

Lake Sarah

Early Spring Curlyleaf Pondweed Survey

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Prepared for the Lake Sarah Improvement Association

Introduction

A point-intercept survey was completed on Lake Sarah on May 7, 2021 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 2021. Lake Sarah began whole-lake Curlyleaf Pondweed treatments in 2013, and this report provides a status update on Curlyleaf Pondweed management going into year 9 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	<i>Curlyleaf Pondweed</i> Rake Sample	<i>Other Aquatic Plants</i> 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

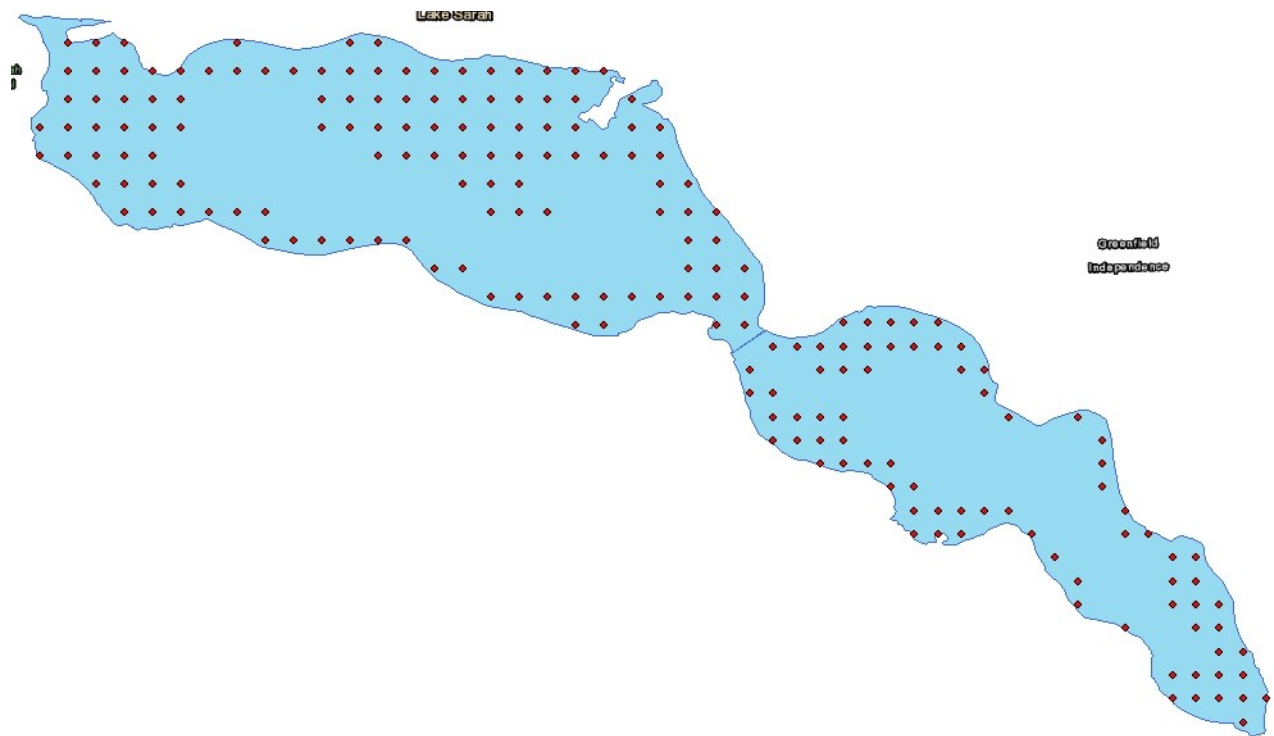


Figure 2. Tracks from 5/7/2021 survey



Results

Table 1. Summary of plant community metrics from 5/7/2021 Lake Sarah point intercept survey

	West Basin	East Basin
Max Depth of Plant Growth (ft.)	8	7
Total Points	124	78
Points Inaccessible	17	11
Points Actually Sampled	107	67
% Total points vegetated	44.9%	66%
Littoral points sampled (< 15 ft.)	97	65
Littoral points with vegetation present	48	44
% Littoral points vegetated	49.5%	67.7%

Table 2. Percent Frequency of Occurrence of Aquatic Plants during Lake Sarah 5/7/2021 survey

		West Basin	East Basin
Common Name	Scientific Name	% Frequency	% Frequency
Coontail	<i>Ceratophyllum demersum</i>	28.9%	52.3%
Curlyleaf Pondweed	<i>Potamogeton crispus</i>	12.4%	16.9%
Eurasian Watermilfoil	<i>Myriophyllum spicatum</i>	15.5%	3.1%
Elodea	<i>Elodea canadensis</i>		1.5%
Star Duckweed	<i>Lemna trisulca</i>	6.2%	6.2%
Chara	<i>Chara sp.</i>	6.2%	1.5%
Water Stargrass	<i>Heteranthera dubia</i>	1%	
Sago Pondweed	<i>Stuckenia pectinata</i>		1.5%

Figure 3. Curlyleaf Pondweed distribution and abundance from 5/7/2021 survey

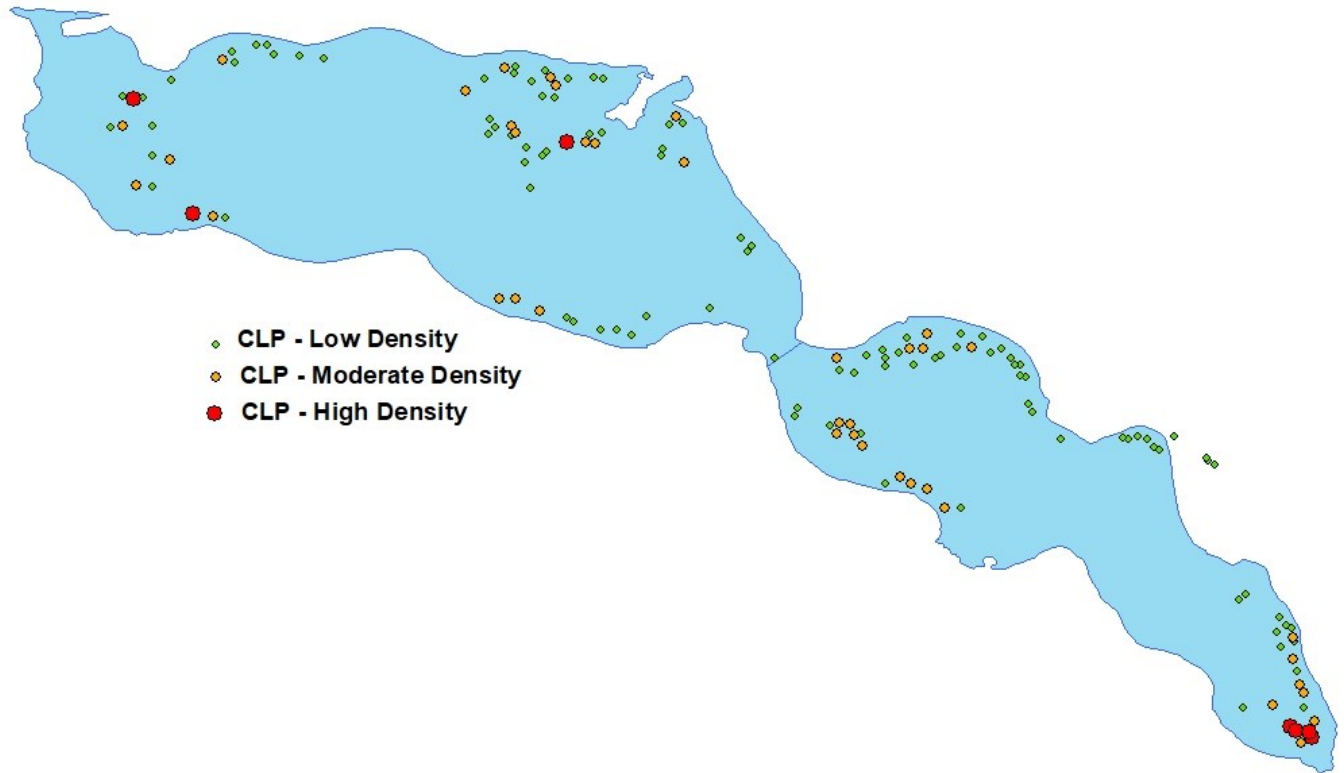


Figure 4. Potential Treatment Zones with CLP waypoints from 5/7/2021 survey

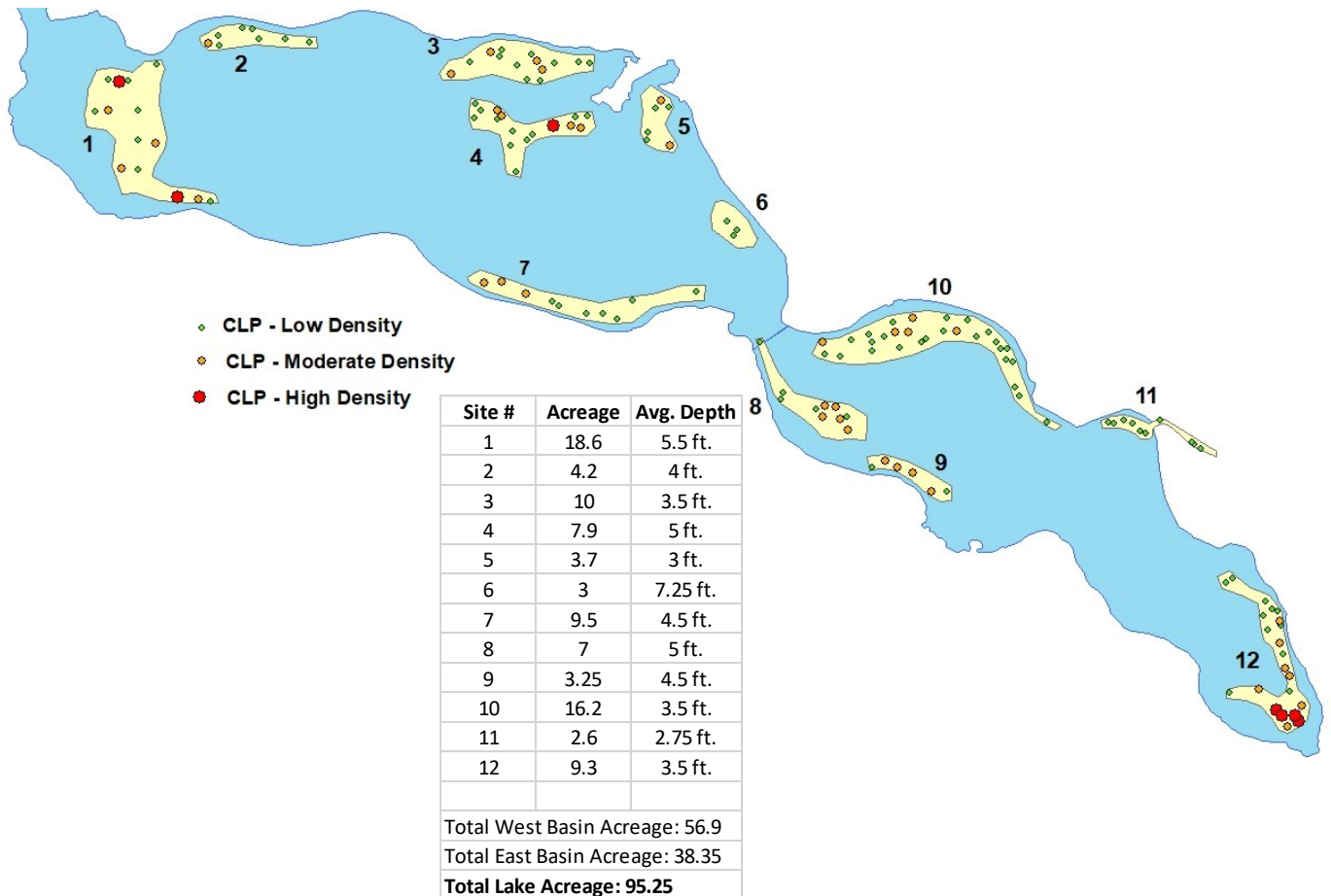
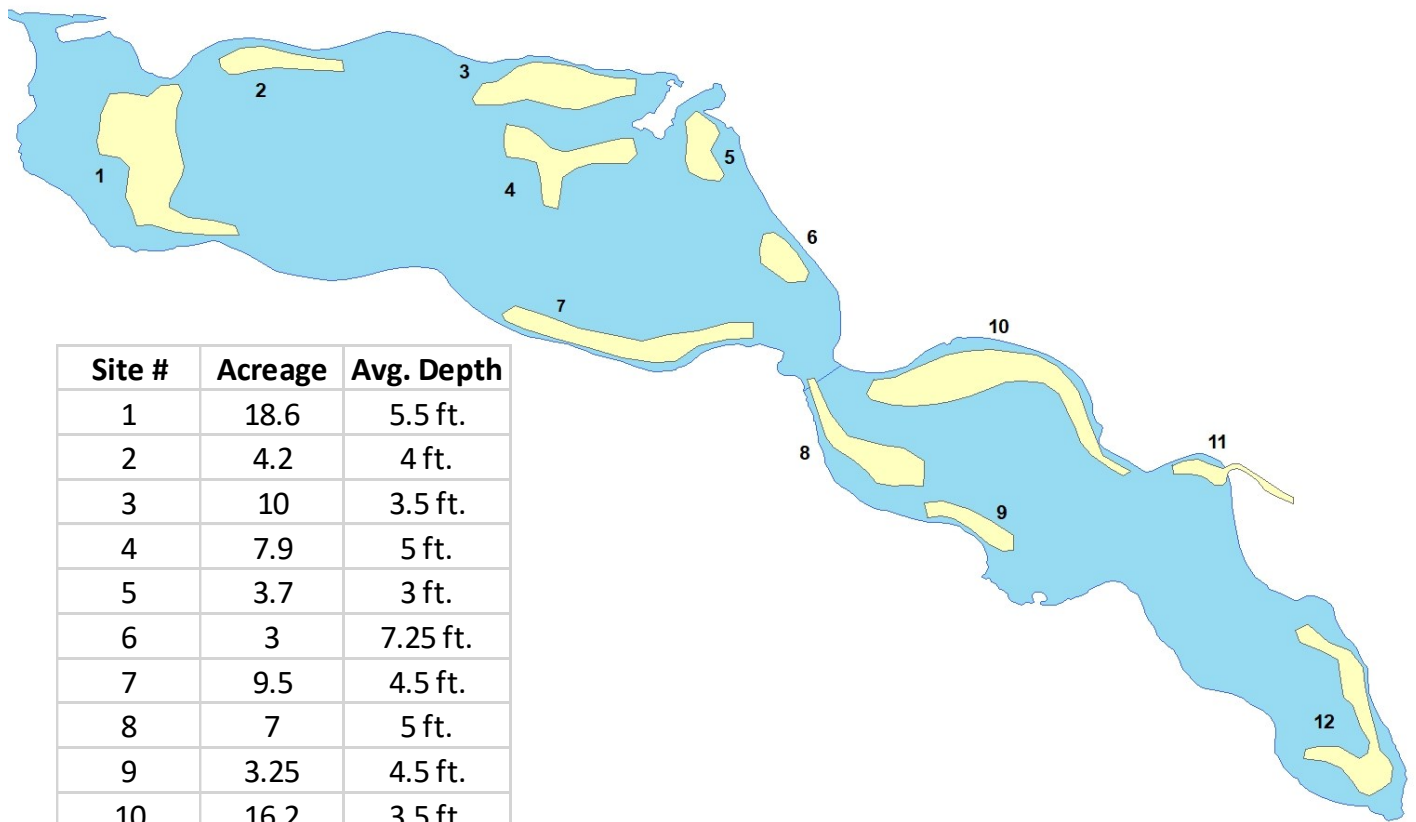


Figure 5. Lake Sarah 2021 Recommended Curlyleaf Pondweed Treatment Areas



Site #	Acreage	Avg. Depth
1	18.6	5.5 ft.
2	4.2	4 ft.
3	10	3.5 ft.
4	7.9	5 ft.
5	3.7	3 ft.
6	3	7.25 ft.
7	9.5	4.5 ft.
8	7	5 ft.
9	3.25	4.5 ft.
10	16.2	3.5 ft.
11	2.6	2.75 ft.
12	9.3	3.5 ft.
Total West Basin Acreage: 56.9		
Total East Basin Acreage: 38.35		
Total Lake Acreage: 95.25		