

Restorative Lake Sciences Lee Lake Survey

1. Summary of the findings in the current survey.

There are 9 acres of EWM and 3.5 acres of invasive Phragmites. The most common natives include Illinois Pondweed and Wild Celery.

2. What about the growth or decline in acreage, possibly insert the new and old growth map.

See attached invasive species polygon maps.

3. Why and how it could show a decline in Milfoil and Phragmites getting worse.

EWM populations can increase or decline in any given year in response to winter ice conditions and or timing of spring. Phragmites spreads by runners or stolons that run underground and are more protected in winter than EWM or other submersed plants.

4. Your recommendations on why we still need some type of treatment, and possibly the type of treatment you would recommend (whole lake vs spot treating areas).

Spot-treatment of both invasives is highly recommended. You can use herbicides for both and/or you could use cut/burn methods for Phragmites and suction harvesting for EWM as a non-chemical option. Management of both invasives is encouraged to reduce further spread, which may reduce native aquatic plants and negatively impact the lake fishery.

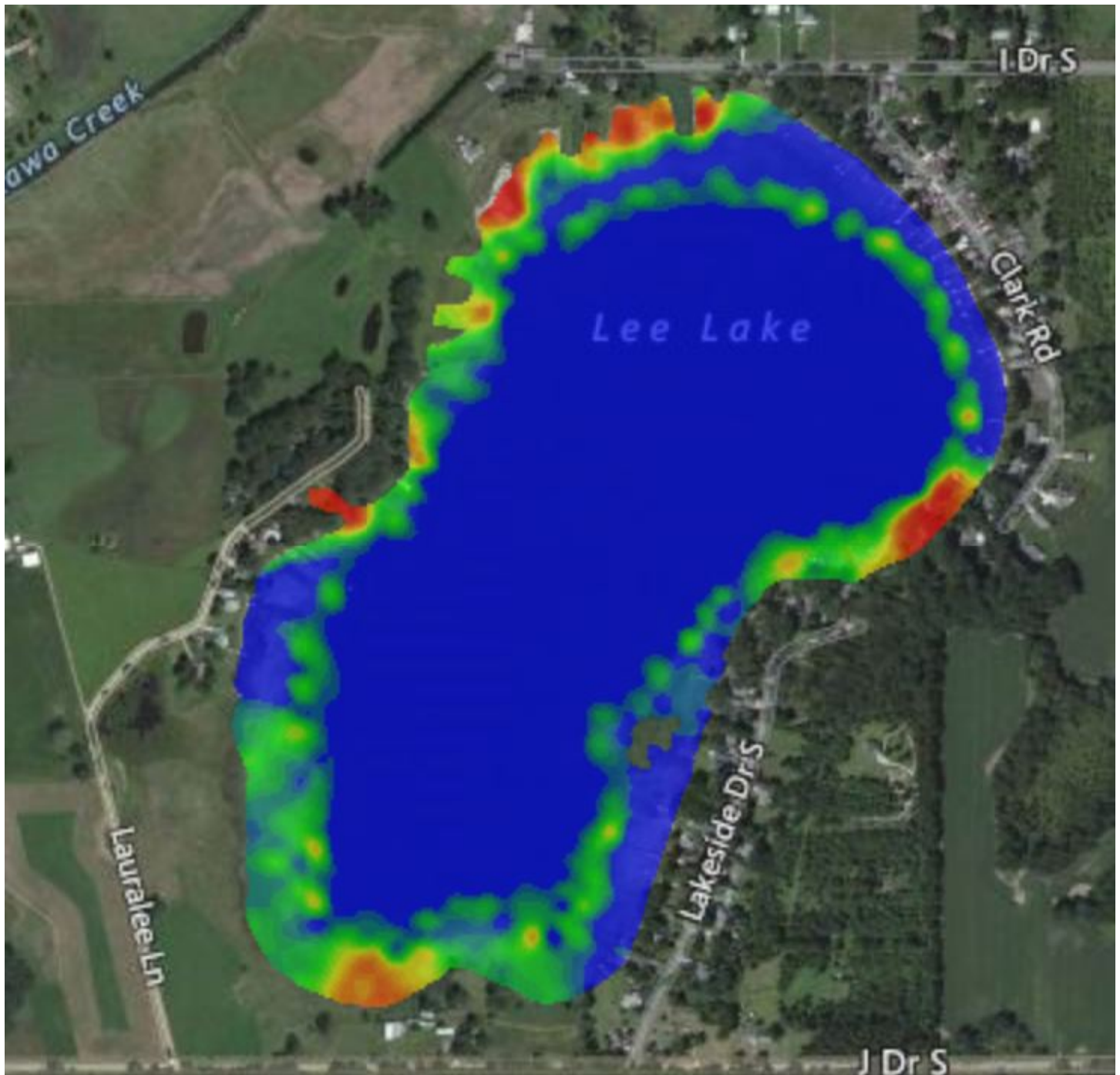
5. What is a ballpark cost? We realize that this is just a rough estimate but would at least give a something to look at as far as cost.

The Ballpark cost for our services would be \$3,000 per year and treatments would be around \$7,000-\$9,000 per year. Reduction of growth would be expected and annual costs should decline.

Invasive species polygon maps



2016 BioBase aquatic vegetation biovolume and sediment hardness maps. On the biovolume map, light vegetation (low-growing) is green, blue is no vegetation, and red is dense vegetation.



2016 sediment maps, the beige color is soft bottom and the red/orange colors are firmer bottom.



2016 aquatic vegetation data sheet that shows the percent coverage by each species...native and invasive.

LAKE NAME- LEE LAKE

COUNTY-CALHOUN

SURVEY DATE: September 13 2016

Standard Aquatic Vegetation Summary Sheet

SURVEY BY: CW, GLJ

Code No	Plant Name	Total number of AVAS's 117 for each Density Category				Calculations				Sum of Previous Four Columns	Total Number of AVAS's	Quotient of Column 9 divided by Column 10	Code No	Plant Name
		A	B	C	D	Category A x 1	Category B x 10	Category C x 40	Category D x 80					
		1	2	3	4	5	6	7	8					
1	Eurasian milfoil	2	13	48	12	2	130	1920	960	3012	117	25.7	1	Eurasian milfoil
2	Curly leaf pondweed					0	0	0	0	0	117	0.0	2	Curly leaf pondweed
3	Chara		2	5		0	20	200	0	220	117	1.9	3	Chara
4	Thinleaf pondweed	1	2	1		1	20	40	0	61	117	0.5	4	Thinleaf pondweed
5	Flatstem pondweed	1	1			1	10	0	0	11	117	0.1	5	Flatstem pondweed
6	Robbins pondweed					0	0	0	0	0	117	0.0	6	Robbins pondweed
7	Variable pondweed					0	0	0	0	0	117	0.0	7	Variable pondweed
8	Whitestem pondweed					0	0	0	0	0	117	0.0	8	Whitestem pondweed
9	Richardsons pondweed					0	0	0	0	0	117	0.0	9	Richardsons pondweed
10	Illinois pondweed	5	15	9		5	150	360	0	515	117	4.4	10	Illinois pondweed
11	Large leaf pondweed					0	0	0	0	0	117	0.0	11	Large leaf pondweed
12	American pondweed					0	0	0	0	0	117	0.0	12	American pondweed
13	Floating leaf pondweed					0	0	0	0	0	117	0.0	13	Floating leaf pondweed
14	Water stargrass					0	0	0	0	0	117	0.0	14	Water stargrass
15	Wild Celery	5	23	5		5	230	200	0	435	117	3.7	15	Wild Celery
16	Sagittaria					0	0	0	0	0	117	0.0	16	Sagittaria
17	Northern milfoil					0	0	0	0	0	117	0.0	17	Northern milfoil
18	M. verticillatum					0	0	0	0	0	117	0.0	18	M. verticillatum
19	M. heterophyllum					0	0	0	0	0	117	0.0	19	M. heterophyllum
20	Coontail					0	0	0	0	0	117	0.0	20	Coontail
21	Elodea					0	0	0	0	0	117	0.0	21	Elodea
22	Utricularia spp.					0	0	0	0	0	117	0.0	22	Utricularia spp.
23	Bladderwort-mini					0	0	0	0	0	117	0.0	23	Bladderwort-mini
24	Buttercup					0	0	0	0	0	117	0.0	24	Buttercup
25	Najas spp.					0	0	0	0	0	117	0.0	25	Najas spp.
26	Brittle naiad					0	0	0	0	0	117	0.0	26	Brittle naiad
27	Sago Pondweed		2			0	20	0	0	20	117	0.2	27	Sago Pondweed
28	Burr Reed					0	0	0	0	0	117	0.0	28	Burr Reed
29	Button Bush					0	0	0	0	0	117	0.0	29	Button Bush
30	Nymphaea	1	4	4	1	1	40	160	80	281	117	2.4	30	Nymphaea
31	Nuphar			3		0	0	120	0	120	117	1.0	31	Nuphar
32	Brasenia					0	0	0	0	0	117	0.0	32	Brasenia
33	Lemna minor					0	0	0	0	0	117	0.0	33	Lemna minor
34	Spirodella					0	0	0	0	0	117	0.0	34	Spirodella
35	Watermeal					0	0	0	0	0	117	0.0	35	Watermeal
36	Arrowhead					0	0	0	0	0	117	0.0	36	Arrowhead
37	Pickerelweed					0	0	0	0	0	117	0.0	37	Pickerelweed
38	Arrow Arum					0	0	0	0	0	117	0.0	38	Arrow Arum
39	Cattails		2	2		0	20	80	0	100	117	0.9	39	Cattails
40	Bulrushes	2	7	3	1	2	70	120	80	272	117	2.3	40	Bulrushes
41	Iris					0	0	0	0	0	117	0.0	41	Iris
42	Swamp Loosestrife					0	0	0	0	0	117	0.0	42	Swamp Loosestrife
43	Purple Loosestrife					0	0	0	0	0	117	0.0	43	Purple Loosestrife
44	Polygonum					0	0	0	0	0	117	0.0	44	Polygonum
45	Phragmites	2	1	2	25	2	10	80	2000	2092	117	17.9	45	Phragmites
46	Scirpus subterminalis					0	0	0	0	0	117	0.0	46	Scirpus subterminalis
47	Twig Rush					0	0	0	0	0	117	0.0	47	Twig Rush