



On-Site Lake Evaluation Record

Lake Name: Loon Lake

County: Iosco

Evaluated by: Mitch Hiler

Reviewed by: Bre Grabill

Date: 18 September 2013

Purpose of evaluation: End of Season Evaluation

Evaluations Performed

Aquatic Vegetation Evaluation

- Aquatic vegetation survey
- Aquatic vegetation brief check

Vegetation evaluation methods

- Visual evaluation
- Sample collection with rake
- Sonar profiling
- GPS-mapped sample locations

Water quality sampling

- On-site (Temperature, DO, Secchi disk)
- Water samples collected for
____TP, TN, ALK____ analysis

GPS data collection

- Depth survey
- Shoreline mapping
- Reference point location

Other _____

Overall Condition of Lake

- excellent (no problems or developing problems noted)
- very good (no immediate action required)
- fair (management required soon)
- poor (management needed as soon as possible)
- very poor (management action past due—IMMEDIATE response required)

Problems Noted

- Growth of exotic plants (mark locations on map)
 - Eurasian watermilfoil
 - curlyleaf pondweed
 - other _____
- Growth of native plants
- Excessive filamentous algae growth (mark location on map)
- Poor water clarity
- Blue-green algal blooms



PLM Lake & Land Management Corp.
Northern Division

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RECOMMENDATIONS

- X Monitoring Program:
Continue monitoring program next season: Yes, No

- X Herbicide application: Continue Program Next Season
Need for herbicide treatments next season: urgent, serious, moderate, slight

- X Algaecide application: Continue Program Next Season
Need for algae treatments next season: urgent, serious, moderate, slight

NOTES

Loon Lake was evaluated on 18 September 2013. At this time, a full lake AVAS Survey was performed along with collecting the end of summer water quality samples.

The Water Quality Report is attached in a separate report, however the sampling from the 2013 season show that the Total Phosphorus reading is slightly elevated, very normal in Michigan Lakes. Nitrates are not a problem at this time. All the data is put together to conclude the TSI (Trophic Status Indicator) which in the spring determined the lake to be meso-oligotrophic (low nutrients, high clarity, able to support a robust cold water fishery) and in the end of summer to be mesotrophic (moderate nutrients, clear water and moderate productivity). I recommend collecting additional data in 2014. It is important to track fluctuations and trends in the water quality parameters tested.

The AVAS Surveyed showed that numerous native plants were present within the lake, including but not limited to Northern watermilfoil, Chara, Lily pads, Coontail, Elodea, and various pondweeds. Maintaining a diverse plant community is key in lake management and protecting the lake ecosystem. Although treatments were performed in 2013 for the control of exotic plants (Curlyleaf pondweed—none of which was found in the September survey) and nuisance native plants, these treatments were performed in such a way to allow for recreational and navigational use of the lake to be increased while protecting the diversity of the plant ecosystem. Nuisance native plant control is seasonal and will be required in 2014. The degree to what is required each season will fluctuate slightly with seasonal temperatures and weather as well as with changes in the plant community. Therefore, a budget for 2014 is recommended to include optional treatments for these control measures with a projected high and low end based on past requirements.

It is recommended to continue the monitoring program in 2014. Treatment efforts for algae control is recommended to continue as well. Controlling any exotic plants, included Curlyleaf pondweed is a top priority. Nuisance native plant control is recommended to improve navigation around the lake, while protecting undeveloped and offshore plant beds for the protection of Loon Lake. At no time will treatments be performed or recommended that would negatively impact the fishery and overall ecosystem of Loon Lake. Wild Celery is the most prominent native plant on the lake, showing levels that this native plant is aggressively growing. Treatments for Wild Celery should continue to help deter its nuisance presence in the water column, while allowing it to serve as fish habitat.

Overall, Loon Lake is in very good condition and the program is recommended to continue in 2014.

Please contact me with questions or concerns.

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Standard Aquatic Vegetation Summary Sheet

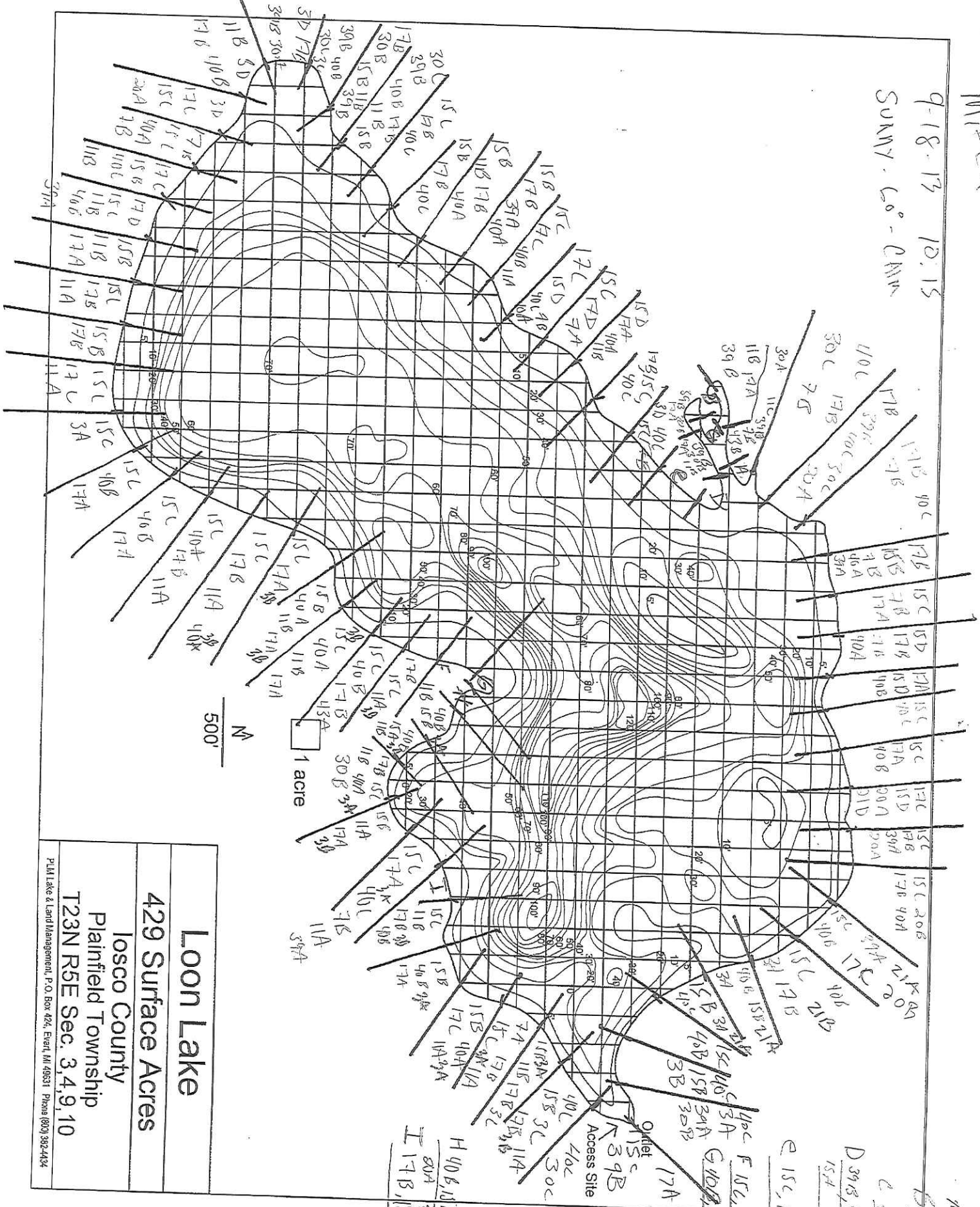
Code No	Plant Name	Total number of AVAS's for each Density Category				Calculations				Sum of Columns 5-8	Total No. of AVAS	Col 9 divided by Col 10
		A	B	C	D	A x 1	B x 10	C x 40	D x 80	9	10	11
1	Eurasian watermilfoil	0	0	0	0	0	0	0	0		77	
2	Curly leaf pondweed	0	0	0	0	0	0	0	0			
3	Chara	13	13	4	5	13	130	160	400	703	77	9.13
4	Thinleaf pondweed	0	0	0	0	0	0	0	0			
5	Flatstem pondweed	0	0	0	0	0	0	0	0			
6	Robbins pondweed	0	0	0	0	0	0	0	0			
7	Variable pondweed	2	9	0	0	2	90	0	0	92	77	1.19
8	White stem pondweed	0	0	0	0	0	0	0	0			
9	Richardsons pondweed	0	0	0	0	0	0	0	0			
10	Illinois pondweed	1	0	0	0	1	0	0	0	1	77	0.01
11	Large leaf pondweed	11	20	1	0	11	200	40	0	251	77	3.26
12	American pondweed	0	0	0	0	0	0	0	0			
13	Floating leaf pondweed	0	0	0	0	0	0	0	0			
14	Water stargrass	0	0	0	0	0	0	0	0			
15	Wild celery	2	20	36	5	2	200	1440	400	2042	77	26.52
16	Sagittaria (submersed)	0	0	0	0	0	0	0	0			
17	Northern watermilfoil	18	34	8	2	18	340	320	160	838	77	10.88
18	Green watermilfoil	0	0	0	0	0	0	0	0			
19	Two-leaved watermilfoil	0	0	0	0	0	0	0	0			
20	Coontail	6	2	0	0	6	20	0	0	26	77	0.34
21	Elodea	3	1	0	1	3	10	0	80	93	77	1.21
22	Bladderwort	0	0	0	0	0	0	0	0			
23	Mini Bladderwort	0	0	0	0	0	0	0	0			
24	Buttercup	0	0	0	0	0	0	0	0			
25	Naiad	0	0	0	0	0	0	0	0			
26	Brittle naiad	0	0	0	0	0	0	0	0			
27	Sago Pondweed	0	0	0	0	0	0	0	0			
28	Cabomba	0	0	0	0	0	0	0	0			
29	Starry Stonewort	0	0	0	0	0	0	0	0			
30	Water Lily	2	6	5	0	2	60	200	0	262	77	3.40
31	Spatterdock	0	0	0	0	0	0	0	0			
32	Water shield	0	0	0	0	0	0	0	0			
33	Lemna minor	0	0	0	0	0	0	0	0			
34	Greater duckweed	0	0	0	0	0	0	0	0			
35	Watermeal	0	0	0	0	0	0	0	0			
36	Arrowhead	0	0	0	0	0	0	0	0			
37	Pickereelweed	0	0	0	0	0	0	0	0			
38	Arrow arum	0	0	0	0	0	0	0	0			
39	Cattail	7	14	0	0	7	140	0	0	147	77	1.91
40	Bulrush	13	21	19	0	13	210	760	0	983	77	12.77
41	Iris	0	0	0	0	0	0	0	0			
42	Swamp loosestrife	0	0	0	0	0	0	0	0			
43	Purple loosestrife	1	3	0	0	1	30	0	0	31	77	0.40
44	Phragmites	0	0	0	0	0	0	0	0			
45	Variable leaf milfoil	0	0	0	0	0	0	0	0			
46		0	0	0	0	0	0	0	0			

Total cumulative cover

71.03

N.L.C.M

9-18-13 10:15
SUNNY - 60° - 6AM



500'

1 acre

Loon Lake
429 Surface Acres
 Iosco County
 Plainfield Township
 T23N R5E Sec. 3, 4, 9, 10

PLM Lake & Land Management, P.O. Box 424, East, MI 49631 Phone (800) 392-4434

H 40B, 11B, 11B, 30B, 20A-
 80A 30B
 I 17B, 15C, 39B, 40C
 A 11A, 19A, 30A
 C 30B, 30P, 19A
 D 39B, 30P, 30, 40B
 15A
 E 15C, 17B, 11B, 30B
 G 10B, 15C, 30B
 17A
 11A, 19A, 30A
 30B, 30P, 19A
 39B, 30P, 30, 40B
 15A
 15C, 17B, 11B, 30B
 10B, 15C, 30B
 17A