Field Report for Long Lake, Apple Valley, Minnesota Aquatic Plant Point-Intercept Surveys and Fish Survey in 2018

A curlyleaf pondweed delineation was conducted on May 4, 2018 and curlyleaf was widespread and was found at 35 out of 49 sample sites. A curlyleaf treatment on 4.55 acres was conducted on the 34 acre lake on May 16, 2018. A curlyleaf assessment survey occurred on June 5 to evaluate the curlyleaf pondweed treatment. Curlyleaf control throughout the lake occurred and only 5 sites had curlyleaf pondweed in the June survey.

In August, a late season point-intercept survey found no curlyleaf pondweed was present. Coontail and elodea were the only plants found in the August survey (Table 1). Elodea was found at 2 out of 49 sites.

The acreage of aquatic submerged plants in Long Lake decreased from early to late summer primarily because of the decreased coverage of curlyleaf pondweed (Table 1).

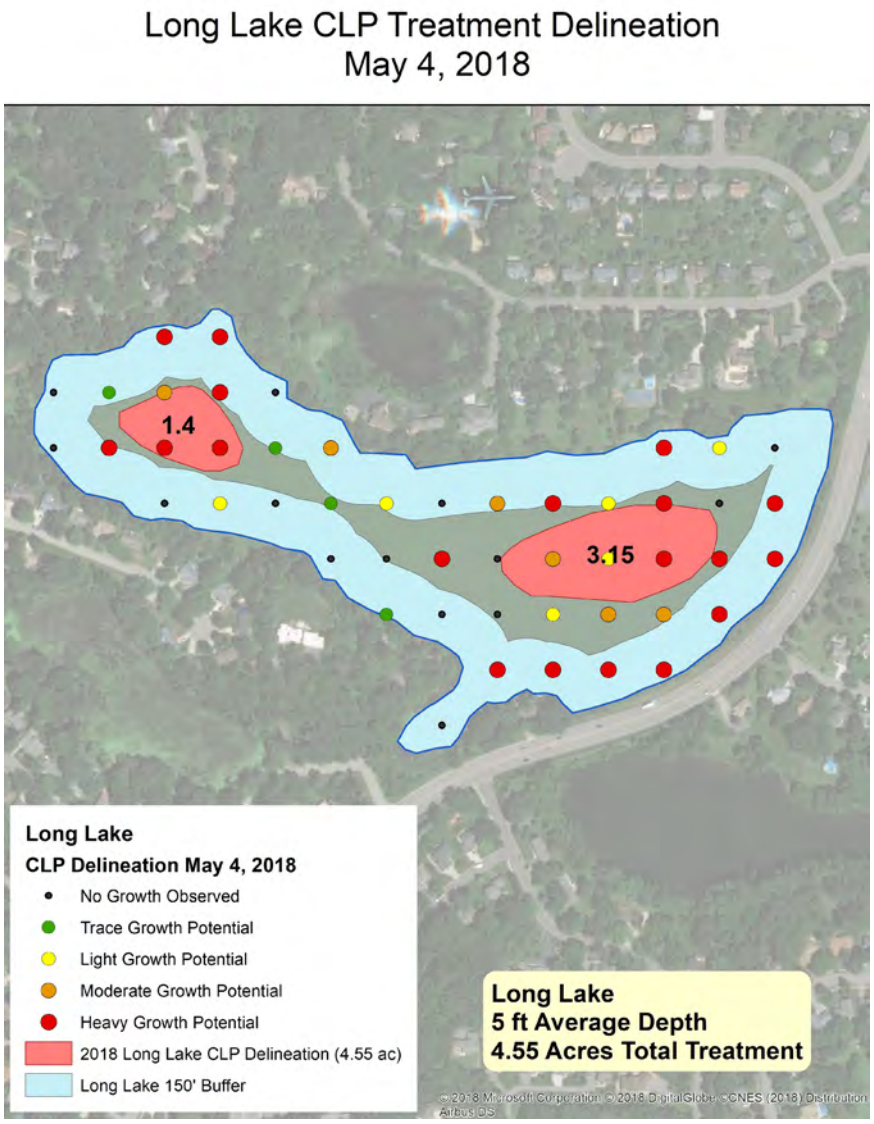

Figure 1. Early summer curlyleaf pondweed coverage on May 4, 2018 before an herbicide treatment. Red dots indicate the potential for heavy curlyleaf growth in June.

Table 1. The percent occurrence of aquatic plants for Long Lake in 2005, 2010, 2013 through 2018. Percent occurrence is calculated based on the number of times a plant species occurs at a sampling station div ided into the total number of stations for the survey. For example, if coontail was found in 25 out of 50 stations, its percent occurrence w ould be 50%. Red shading represents curlyleaf occurrence following a winter drawdown.

Early Season Surveys	June 3, 2005 % occur (29 stations)	June 11, 2010 % occur (29 stations)	June 23, 2013 % occur (49 sites)	June 8, 2014 % occur (49 sites)	May 22, 2015 % occur (49 sites)	May 25, 2016 % occur (49 sites)	April 23, 2017 % occur (49 sites)	May 4, 2018 Pre-Treat % occur (49 sites)	June 5, 2018 Post Treat % occur (49 sites)
Smartweed (*Polygonus sp*)	--	3%	--	--	--	--	--	--	--
Burreed (*Sparganium sp*)	--	3%	--	--	--	--	--	--	--
Duckweed (*Lemna sp*)	--	3%	--	--	--	--	--	--	--
Coontail (*Ceratophyllum demersum*)	--	--	2%	--	--	2%	--	--	--
Elodea (*Elodea canadensis*)	14%	--	33%	4%	2%	33%	22%	41%	22%
Naiads (*Najas flexilis*)	--	--	--	--	--	--	--	--	--
Curlyleaf pondweed (*Potamogeton crispus*)	93%	69%	94%	63%	87%	16%	92%	71%	10%
Floatingleaf pondweed (*P. natans*)	--	7%	--	2%	--	--	--	--	--
Stringy pondweed (*P. sp*)	7%	--	6%	33%	47%	18%	--	--	--
Flatstem pondweed (*P. zosteriformis*)	–	--	--	--	--	--	--	--	--
Sago pondweed (*Stuckenia pectinata*)	--	3%	4%	--	--	--	--	--	--
Number of submerged plant species	3	3	5	4	3	4	2	2	2
Aquatic Plant Coverage (acres)	32	18	32	30	34	16	33	29	11

Summer Surveys	Sept 1, 2005 % occur (29 stations)	Aug 20, 2010 % occur (29 stations)	Aug 5, 2013 % occur (49 sites)	July 25, 2014 % occur (49 sites)	Aug 29, 2015 % occur (49 sites)	July 8, 2016 % occur (49 sites)	Aug 21, 2017 % occur (49 sites)	Aug 7, 2018 % occur (49 sires)
Smartweed (*Polygonus sp*)	--	--	--	--	--	--	--	--
Burreed (*Sparganium sp*)	--	--	--	--	--	--	--	--
Duckweed (*Lemna sp*)	--	--	2%	14%	--	--	--	--
Coontail (*Ceratophyllum demersum*)	--	3%	2%	--	2%	--	2%	6%
Elodea (*Elodea canadensis*)	39%	--	45%	5%	27%	24%	49%	4%
Naiads (*Najas flexilis*)	--	--	--	6%	--	--	--	--
Curlyleaf pondweed (*Potamogeton crispus*)	--	7%	67%	78%	--	--	--	--
Floatingleaf pondweed (*P. natans*)	4%	7%	--	--	--	--	--	--
Stringy pondweed (*P. sp*)	--	--	18%	67%	--	--	--	--
Flatstem pondweed (*P. zosteriformis*)	--	--	2%	--	--	--	--	--
Sago pondweed (*Stuckenia pectinata*)	--	--	--	14%	--	--	--	--
Number of submerged plant species	2	3	5	5	2	1	2	2
Aquatic Plant Coverage (acres)	13	2	31	32	25	8	17	2.8

Fish Surveys

Table 2. Comparison of fish surveys for Long Lake from 2006 to 2018.

	Long Lake (fish per trapnet)			
	2006 (BWS) (mini-trapnets)	**2008 (BWS) (mini-trapnets)**	**2018 (Sept 11-12) (BWS) (standard trapnets)**	**Typical Range (MnDNR)**
Black bullhead	7	4	39	2 - 61
Black bullhead (1-yr old)	0	2	239	--
Black crappie	0	0	0	2 - 15
Bluegills	1.6	0	0.3	2 - 30
Goldfish	0.1	1	1.4	NA
Green sunfish	0	0	0	0.2 - 12
Largemouth bass	0	0	0	0.5 - 1
Minnows	2,575	5,639	0.3	--
Pumpkinseed sunfish	0	0	9.9	1 - 8
Pumpkinseed sunfish (1-year old)	0	0	68	--

Figure 2. [left] The 2018 fish survey found the fish population was dominated by young of the year pumpkinseed sunfish and black bullheads.
[right] Goldfish were sampled in the survey. Goldfish tend to lose their orange/gold color after a few generations.