Curlyleaf Pondweed Sampled in Forest Lake, April 23, 2025

Curlyleaf Pondweed Delineation for Forest Lake, Washington County, Minnesota

Curlyleaf Pondweed Delineation: April 23, 2025

Prepared for:
Comfort Lake/Forest Lake Watershed District

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Curlyleaf Pondweed Delineation for Forest Lake, Washington County, Minnesota

Lake ID: 82015900
Lake Area: 2270.94 acres
Littoral Area: 1531 acres
Maximum depth: 37 feet

Overview

Forest Lake is located within Washington County. A meander curlyleaf pondweed (CLP) survey was conducted on April 23, 2025 to characterize the status of CLP. A total of 674 sites were sampled and CLP was observed in 344 sites out to 13 feet of water depth. Fifteen treatment areas in Forest Lake, totaling 167.44 acres were recommended for treatment (Figures 1 and 2).

Methods

Curlyleaf Pondweed Management Approaches Using Herbicides: The MnDNR policy is to treat CLP before lake water temperatures reach 60F. The objective is to treat CLP before the native plants begin growing which is around 60F. Because a contact herbicide is generally used for curlyleaf control, the contact herbicide should kill growing plants (including native plants) on contact. In water temperatures less than 60F, CLP is typically the only active growing plant. Therefore the broad spectrum contact herbicide is somewhat selective for CLP at cooler lake temperatures.

However at the time of the spring curlyleaf delineation in April, only a fraction of the peak curlyleaf biomass is present compared to what could be present in June, at its peak. Therefore, CLP growth surveyed in April is delineated prior to curlyleaf developing peak biomass.

Predicting curlyleaf growth at it's peak abundance in June is based on curlyleaf stem counts on a rake sampled in April. After a short sweep of about 1-foot (which samples about 0.1 m^2), CLP stems on a rake sample are counted. Growth potential is shown in the table below. This early season survey method used for determining curlyleaf pondweed spot herbicide treatments is similar to the methodology published in a peer reviewed journal (McComas et al, 2015)*.

Rake Sample	Early Season Density (stems/m^2)	Potential Future Growth	Map Color Code
1-2 stems	10-20 stems/m^2	Light	Green
3 stems	30 stems/m^2	Moderate	Yellow
4+ stems	40+ stems/m^2	Heavy	Red

Methods for Aquatic Plant Nearshore Meandering Survey: A meandering survey was conducted using a meandering path around the entire lake. At each sample point, plants were sampled with a rake sampler.

*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.

Results

Curlyleaf Pondweed Delineation Results: On April 23, 2025 the curlyleaf pondweed delineation survey sampled a total of 674 sites (Figure 1). Curlyleaf pondweed was found at 344 sites with light to heavy projected growth to occur in June. A treatment area of 167.44 acres was recommended for treatment (Figure 2).

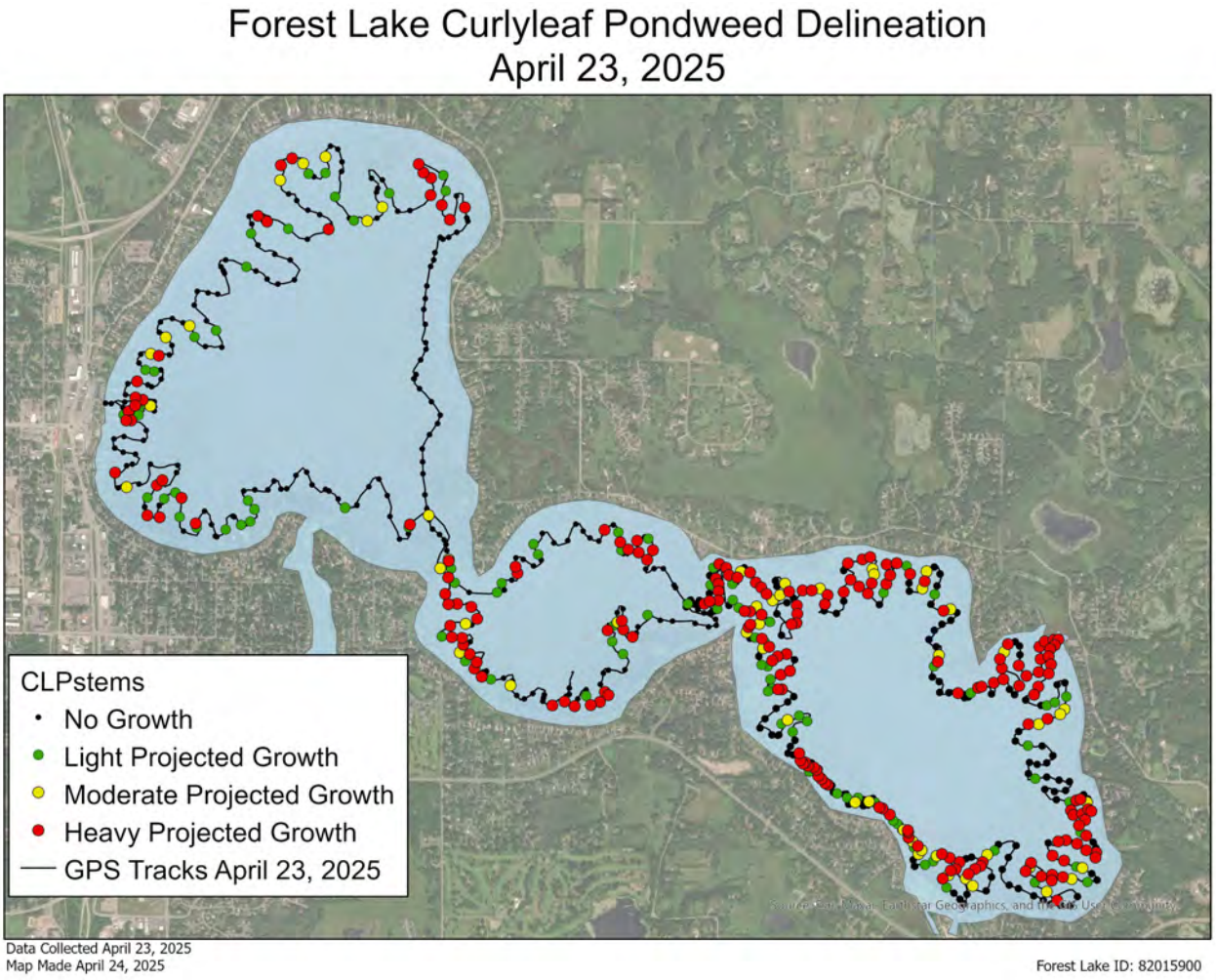

Figure 1. Forest Lake potential growth of curlyleaf pondweed on April 23, 2025.

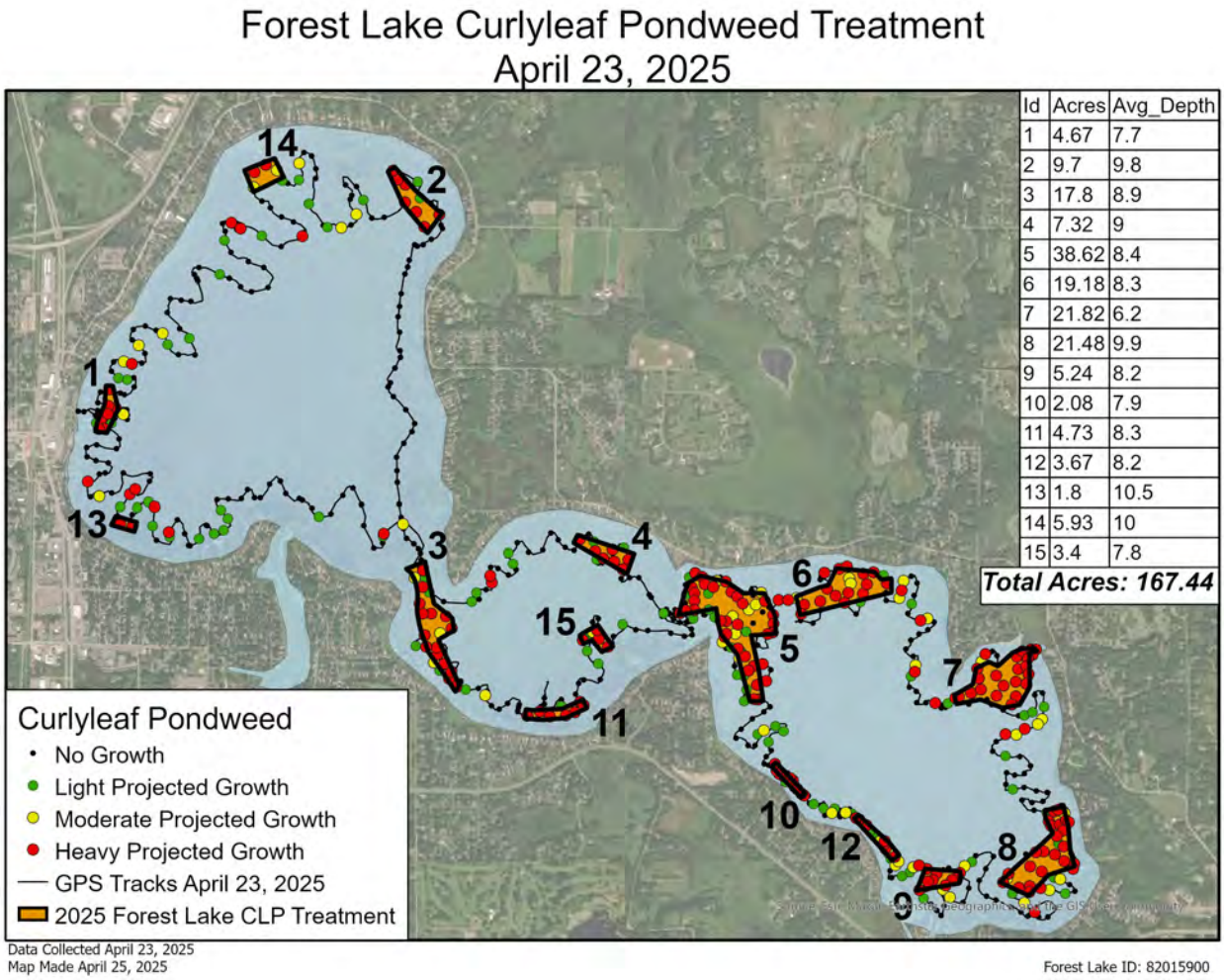

Figure 2. Forest Lake potential treatment map of curlyleaf pondweed on April 23, 2025.

APPENDIX

2025 MEANDER DELINEATION: Forest Lake individual site data collected by Blue Water Science on April 23, 2025.

Waypoint	Depth (ft)	CLP -stems	EWM	Lake
1				First
4	7	6		First
6	8	2	1	First
7	10	1		First
8	12	3		First
11	10	7	1	First
12	8	6	1	First
13	5			First
15	8	9		First
16	13			First
21	10	2	1	First
22	9	1	1	First
25	8	3	1	First
26	13	5		First
29	8	3	1	First
34	7	3		First
35	10	1		First
36	10			First
38	11	1		First
42	13			First
45	7			First
48	8	1		First
49	8		1	First
54	11			First
56	11	2	1	First
60	12	11		First
61	11	5		First
62	12	7		First
63	10	2		First
64	10			First
65	11	5		First
68	19			First
69	17			First
71	9	3	1	First
72	10	10		First
73	8	12		First
75	10	3	1	First
76	13	2		First
78	10	2	1	First
79	8	3	2	First
82	6		1	First
84	13	2		First
86	8	1		First
87	12	3		First
88	14			First
89	8	3	1	First
91	8		1	First
94	10	1	1	First
97	10	10		First
98	9	5		First
100	9	15		First
101	8	8		First
102	8	2	1	First
103	10	2	1	First
104	11	5		First
105	11	6		First
107	10	4		First
137	9	3		First
138	5			First
143	8	3		First
144	8	6		First
145	8	1		First
146	8	2		First
264	8	4		First
265	6	3		First
268	9	12		First
269	8	2		First
270	6			First
272	8		1	First
273	8	2	1	First
274	10			First
277	11	1		First
290	12	2		First
291	8	1		First
292	6	1		First
294	8	1		First
297	9	1		First
302	9	4		First
303	7	1	1	First
305	9	1		First
306	13	4		First
307	10	1		First
308	12	2		First
310	10	4		First
311	11	6		First
313	13	2		First
314	12	8		First
315	13	6		First
316	14			First
321	12	3		First
322	8			First
323	7	10		First
324	11		1	First
330	7			First
331	12			First
334	9	10		First
335	7	8		First
336	6	2		First
337	10	2		First
338	7	8		First
339	5			First
147	8			Second
149	13	1		Second
151	12	1		Second
153	10	4		Second
154	6	12		Second
156	6			Second
159	12	2		Second
161	9	1		Second
169	7	12		Second
171	7	1		Second
172	9	6		Second
173	13	1		Second
175	10	4		Second
176	9	4		Second
178	7	8		Second
180	6	2		Second
181	9	8		Second
182	10	4		Second
189	1	2		Second
198	12	2		Second
201	7	6		Second
203	7	15		Second
204	8	6		Second
205	12			Second
207	8	3		Second
208	8	1		Second
209	9	10		Second
210	9	1		Second
212	8	1		Second
217	9	10		Second
219	6	10		Second
220	6	14		Second
221	7	10		Second
222	11	2		Second
225	9	5		Second
226	11	4		Second
230	7	10		Second
233	15			Second
237	9	3		Second
238	15			Second
241	12	1		Second
242	7	10		Second
245	7	4		Second
246	8	6		Second
247	14			Second
248	10	8		Second
249	7	2		Second
250	8	3		Second
251	12	4		Second
252	13			Second
253	12	6		Second
254	10	6		Second
255	6	1		Second
256	8	8		Second
257	12	3		Second
259	11	5		Second
260	10	4		Second
261	10	4		Second
262	9	14		Second
263	6	4		Second
273	11			Second
1	5	12		Third
2	6	15		Third
3	6	11		Third
4	8	9		Third
5	12	1		Third
7	8	4		Third
13	7	18		Third
15	4	1		Third
17	5	1		Third
18	6	4		Third
19	9	11		Third
20	10	9		Third
21	12	1		Third
22	12	4		Third
23	9	3		Third
25	8	5		Third
26	11	6		Third
27	8	12		Third
28	10	7		Third
29	11	3		Third
30	9	3		Third
33	6	3		Third
34	9	20		Third
36	9	9		Third
37	8	21		Third
38	9	18		Third
40	1	12		Third
43	8	14		Third
44	7	11		Third
45	6	3		Third
46	8	14		Third
47	8	10		Third
51	6	8		Third
52	7	18		Third
54	5	8		Third
55	5	6		Third
56	6	10		Third
57	7	3		Third
58	8	3		Third
59	9	8		Third
60	11	8		Third
61	9	4		Third
63	11	1		Third
64	9	8		Third
65	8	12		Third
66	6	6		Third
67	5	9		Third
68	5	1		Third
69	7	6		Third
72	8	3		Third
73	7	6		Third
74	6	3		Third
78	10	2		Third
80	7	10		Third
81	5	3		Third
88	6	3		Third
89	7	7		Third
90	9	1		Third
95	9	10		Third
99	6	1		Third

Waypoint	Depth (ft)	CLP -stems	EWM	Lake
100	6	8		Third
101	8	10		Third
103	7	22		Third
104	9	18		Third
107	7	16		Third
108	6	4		Third
109	5	14		Third
110	5	3		Third
111	4	15		Third
115	7	7		Third
116	7	16		Third
117	6	5		Third
118	5	12		Third
119	4	7		Third
120	5	12		Third
121	5	5		Third
122	4	5		Third
123	5	5		Third
124	5	6		Third
125	5	14		Third
126	5	10		Third
127	5	14		Third
128	7	14		Third
129	8	11		Third
132	10	1		Third
133	7	2		Third
136	5	1		Third
137	7	3		Third
138	10	3		Third
139	10	12		Third
140	9	3		Third
141	11	6		Third
144	7	1		Third
151	9	1		Third
159	12	1		Third
160	9	19		Third
161	9	8		Third
162	7	3		Third
165	12	8		Third
166	11	7		Third
167	9	5		Third
168	6	14		Third
169	7	10		Third
170	10	6		Third
171	11	5		Third
172	9	1		Third
173	8	5		Third
176	6	12		Third
177	7	10		Third
178	9	8		Third
179	10	12		Third
180	10	16		Third
181	12	8		Third
183	12	8		Third
184	10	7		Third
185	8	2		Third
186	7	3		Third
189	7	2		Third
190	9	3		Third
191	10	8		Third
192	10	10		Third
193	10	12		Third
194	11	9		Third
195	11	6		Third
196	9	3		Third
197	10	8		Third
198	7	1		Third
199	7	3		Third
200	6	6		Third
213	10	1		Third
214	10	3		Third
215	9	9		Third
216	9	11		Third
217	9	4		Third
218	8	5		Third
219	8	3		Third
220	7	3		Third
225	11	11		Third
226	9	10		Third
227	7	9		Third

Waypoint	Depth (ft)	CLP -stems	EWM	Lake
228	6	3		Third
229	6	10		Third
230	6	1		Third
235	12	9		Third
236	12	8		Third
237	11	3		Third
238	7	1		Third
239	6	1		Third
242	8	3		Third
243	11	3		Third
244	10	9		Third
245	6	2		Third
246	8	3		Third
247	7	6		Third
248	12	7		Third
249	8	4		Third
250	6	3		Third
253	10	1		Third
254	6	2		Third
255	9	7		Third
256	8	12		Third
257	8	6		Third
258	9	2		Third
260	8	3		Third
264	8	1		Third
265	7	3		Third
268	9	1		Third
270	7	2		Third
273	10	11		Third
274	9	9		Third
275	11	2		Third
276	7	12		Third
277	8	9		Third
279	8	7		Third
280	7	10		Third
281	5	2		Third
282	9	8		Third
284	6	7		Third
285	6	4		Third
286	7	7		Third
287	7	10.0		Third
292	8	2		Third
293	10	1		Third
294	8	1		Third
295	7	3		Third
296	6	1		Third
304	9	9		Third
305	6	14		Third
306	8	2		Third
307	5	1		Third
308	7	1		Third
309	9	6		Third
310	11	9		Third
312	9	10		Third
313	9	7		Third
314	8	6		Third
315	6	1		Third
316	6	1		Third
318	9	3		Third
319	11	7		Third
320	11	2		Third
321	10	11		Third
322	8	2		Third
324	7	3		Third
325	6	11		Third
326	8	9		Third
327	10	3		Third
328	12	2		Third
329	8	12		Third
330	10	3		Third
331	7	10		Third
332	7	12		Third
333	9	1		Third
334	11	2		Third
335				Third
Average		5.9	1.0	
Occur (674 sites)		344	23	