

Lake Sarah
Early Spring Curlyleaf Pondweed Survey
April 14, 2017



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Prepared for the Lake Sarah Improvement Association

Introduction

A point-intercept survey was completed on Lake Sarah on April 14, 2017, by AIS Consulting Services. The purpose of the survey was to map the distribution of Curlyleaf Pondweed and other aquatic plants to inform treatment options for Curlyleaf Pondweed. Lake Sarah has been undergoing whole-lake Curlyleaf Pondweed treatments since 2012, and this report provides a status update on Curlyleaf Pondweed going into year 5 of treatments.

Methods

Protocol for the survey followed the standard protocol for point-intercept surveys by the Minnesota DNR, and used the existing point-intercept grids for Lake Sarah East and West Basin which were originally created by Three Rivers Park District, and utilized on past surveys. There were 79 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 delineated in the channel that is located in the East Basin.

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. 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.

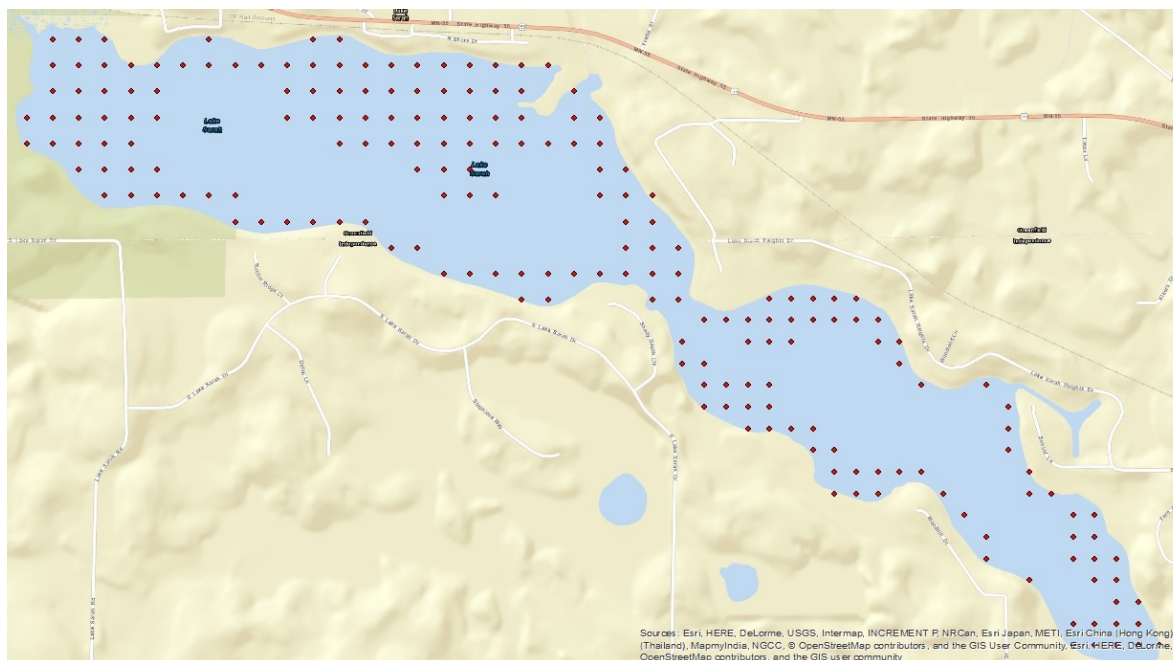
Rake Density Ratings - estimated coverage of rake head by plant sample

1 = Covering up to 1/3 of the rake head (*plants typically scattered*)

2 = Covering between 1/3 to 2/3 of rake head (*plants common*)

3 = Covered entire rake head (*dense stands of plants*)

Figure 1. Point-Intercept Survey Grid



Results

Figure 2. Tracks from Point-Intercept Survey

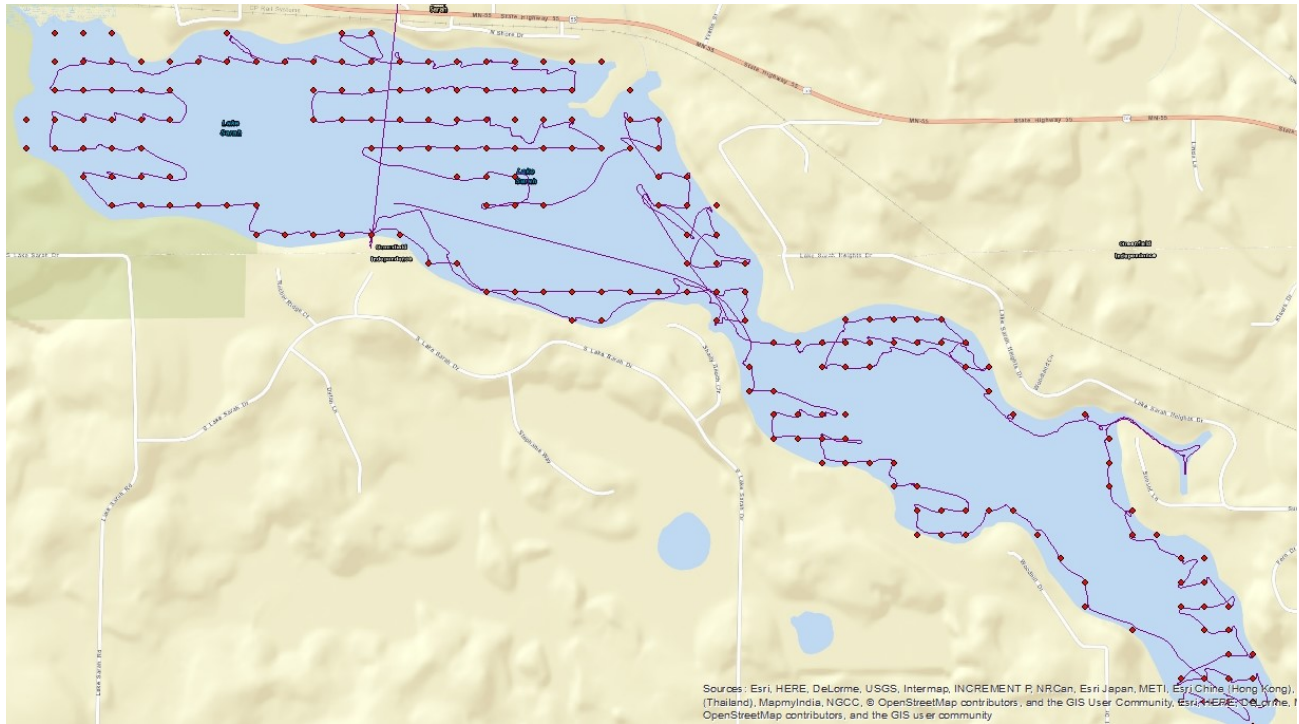


Table 1. Summary of Plant Community Metrics Lake Sarah 4/14/2017
East Basin West Basin

Max Depth of Plant Growth (ft.)	8.2	9.3
Total Points	79	124
Points Inaccessible	5	13
Points Actually Sampled	74	11
% Total points vegetated	60.8%	53.1%
Littoral points sampled (≤ 15 ft.)	73	101
Littoral points with vegetation present	45	59
% Littoral points vegetated	61.6%	58.4%

Table 2. Percent Frequency of Aquatic Plants during Lake Sarah 4/14/2017 survey
East Basin West Basin

Common Name	Scientific Name	% Frequency	% Frequency
Coontail	<i>Ceratophyllum demersum</i>	42.5%	26.7%
Curlyleaf Pondweed	<i>Potamogeton crispus</i>	15.1%	26.7%
Eurasian Watermilfoil	<i>Myriophyllum spicatum</i>	5.5%	7.9%
Elodea	<i>Elodea canadensis</i>	6.8%	13.9%
Star Duckweed	<i>Lemna trisulca</i>	13.7%	6.9%

Figure 3. Curlyleaf Pondweed distribution from 4/14/2017 survey

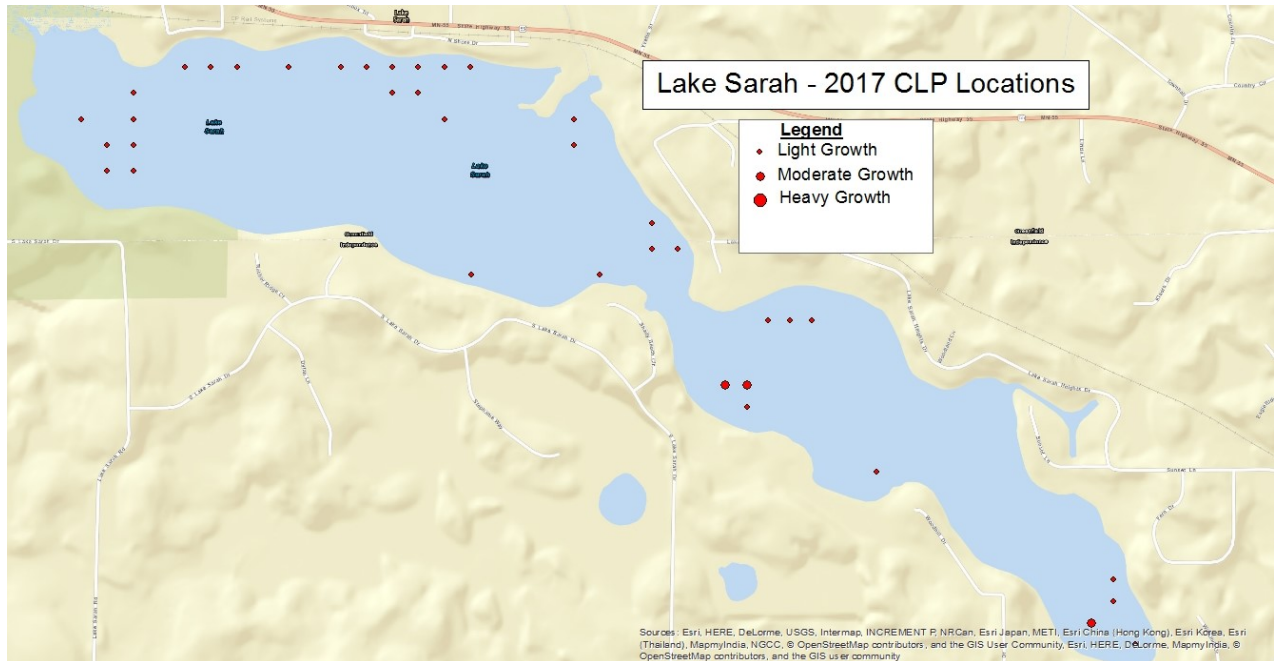


Table 3. Lake Sarah—East Basin Early Spring Point-Intercept Survey Metrics

PI Survey Date	% Frequency of CLP*	Max Depth of Growth in feet [95%] [†]	% Points w/ Native Submersed Taxa	Mean Native Submersed Taxa/ Point	# Submersed Taxa	AVG Secchi Depth [m]
May 2013	31	9	47	0.5	4	
May 2014	26	10	47	0.4	4	
April 2015**	43	7				
April 2016	30	7	30	0.29	3	
April 2017	15	8	44	0.5	4	

Table 4. Lake Sarah—West Basin Early Spring Point-Intercept Survey Metrics

PI Survey Date	% Frequency of CLP*	Max Depth of Growth in feet [95%] [†]	% Points w/ Native Submersed Taxa	Mean Native Submersed Taxa/ Point	# Submersed Taxa	AVG Secchi Depth [m]
May 2013	41	10	23	0.2	4	1.5
May 2014	31	11	33	0.3	4	1.5
April 2015**	47					1.8
April 2016	24	8	21	0.2	4	2.1
April 2017	27	9	34	0.4	4	

Figure 4. CLP Delineation in East Basin Channel



Light growth of Curlyleaf Pondweed was verified to be present in the channel area found in the East Basin of Lake Sarah.

Figure 5. Proposed 2017 Curlyleaf Pondweed Treatment Areas

