



Curlyleaf Pondweed was Sparse in Medicine Lake on April 22, 2009

Medicine Lake Curlyleaf Pondweed Assessment for 2009

Assessment Date: April 22, 2009

Prepared for:
City of Plymouth

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April 2009

Aquatic Plant Sampling on Medicine Lake on April 22, 2009

(Field work conducted by Steve McComas and Jo Stuckert, Blue Water Science and Kevin Springbob, City of Plymouth)

A curlyleaf pondweed assessment was conducted on April 22, 2009. Curlyleaf growth at the north end of Medicine Lake was patchy, but has the potential to produce moderate to heavy growth at peak growing conditions. Curlyleaf at the south end of Medicine Lake was less dense than the north end but has the potential to produce light to moderate growth at peak growing conditions.

Curlyleaf was also present on the east and west sides of Medicine Lake with areas of potential heavy growth, but because of steeper slopes compared to the north and south sides of Medicine, heavy growth will be restricted to a narrow band on the east and west sides of Medicine Lake.

Treatment is not recommended for these areas. However treatment is recommended on the north side at 22.5 acres and the south side at 20 acres. Locations of recommended treatment sites are shown in Figure 1, on the next page.



Curlyleaf at the north end of Medicine Lake was patchy .



Coontail was common at all sample sites.

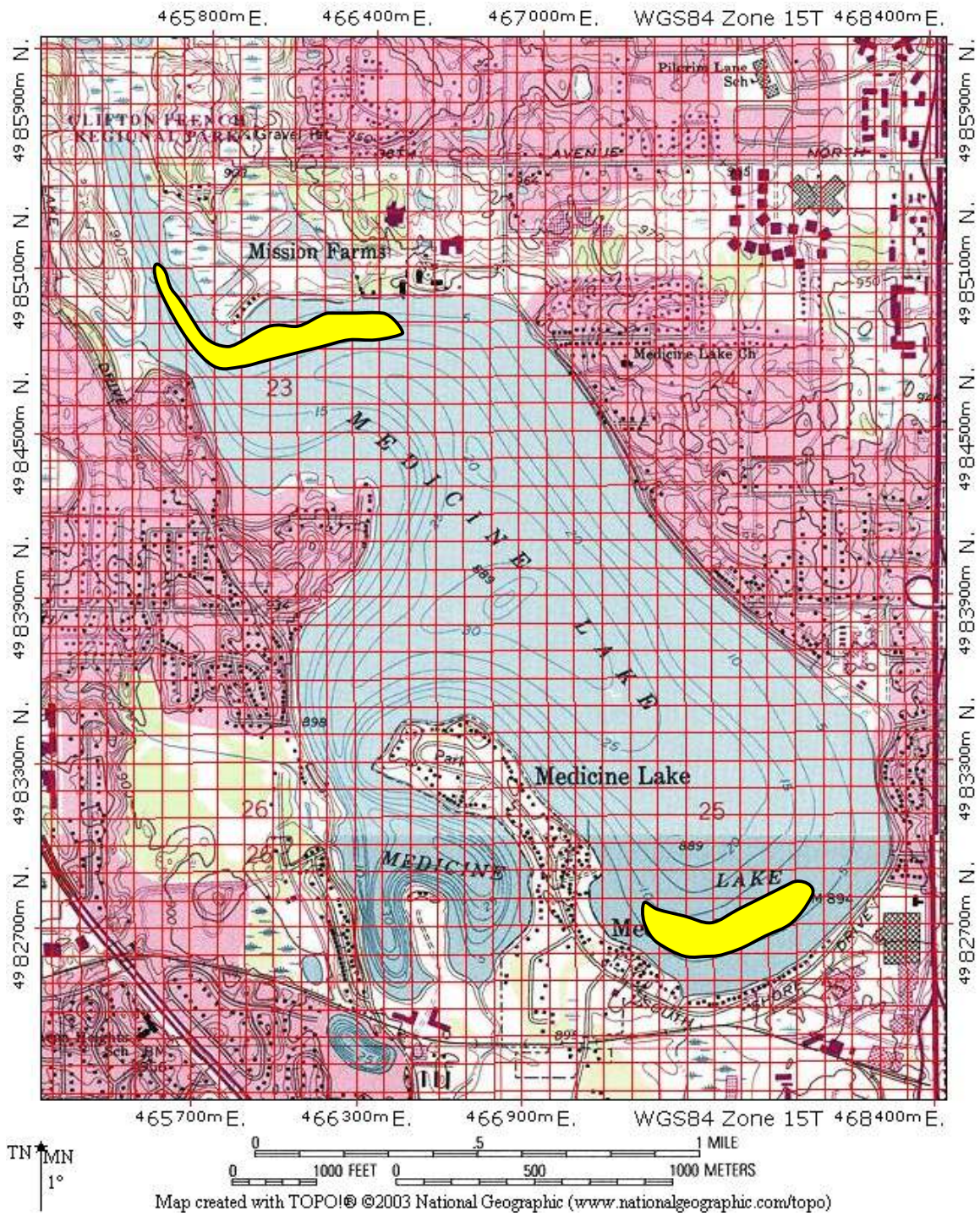


Figure 1. Treatment areas are show in yellow. The north area is 22.5 acres and the south area is 20 acres (each red grid box is 2.5 acres in size)

Summary of Curlyleaf Densities at Individual Sites from 2004 - 2009

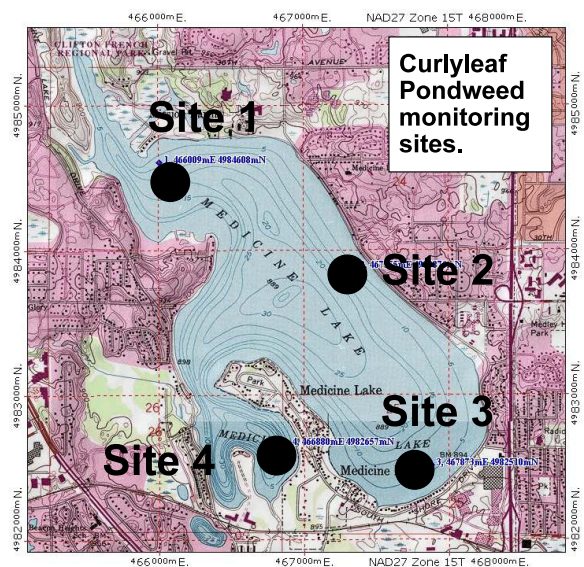
Stem densities at all four sites were high at the start of the curlyleaf control program. Stem densities were measured on May 6, 2004 and this was the reference condition. After three years of aggressive herbicide treatment, stem densities had declined compared to 2007, 2008, and 2009 densities (Table 1).

The three consecutive years of herbicide treatment (2004, 2005, 2006) reduced the early season curlyleaf stem densities in Medicine Lake. Pre-treatment stem densities increased in 2008 and 2009 compared to 2007 indicating curlyleaf stem density was coming back in several areas. Treatment has successfully reduced heavy growth of curlyleaf at sites 1 and 3 in post treatment surveys (shown with blue shading.)

Table 1. Curlyleaf pondweed stem densities prior to the effects of herbicide treatment and after the herbicide treatment at two depths (6-ft and 9-ft) at each of the four sites. Green shading indicates untreated sites and “ut” represents untreated sites for the post treatment sample dates (blue shading).

Site		2004 (May 6) (#/m ²)	2005 (April 22) (#/m ²)	2006 (April 24) (#/m ²)	2007 (April 17) (#/m ²)	2008 (May 4) (#/m ²)	2009 (April 20) (#/m ²)
1	6 ft	761	415	24	1	149	54
1	9 ft	572	192	38	14	116	32
2	6 ft	928	600	205	17	32	19
2	9 ft	432	215	22	15	133	23
3	6 ft	555	11	159	5	17	1
3	9 ft	666	43	100	12	19	4
4	6 ft	327	650	121	29	25	66
4	9 ft	219	120	15	16	15	31
Average - 6 ft		643	419	127	13	55	35
Average - 9 ft		472	143	44	14	71	23
Average		558	281	86	14	63	29

Site		2004 (June 14) (#/m ²)	2005 (June 21) (#/m ²)	2006 (May 24) (#/m ²)	2007 (May 30) (#/m ²)	2008 (June 9) (#/m ²)
1	6 ft	1	0	0	41 ut	0
1	9 ft	2	0	0	81 ut	0
2	6 ft	3	0	14	77 ut	59 ut
2	9 ft	1	0	17	83 ut	58 ut
3	6 ft	0	0	66	33 ut	0
3	9 ft	0	0	79	270 ut	0
4	6 ft	0	0	50	20 ut	323 ut
4	9 ft	0	0	0	9 ut	480 ut
Average - 6 ft		1	0	33	43 ut	96
Average - 9 ft		1	0	24	111 ut	135
Average		1	0	29	77 ut	115



April 22, 2009 Curlyleaf Stem Densities in Medicine Lake

Table 2. Medicine Lake curlyleaf stem counts for April 22, 2009 for sites 1, 2, 3, and 4. Plant data collected by Steve McComas and Jo Stuckert, Blue Water Science, and Kevin Springbob, City of Plymouth.

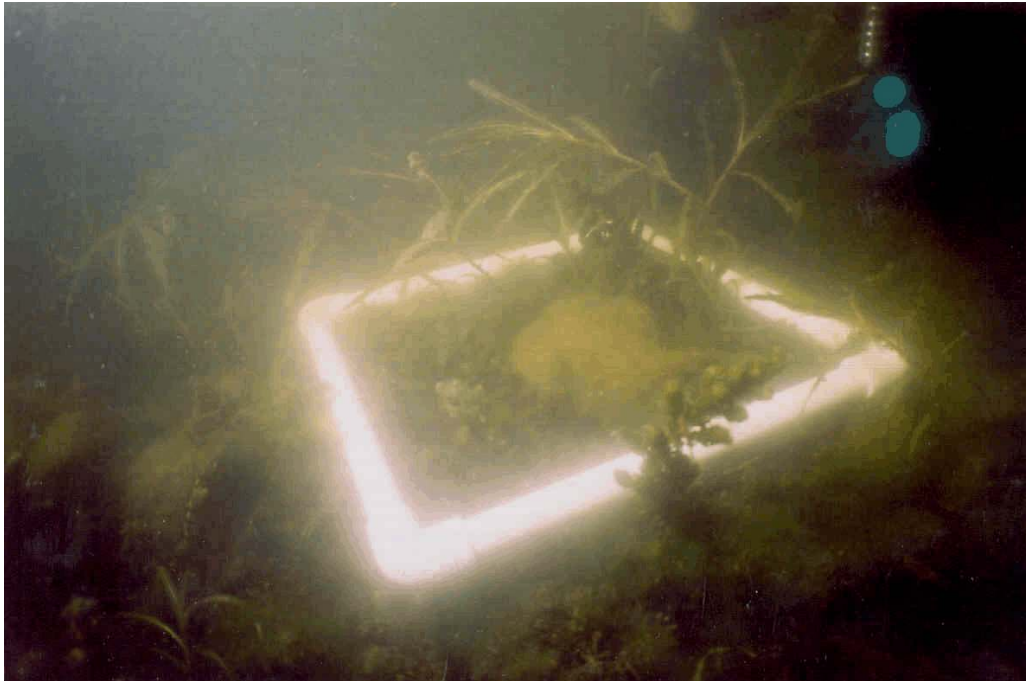
CURLYLEAF PONDWEED STEM DENSITIES (stems per m2)

GPS Coord (UTM) Zone: WGS 84	Site							
	1		2		3		4	
	04 65 992 49 84 810		04 67 349 49 84 127		04 67 839 49 82 737		04 66 841 49 82 904	
Quadrat	Stem Density		Stem Density		Stem Density		Stem Density	
	6 ft	9 ft	6 ft	9 ft	6 ft	9 ft	6 ft	9 ft
1	40	20	30	30	10	30	110	50
2	60	70	20	110	0	10	140	160
3	70	20	10	20	0	0	110	30
4	50	30	0	30	0	0	60	20
5	80	0	0	40	0	0	200	30
6	60	0	30	0	0	0	0	20
7	0	40	30	0	0	0	0	0
8	0	60	40	0	0	0	40	0
9	180	80	10	0	0	0	0	0
10	0	0	20	0	0	0	0	0
Average Curlyleaf Stem Density (stems/m²)	54	32	19	23	1	4	66	31

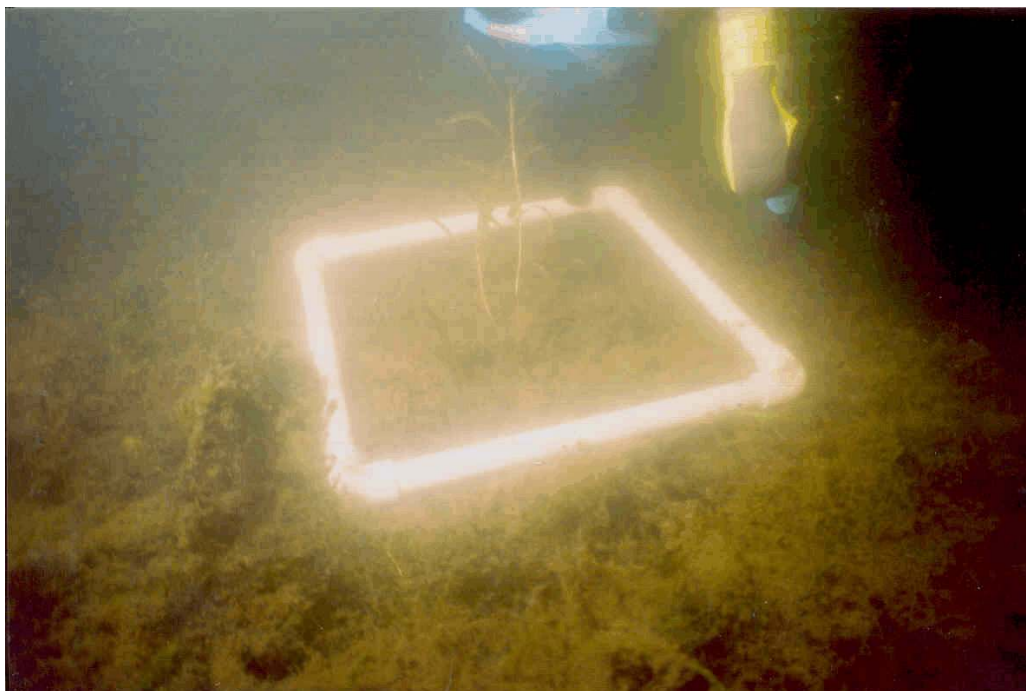
ALL PLANT STEM DENSITIES (stems per m2)

GPS Coord (UTM) Zone: WGS 84	Site																							
	1						2						3						4					
	04 65 992 49 84 810						04 67 349 49 84 127						04 67 839 49 82 737						04 66 841 49 82 904					
Quadrat	6 ft			9 ft			6 ft			9 ft			6 ft			9 ft			6 ft			9 ft		
	CLP	EWM	CT	CLP	EWM	CT	CLP	EWM	CT	CLP	EWM	CT	CLP	EWM	CT	CLP	EWM	CT	CLP	EWM	CT	CLP	EWM	CT
1	40	0	0	20	0	0	30	30	0	30	0	0	10	0	50	30	0	50	110	0	0	50	0	30
2	60	0	30	70	0	0	20	30	0	110	40	20	0	10	50	10	0	50	140	0	0	160	0	40
3	70	30	0	20	10	0	10	10	0	20	0	0	0	0	50	0	0	50	110	40	0	30	10	0
4	50	30	0	30	20	0	0	0	0	30	0	0	0	20	50	0	0	50	60	10	0	20	0	0
5	80	20	20	0	0	20	0	0	0	40	0	0	0	0	50	0	0	50	200	0	40	30	0	40
6	60	0	20	0	0	20	30	0	0	0	0	0	0	0	60	0	0	60	0	0	40	20	0	40
7	0	0	20	40	0	20	30	10	0	0	30	0	0	0	60	0	0	60	0	0	40	0	0	40
8	0	0	20	60	0	20	40	0	0	0	60	0	0	0	60	0	0	60	40	0	40	0	0	40
9	180	0	20	80	0	20	10	0	0	0	50	0	0	0	60	0	0	60	0	0	40	0	0	40
10	0	0	20	0	0	20	20	0	0	0	10	0	0	0	60	0	0	60	0	0	40	0	0	40
Average Stem Density (stems/m²)	54	8	15	32	3	12	19	8	0	23	19	2	1	3	55	4	0	55	66	5	24	31	1	31

Underwater View of Medicine Lake Curlyleaf Pondweed on April 22, 2009



Site 1. Average curlyleaf stem density was 43 stems/m².



Site 3. Average curlyleaf stem density was 3 stems/m²