Pearl Lake

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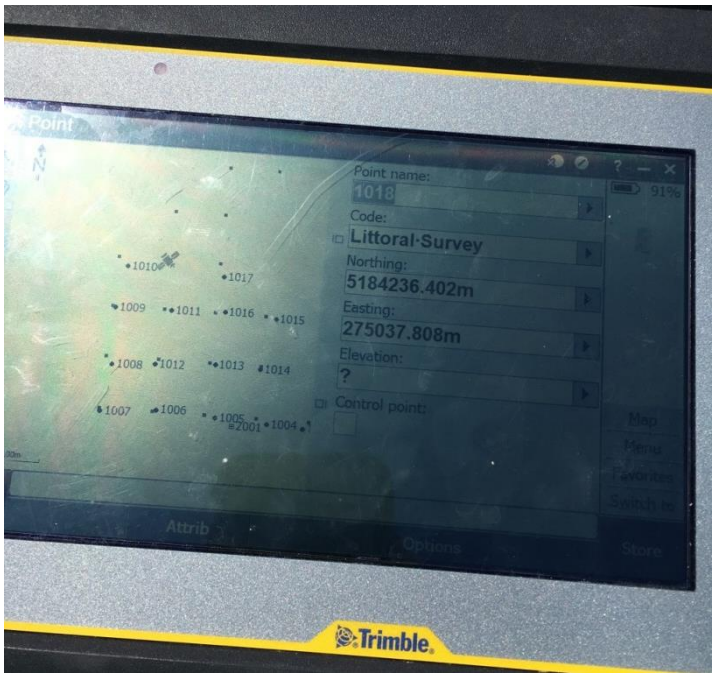
Methods:

The Pelican River Watershed District conducted a Curly-leaf pondweed (CLP) point-intercept survey on Pearl Lake near Detroit Lakes, MN on June 21, 2018. The way the lake was surveyed was by it being overlaid with a 50 meter grid and whichever points landed within the lakes littoral zone were used. Equipment used included a Trimble tablet to survey points (see below) and a double-sided garden rake head attached to a rope. This survey was only meant to indicate the presence or absence of CLP at the survey points. However, it was noticed that one portion of the lake there was an extremely high abundance of CLP and it was noted. Extremely high meaning there was little to no natural vegetation growth occurring in the stand of CLP. It can also be noted that in this study a live turion was counted as the presence of CLP as a turion leaves the possibility for the growth of a CLP plant.



Above: The Trimble tablet used during the survey. The survey points are marked by the number, while the grid-points are unmarked. We indicated the presence of curly leaf by adding the attribute to the survey point.

The tool used to survey the aquatic vegetation was a double sided garden rake attached to a rope. It was generally thrown 2-3 yards away from the boat.

Summary:

Green survey points showed no presence of CLP

Red survey points indicated CLP was found

The yellow polygon indicates the CLP area surveyed in 2012

CLP stands (shown in Orange) denote other vegetation was found along with CLP

The pink polygon shows where Curly-Leaf was the dominate vegetation present

Blue lines are lake depth in feet

A stand of CLP was determined when four or more survey points near each other had the presence of CLP

Left: Pictured is a rake from the highly dense stand of CLP. You can see the area outlined in pink on the map below. The rake had little to no native vegetation present.

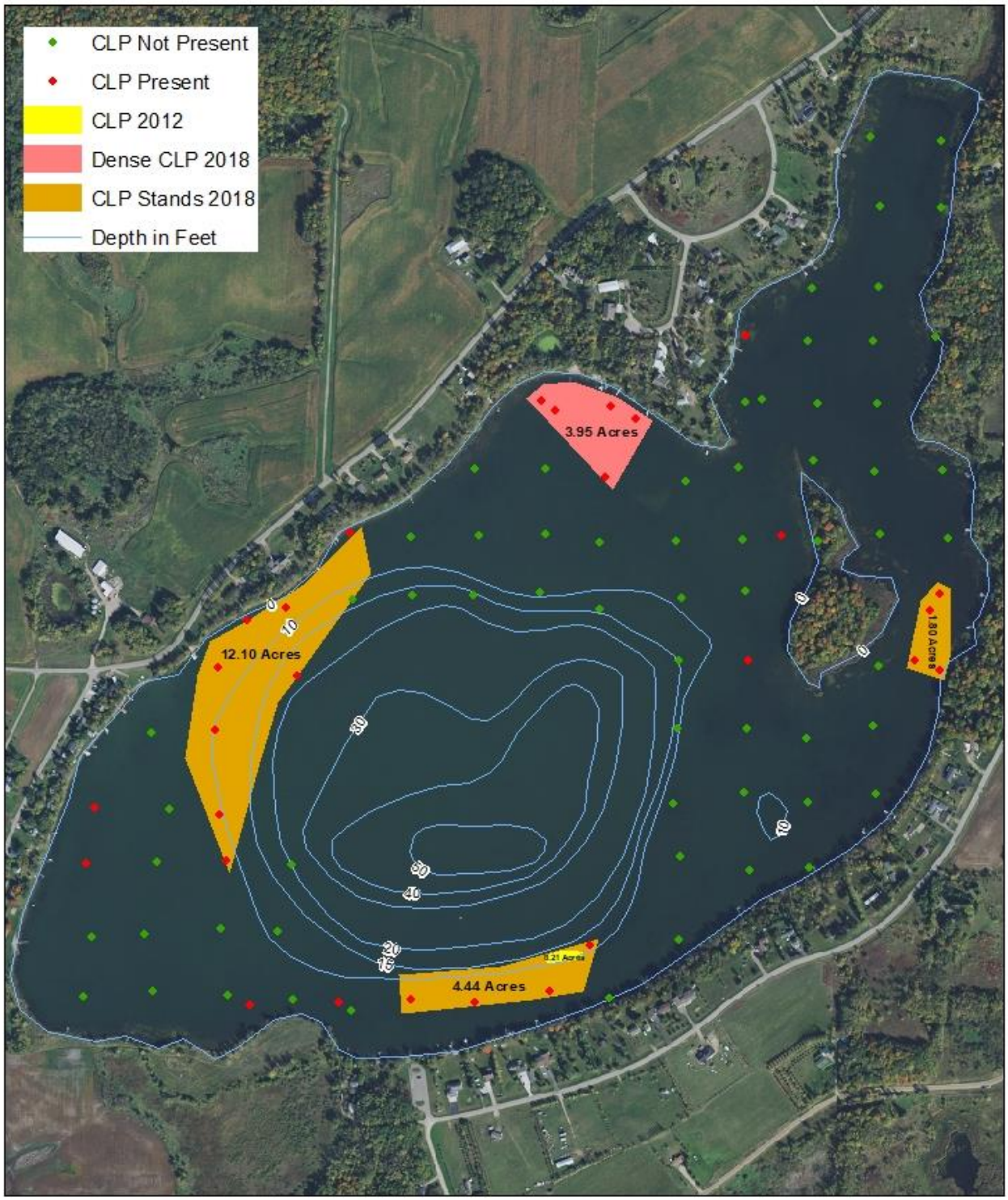
Right: This picture is an example of a rake from a survey point that yielded no CLP. There is a diversity of native species, a list of these species can be found on the next page. This picture shows a high density of coonstail as well as flat-stem pondweed, southern naiad, and northern milfoil.

Right: Pictured is a rake that has a presence of CLP along with other native vegetation. This rake only had one sprig of CLP intermixed with other native aquatic vegetation.

Common Aquatic Vegetation Observed in Pearl Lake

Scientific Name	Common Name
Potamogeton crispus	Curly-leaf Pondweed
Potamogeton illinoensis	Illinois Pondweed
Potamogeton praelongus	White-Stem Pondweed
Potamogeton zosteriformis	Flat-stem Pondweed
Ceratophyllum demersum	Coontail
Myriophyllum sibiricum	Northern Milfoil
Utricularia macrorhiza	Common Bladderwort
Schoenoplectus acutus	Hard-stem Bulrush
Najas gracillina	Southern Naiad
Nuphar lutea	Yellow water lily
Characeae	Chara
Elodea canadensis	Elodea

Curly-leaf Pondweed Presence in Pearl Lake- 6/21/2018



PELICAN RIVER watershed district

0 0.04 0.08 0.16 0.24 0.32 Miles

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Discussion:

The red area is the area with an extremely high density of CLP and the orange areas are where CLP was not the dominant species and appeared sporadically mixed in with native vegetation.

This survey was only indicating the presence or absence of CLP. In a future study we have considered using a scale of 0-4 (Zero meaning no CLP on a rake to 4 meaning the only plant that was found was CLP) to have better information of where a CLP treatment could be most effective.

The area of the CLP stand from 2012 was .21 acres, the area of CLP stands in 2018 is 22.29 acres. This means there is now 106 times increase in the amount of CLP stands in Pearl Lake since 2012. CLP has spread around the lake and was found in other locations, but not in a high enough density for PRWD to consider it a stand.

Above is an example of a CLP turion that was collected on Pearl Lake during the survey.