



Submerged Aquatic Plants on a Sample Rake in Fish Lake, Scott County, June 7, 2021

Curlyleaf Pondweed Delineation and Assessment Surveys for Fish Lake, Scott County, Minnesota, 2021

No Open Lake CLP Herbicide Application in 2021

Curlyleaf Pondweed Delineation: April 23, 2021

Curlyleaf Pondweed Assessment: June 7, 2021

Prepared for:
Prior Lake/Spring Lake
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Summary

Curlyleaf Pondweed Delineation and Assessment

Delineation, April 23, 2021: A curlyleaf delineation using a meandered survey was conducted on April 23, 2021. Curlyleaf was found at 9 out of 61 sites (Figure 1). Three sites were found with heavy growth potential.

Assessment, June 7, 2021: A curlyleaf assessment was conducted on June 7, 2021 and curlyleaf was found at 8 out of 76 sample sites (Figure 1). Curlyleaf did not expand significantly compared to the April 23, 2021 delineation.

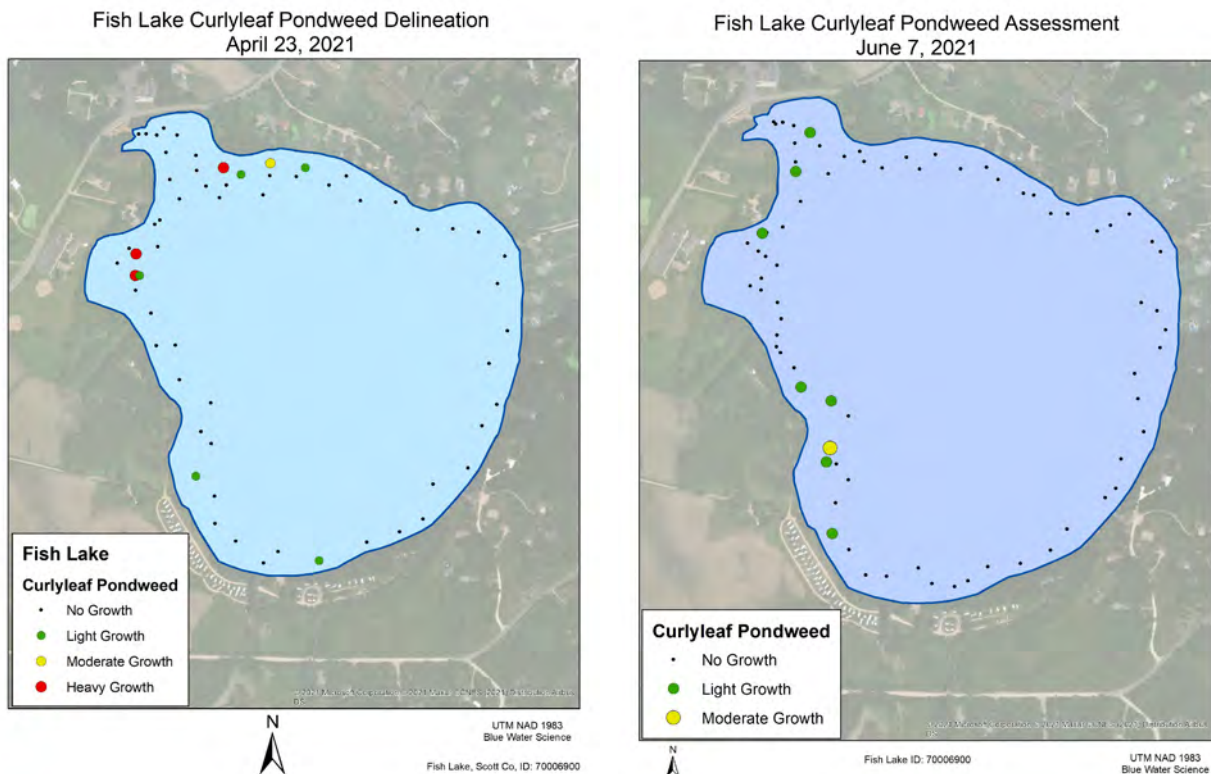


Figure 1. [left] Fish Lake curlyleaf pondweed delineation on April 23, 2021. [right] Fish Lake curlyleaf pondweed assessment on June 7, 2021.

Curlyleaf Pondweed Delineation and Assessment Surveys for Fish Lake, Scott County, Minnesota, 2021

Fish Lake, Scott County (MnDNR ID: 70006900)

Area: 175.92 acres

Littoral Area: 74 acres

Shore Length: 2.3 miles

Maximum Depth: 28 feet

Introduction

Fish Lake has an area of 176 acres with a littoral area of 74 acres (source: MnDNR). A meandering curlyleaf pondweed assessment was conducted on April 23, 2021 and a meandering curlyleaf pondweed assessment was conducted on June 7, 2021.

Methods

Methods for Assessing Curlyleaf Pondweed Growth and Extent: The assessment survey is conducted using a meandering path around the nearshore area of the entire lake. Curlyleaf is sampled using a fixed 14 tine rakehead on a pole. Curlyleaf stem counts on a rake sampler were used to identify areas that had a potential to produce curlyleaf growth at its June peak. After a short sweep of about 1-foot (which samples about 0.1 m²), if one or two stems (10-20 stems/m²) were collected on the rake sweep, it was predicted that this area would produce only future light growth at its peak and was not delineated for treatment. Alternatively, sites where 3 stems (30 stems/m²) were collected per rake sample future potential growth was considered to be moderate. However if 4 curlyleaf stems (40 stems/m²) or more per rake sample generally indicated some plants had developed runners and would likely produce heavy growth in the next few weeks and this site would be marked for potential treatment. This survey method used for determining curlyleaf pondweed spot herbicide treatments was similar to the methodology published in a peer reviewed journal (McComas et al, 2015)*.

For a curlyleaf assessment, a meandering survey is used but curlyleaf density is based on a scale of 0 to 3 with 3 being the densest (chart is shown on the next page).

Chart of Aquatic Plant Density Ratings



Aquatic plant density ratings from 1 to 3.

*McComas, S.R., Y.E. Christianson, and U. Singh. 2015. Effects of curlyleaf pondweed control on water quality and coontail abundance in Gleason Lake, Minnesota. *Lake and Reservoir Management*, 31:109–114.
<https://doi.org/10.1080/10402381.2015.1014583>

Results of Curlyleaf Pondweed Delineation, April 23, 2021

A curlyleaf delineation using a meandered survey was conducted on April 23, 2021. Curlyleaf was found at 9 out of 61 sites (Figure 2). Three sites were found with heavy CLP growth, clustered on the northwest side of Fish Lake, moderate growth (yellow dots) was found at 1 site, and 5 sites had light growth. Curlyleaf pondweed grew in water depths of 5-8 feet.

Fish Lake Curlyleaf Pondweed Delineation
April 23, 2021

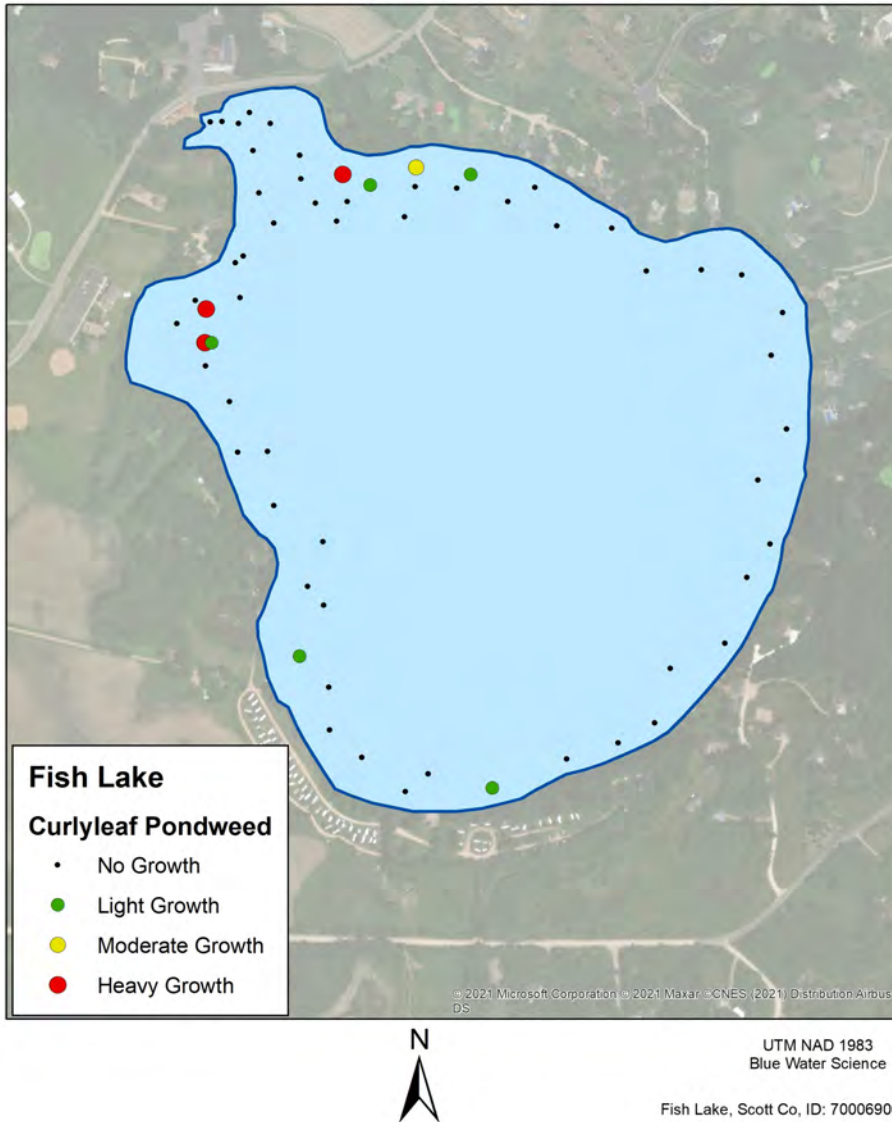


Figure 2. Map of curlyleaf pondweed for April 23, 2021.
Key: green = light growth, yellow = moderate growth, red = heavy growth, and black dot = no curlyleaf.

Results of Curlyleaf Pondweed Assessment, June 7, 2021

A curlyleaf assessment using a meandered survey was conducted on June 7, 2021. Curlyleaf was found at 9 out of 76 sites (Figure 3). No heavy growth of CLP was observed in Fish Lake, however moderate growth (yellow dots) was found at 1 site, and 7 sites had light growth were observed. Curlyleaf pondweed grew in water depths of 5-8 feet.

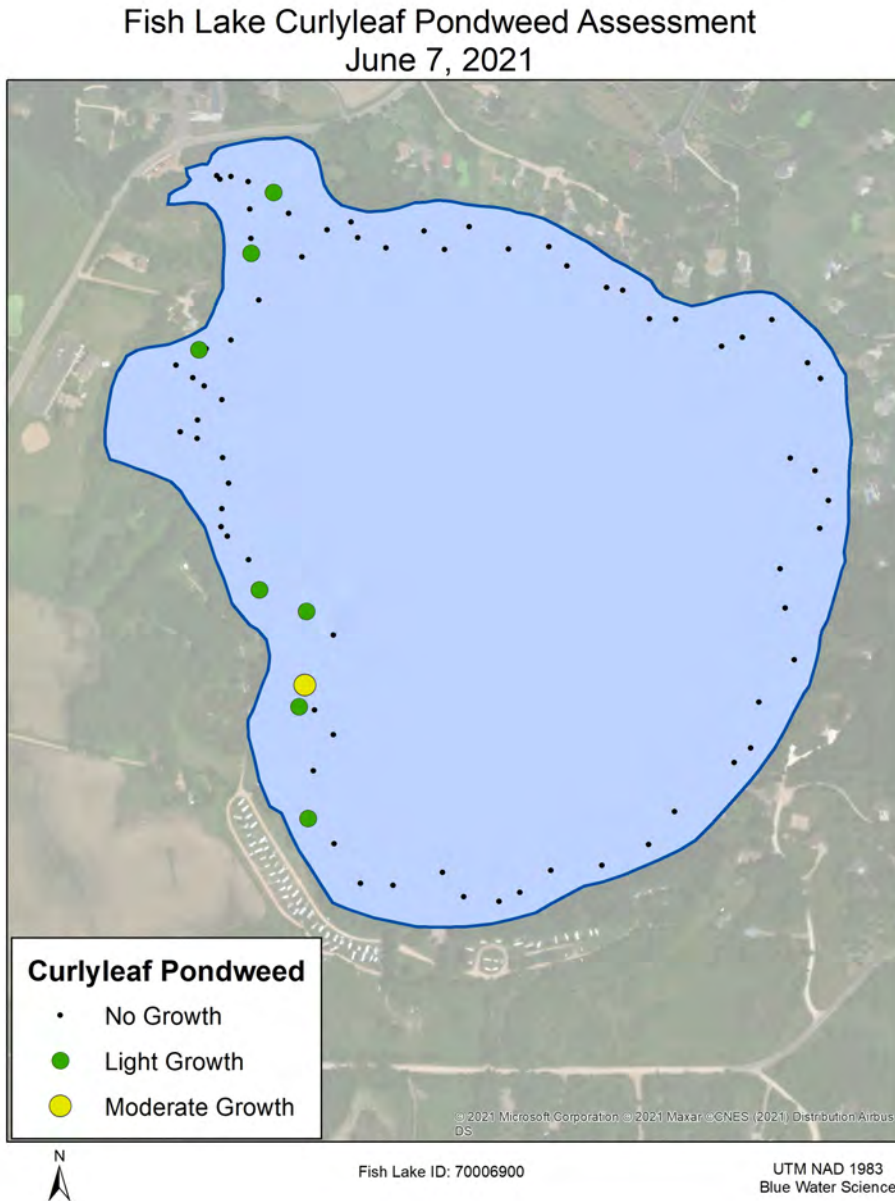


Figure 3. Map of curlyleaf pondweed for June 7, 2021.
Key: green = light growth, yellow = moderate growth, and black dot = no curlyleaf.

Native Plants: Coontail was fairly widespread on June 7, 2021 (Figure 4). Flatstem pondweed was present mostly on the east side. Two other species, stringy pondweed and water celery were found at 1 site each.

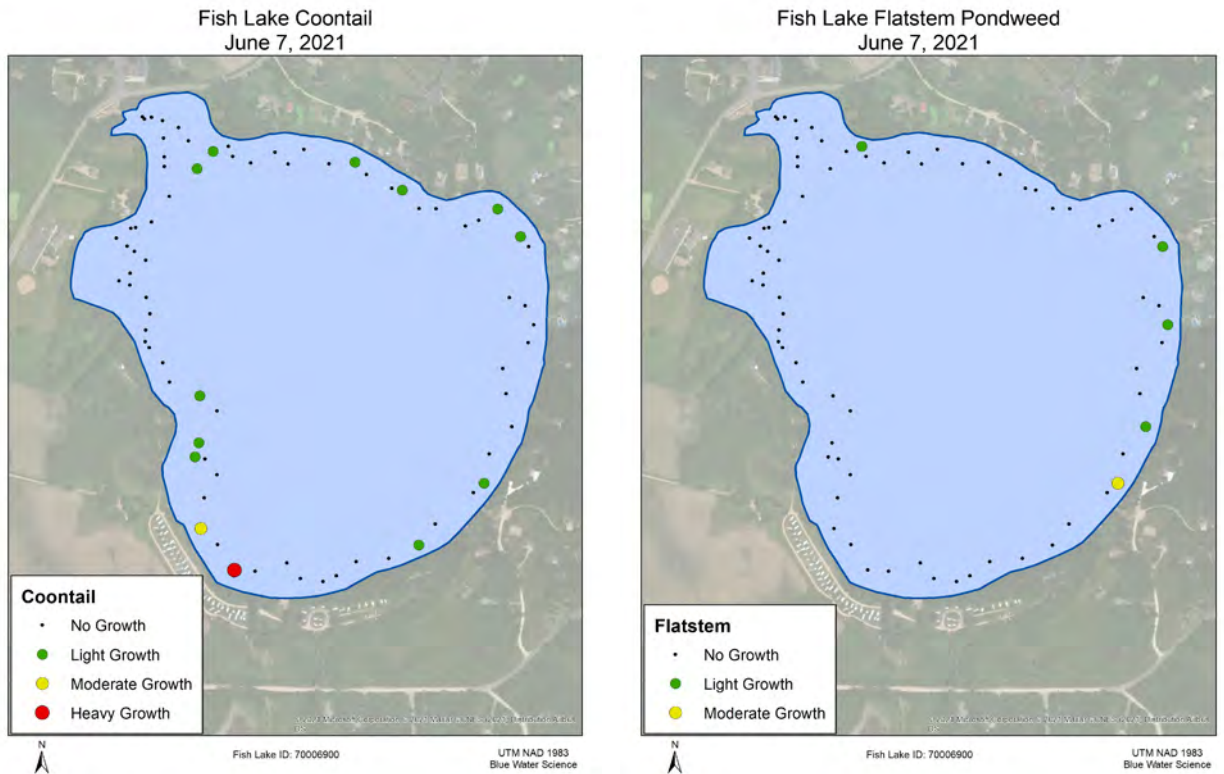


Figure 4. Map of coontail (left) and flatstem pondweed (right) for June 7, 2021.
Key: green = light growth, yellow = moderate growth, red = heavy growth, and black dot = no curlyleaf.

Previous Aquatic Plant Results for 2015, 2018, and 2020 From Point Intercept Surveys: The aquatic plant community has been fairly stable from 2015 to 2020 (Figure 5 and Table 1).

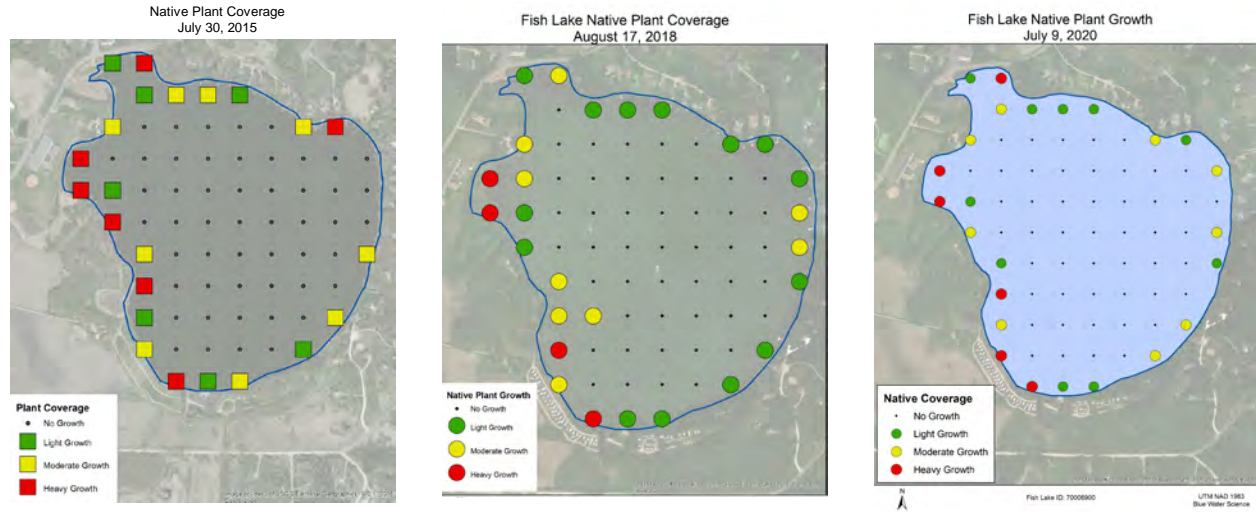


Figure 5. Native aquatic plant distribution and abundance on July 30, 2015 (left), August 17, 2018 (middle) and July 9, 2020 (right). Key: green = light growth, yellow = moderate growth, red = heavy growth, and black = no growth.

Table 1. Fish Lake aquatic plant occurrence and density for the 2015, 2018, and 2020 pont intercept surveys. Density ratings in 2015 are 1-5 with 1 being low and 5 being most dense. In 2018 and 2020, a density scale of 1 to 3 was used.

	July 30, 2015 All Stations (100 meter spacing)		August 17, 2018 All Stations (100 meter spacing)		July 9, 2020 All Stations (100 meter spacing)	
	Occur	Average Density	Occur	Average Density	Occur	Average Density
Spatterdock (<i>Nuphar variegata</i>)	4	2.8	2	1.0	3	1.7
White water lilies (<i>Nymphaea odorata</i>)	6	2.0	4	2.8	8	1.3
Coontail (<i>Ceratophyllum demersum</i>)	21	2.9	25	1.4	24	1.8
Chara (<i>Chara sp</i>)	1	1.0				
Northern watermilfoil (<i>Myriophyllum sibiricum</i>)	7	1.3	5	1.0	1	1.0
Floatingleaf pondweed (<i>Potamogeton natans</i>)	3	1.7				
Flatstem pondweed (<i>Potamogeton zosteriformis</i>)			2	1.0	5	1.6
Sago pondweed (<i>Stuckenia pectinata</i>)	2	2.0			1	1.0
Water celery (<i>Vallisneria americana</i>)	8	1.6	7	1.0	9	1.0
Water stargrass (<i>Zosterella dubia</i>)	3	1.3			1	1.0
number of submerged species	7		4		8	