Lake Sarah

Early Spring Curlyleaf Pondweed Survey

May 17, 2022

Aquatic Invasive Species Consulting Services

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Prepared for the Lake Sarah Improvement Association

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Introduction

A point-intercept survey was completed on Lake Sarah on May 17, 2022 by AIS Consulting Services. The purpose of the survey was to map the distribution and abundance of Curlyleaf Pondweed and other aquatic vegetation to inform Curlyleaf Pondweed treatment options for 2022. Lake Sarah began whole-lake Curlyleaf Pondweed treatments in 2013, and this report provides a status update on Curlyleaf Pondweed management going into year 10 of treatments.

Methods

This survey followed standard methods for point-intercept surveys by the Minnesota DNR, and used the existing point-intercept grid for Lake Sarah East and West Basin which were originally created by Three Rivers Park District and utilized on past surveys. There were 78 sample points in the East Basin and 124 in the West Basin. Sample points were uploaded to a GPS unit and used to navigate to each sample point on the lake.

In addition to the point-intercept survey, Curlyleaf Pondweed was also further delineated in between the designated sample points to better define Curlyleaf Pondweed distribution and treatment areas. At each point, the depth was taken with our sonar unit and recorded. The sample rake was tossed on a designated side of the boat approximately 1 to 2 meters, and dragged on the lake bottom back to the boat before retrieving. A density rating was given to each species on the rake, as well as an overall rating for the entire sample. Density ratings are based on the percent of rake head occupied by the plant sample. For early season Curlyleaf Pondweed, we used a modified rake density rating based on the number of stems pulled up on each rake toss as an indicator of potential density. Plants that were not collected on the rake but were observed within the sample area were given a density of "0", and were not included in any statistics, but were marked at that location. Eurasian watermilfoil was also noted when observed growing within the same vicinity of Curlyleaf Pondweed.

Rake Density Ratings

Estimated Density Rating	Description	*Curlyleaf Pondweed* Rake Sample	*Other Aquatic Plants* Rake Sample
1	Low Density - scattered plants	1 to 2 stems	Covering up to 1/3 of the rake head
2	Moderate Density - plants are common	3 to 9 stems	Covering between 1/3 to 2/3 of the rake head
3	High Density—heavy growth, dense stands of plants	10 + stems	Covering over 2/3 of rake head

Figure 1. Lake Sarah Point-Intercept Survey Grid

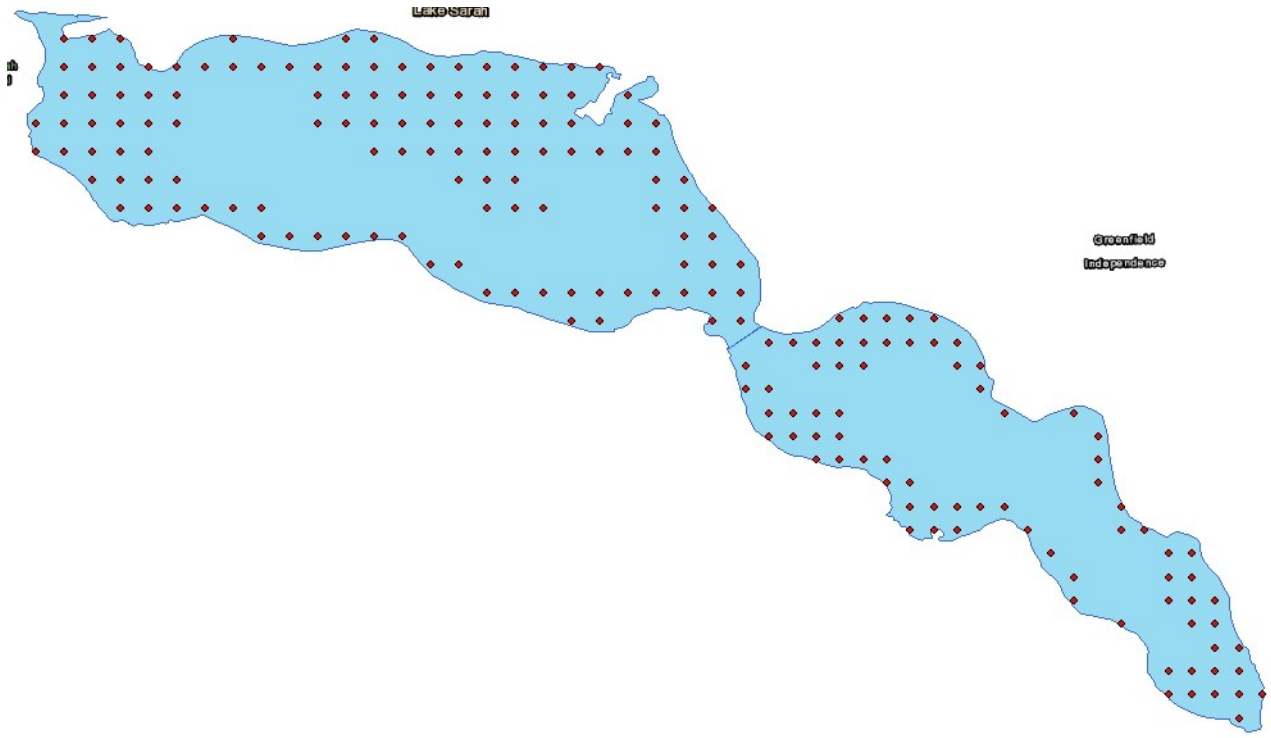
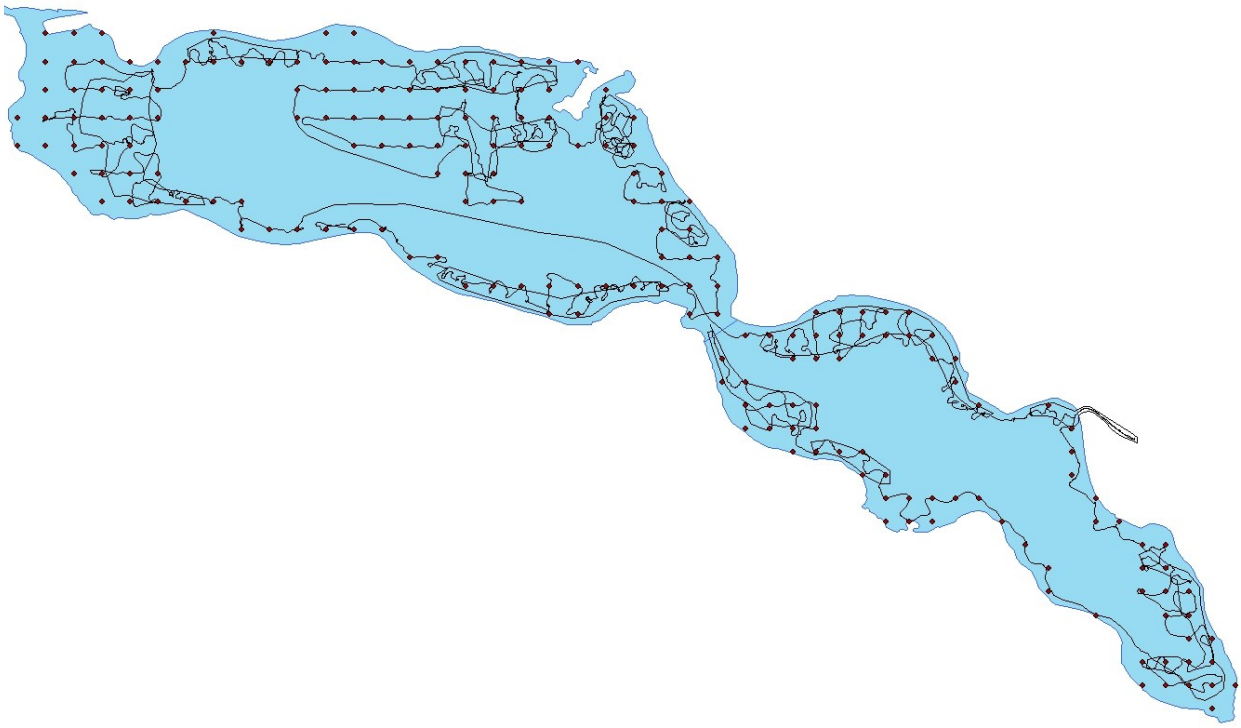


Figure 2. Tracks from 5/17/2022 survey



Results

Table 1. Summary of plant community metrics from 5/17/2022 Lake Sarah point intercept survey

	West Basin	East Basin
Max Depth of Plant Growth (ft.)	9	10
Total Points	124	78
Points Inaccessible	15	8
Points Actually Sampled	109	70
% Total points vegetated	38.53%	69%
Littoral points sampled (< 15 ft.)	97	66
Littoral points with vegetation present	42	48
% Littoral points vegetated	43.3%	72.7%

Table 2. Percent Frequency of Occurrence of Aquatic Plants during Lake Sarah 5/17/2022 survey

		West Basin	East Basin
Common Name	**Scientific Name**	**% Frequency**	**% Frequency**
Coontail	*Ceratophyllum demersum*	**32.99%**	**60.61%**
Curlyleaf Pondweed	*Potamogeton crispus*	**2.06%**	**13.64%**
Eurasian Watermilfoil	*Myriophyllum spicatum*	**11.34%**	**18.18%**
Star Duckweed	*Lemna trisulca*	**6.19%**	**6.06%**
Chara	*Chara sp.*	**1.03%**	
Sago Pondweed	*Stuckenia pectinata*		**1.52%**

Figure 3. CLP distribution and abundance from 5/17/2022 survey with 2021 CLP treatment areas

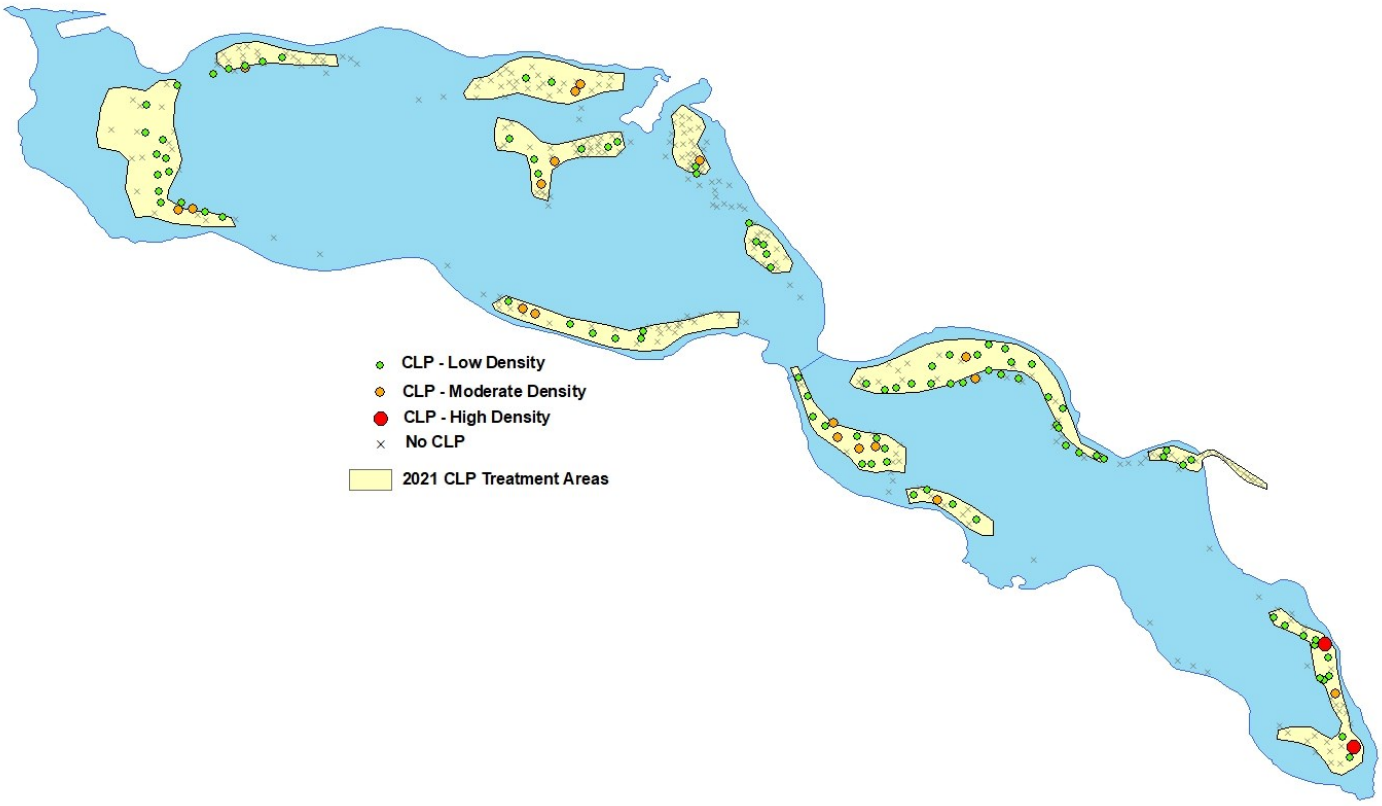


Figure 4. CLP distribution and abundance from 5/17/2022 survey with 2022 proposed CLP treatment areas

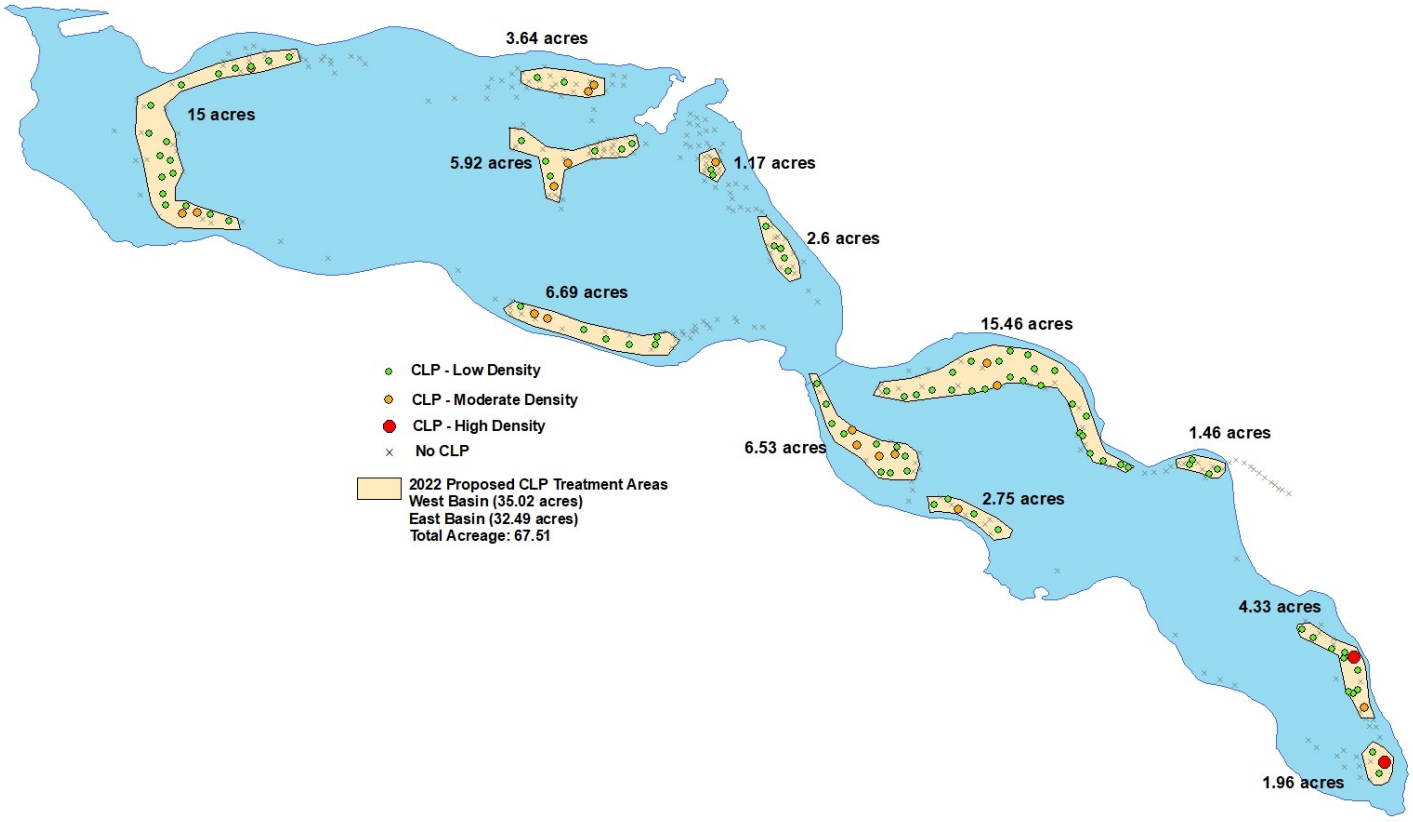


Figure 5. Lake Sarah 2022 Recommended Curlyleaf Pondweed Treatment Areas