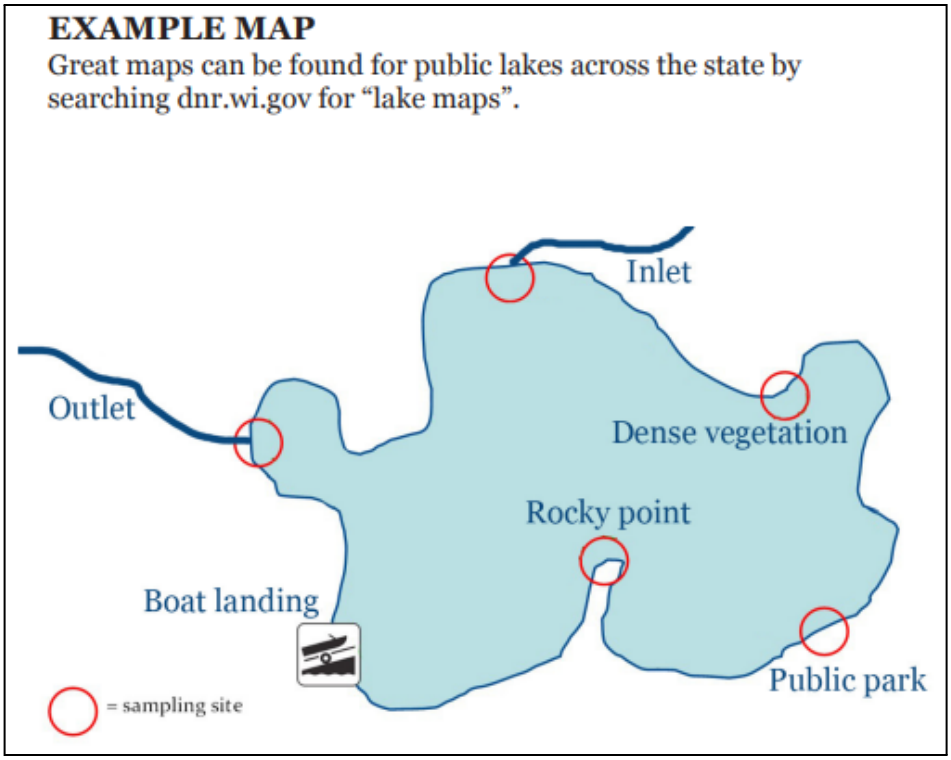
Aquatic invasive species (AIS) are plants or animals that are not native to a particular area and dominate an area where they are introduced. They can be very successful because they fill a niche that isn't occupied, are able to tolerate a wider range of living conditions, they don't have any natural predators or diseases or perhaps they begin growing earlier. EWM, curly-leaf pondweed and purple loosestrife are common examples of AIS. AIS can threaten an area both ecologically and economically. They can disrupt food chains and degrade habitat which negatively impacts fish, invertebrates and wildlife. Nuisance levels of AIS can reduce or even prevent recreational opportunities like fishing, boating, wildlife watching, etc... These reduced recreational opportunities have negative impacts to the local and statewide economy. AIS such as zebra mussels can negatively impact water quality, food chains, aquatic habitat, recreation and industry. Unfortunately the effects of AIS are difficult to foresee since the degree of impact can vary greatly from one place to another. One system may be completely taken over by AIS while AIS in another nearby system may become a part of the community and have little to no negative effects.

AIS Early Detection Surveys

Early Detection (ED) surveys are completed by traveling to all boat landings and 5 predetermined nearshore sites around the lake, as well as meandering the shoreline, looking for existing or new AIS (see Figure 1 for an illustration of this survey protocol). Each boat landing is searched for 30 minutes, conducting a visual survey and the use of rake throws to sample the bottom of the lake. The nearshore sites are surveyed using the same protocol but for 10 minutes each. The shoreline meander

is done between the sites, meandering slowly along the shoreline, throwing the rake to collect samples. If any AIS are found the location is noted using a GPS, as well as the density of the population.

Figure 1: Early Detection Example Map



Survey Summary

Survey conditions on July 23rd were excellent, with calm winds and hazy skies. Water visibility was excellent as well, with the crew being able to see the lak bottom in 15 ft of water. The crew met with Jerry Voigt at the landing at the start of the survey to get some background information of the lake and recent increase of water levels. Site selections were based on previously known AIS locations as well as bays and points that would be susceptible to pioneer AIS populations.

According to the Wisconsin DNR records, Long Lake is known to have purple loosestrife, banded mystery snails, flowering rush and zebra mussels (see pictures below). The boat landing and 4 nearshore, targeted, sites were selected for the ED survey are shown in Figure 2. Boat landings are surveyed more thoroughly as these are most likely the points of introduction for many AIS. Zebra mussels were found at the boat landing however, no new AIS were found at this location. Zebra mussels were also found at sites 2, 3, and 4, as well as other observed locations during the shoreline meander. Zebra mussels appeared to be in fair abundance this year. In 2023, mussels were found in abundance on woody debris, rocks and aquatic plants. Purple loosestrife was not observed. See Table 1 for the results of the survey.

Purple loosestrife

Banded mystery snail

Zebra mussel

Flowering Rush

Previously, a patch of flowering rush has been observed in shallow water near shore on the northwest side of the lake (Site #1, 44.2189, -89.1350). Extra attention was given to this site to try and find any new growth after the plants were removed in 2023. No new plants were observed in 2024. Continued monitoring of this location is recommended to detect and remove any early growth of flowering rush.

Flowering rush location (2022)

Root structure of flowering rush

Native Watermilfoils

Possible EWM locations (site #1 and #3) were noted before the start of the ED survey from concerned property owners. The survey crew took advantage of the excellent conditions and covered almost the entire littoral zone during the meander survey. During the shoreline meander, locations of northern watermilfoil and whorled watermilfoil, both native species, were found. These two species especially

caught the eye of surveyors, but upon bringing the plants to hand, the ID features present were that of native watermilfoils and **not** of EWM. This is important to note as it is easily misidentified as Eurasian watermilfoil (see pictures below). No Eurasian watermilfoil was found at the sites or any other location during the meander survey.

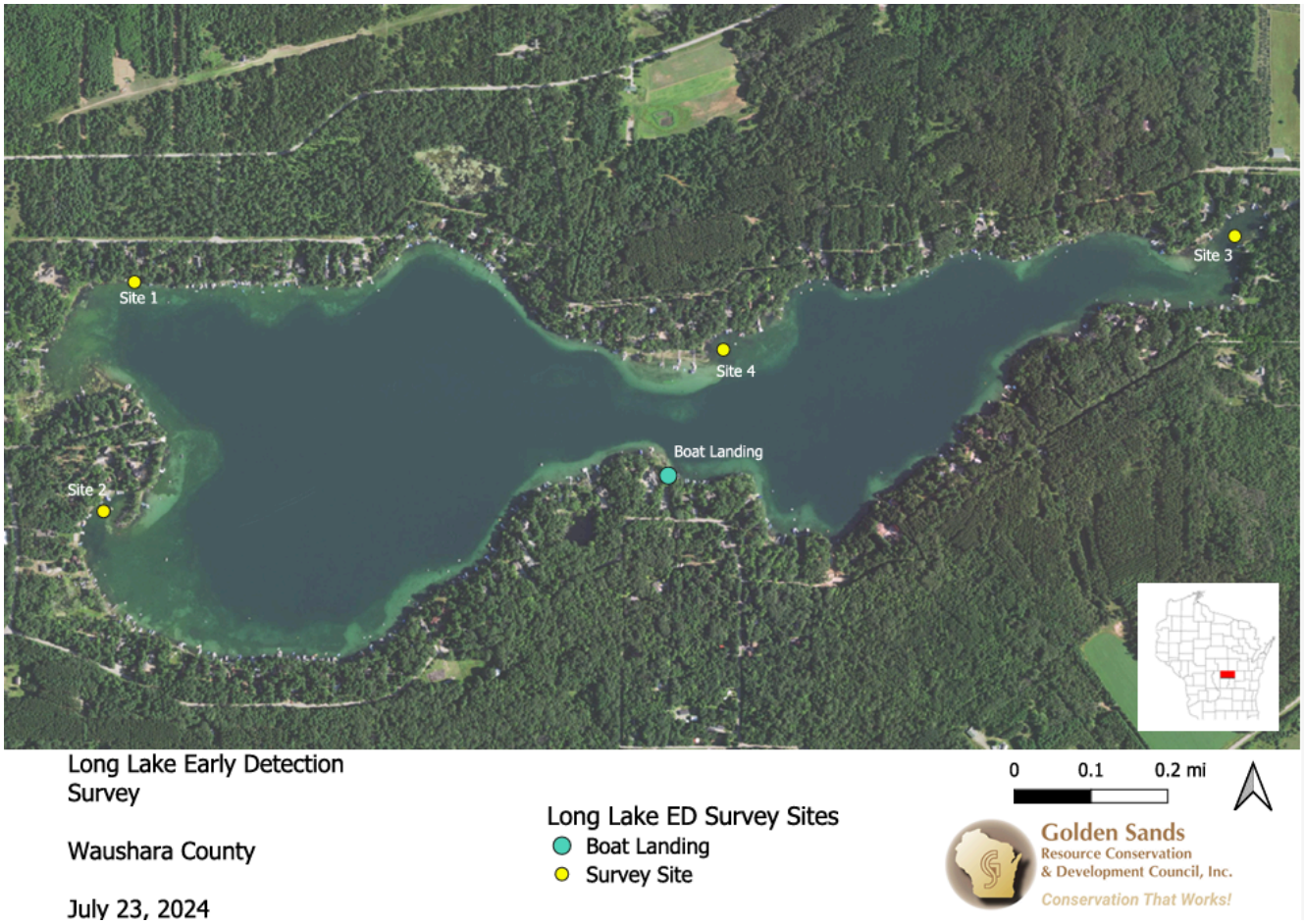
Eurasian watermilfoil (left) has 12+ leaflets per leaf, while native milfoils (right) tend to have less than 12 leaflets per leaf.

Northern watermilfoil (native)

Table 1: Early Detection Summary

Site	AIS Found	Species Name	New Finding on Long Lake?
Boat Landing	Yes	Zebra Mussels	No
Site #1	Yes	Banded mystery snail	No
Site #2	Yes	Zebra mussels	No
Site #3	Yes	Zebra mussels	No
Site #4	Yes	Zebra mussels	No

Figure 2: Early Detection Survey Site Locations



If there are any questions regarding the ED survey or results, please contact Golden Sands RC&D, Andrew Senderhauf, andrew.senderhauf@goldensandsrcd.org (715) 343-6215 ext. 708 or Mara Lince, mara.lince@goldensandsrcd.org