Former Celery Field, White Lake Muskegon County
2025 AQUATIC MACROPHYTE REPORT

Site: Former Celery Field, White Lake wetland

County: Muskegon

Surface Area: 164 acres

Survey Type: Point-intercept

Date of Survey: 9/18/2025

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Results Summary:

An aquatic macrophyte survey (aquatic plants and macroalgae) of former celery fields in the upstream wetland of White Lake, Muskegon County was completed on September 18, 2025**.** Of the predetermined 100 sampling sites, only 46 were sampled due to low water depth (<0.3 meters). The macrophyte community was relatively diverse with 16 species observed, but had low evenness (5 species were dominant). Plant abundance varied, with some areas with extensive plant biomass and other areas being sparse.

Site Description:

The sampling location is a former celery field [43.420249, -86.331027] located in the Great Lakes coastal marsh upstream of White Lake, Muskegon County, MI. The site is surrounded by a manmade berm. After active farming ceased at the site, the dewatering pumps were no longer used and the site was inundated. In 2014 and 2022, the property was purchased with an intent to be restored to natural wetland that is connected to the White River. The maximum water depth was 1 meter with an average depth of 0.46 meters on the date of sampling. Secchi disk water transparency was 0.6 meters. Access to the site was through a small break in the berm located at 43.419133, -86.334868.

Survey Objectives:

A point-intercept survey was carried out to 1) obtain baseline data about the aquatic macrophyte community, 2) map the spatial distribution of macrophytes and richness patterns, and 3) determine water depth throughout the survey location.

Methods:

We conducted a modified point-intercept survey. 100 points were established across the former celery field using GIS software (Figure 1). At each sampling point, a double-sided rake was tossed twice, one toss to the starboard and one to the port side of the research vessel to snag aquatic macrophytes. Individual macrophytes were identified to the lowest possible taxonomic unit. Macroalgae were grouped by genus. Other variables measured included water depths and plant abundance at each sampling point, and water transparency was sampled using a Secchi disk.

Survey Observations:

Only 46 of 100 sampling sites were sampled due to low water level (under 0.3 meters). From the 46 sampling points visited (Figure 1), we encountered macrophytes at 45 points (98% of points) (Table 1). In total, we identified 16 macrophyte species (Table 1). The highest richness observation at an individual sampling point was 8 species (Figure 2). The most frequently encountered macrophyte was Coontail (*Ceratophyllium demersum*), being present at 41 of 46 sampling points (Table 1). Several other macrophytes had high frequency of occurrence (Table 1). Overall, the plant community exhibits low evenness, with 5 species being dominant and the other 11 species occurring at less than 7% of sites. Of note, invasive Eurasian watermilfoil and Curly leaf pondweed were among the most frequently observed species throughout the waterbody.

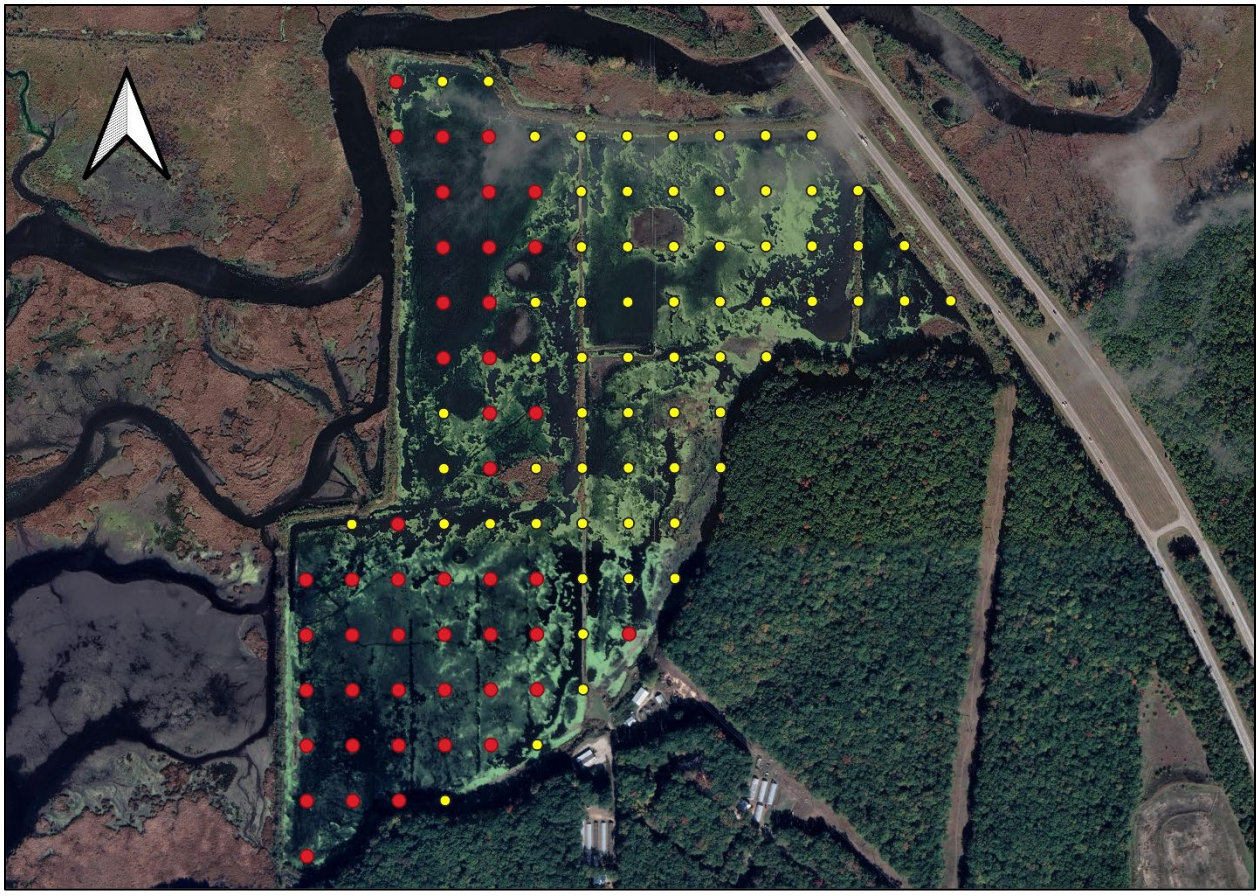


Figure 1. Sampling point locations. Red dots indicate sampling sites surveyed and yellow dots represent locations that were not sampled due to low water depth.

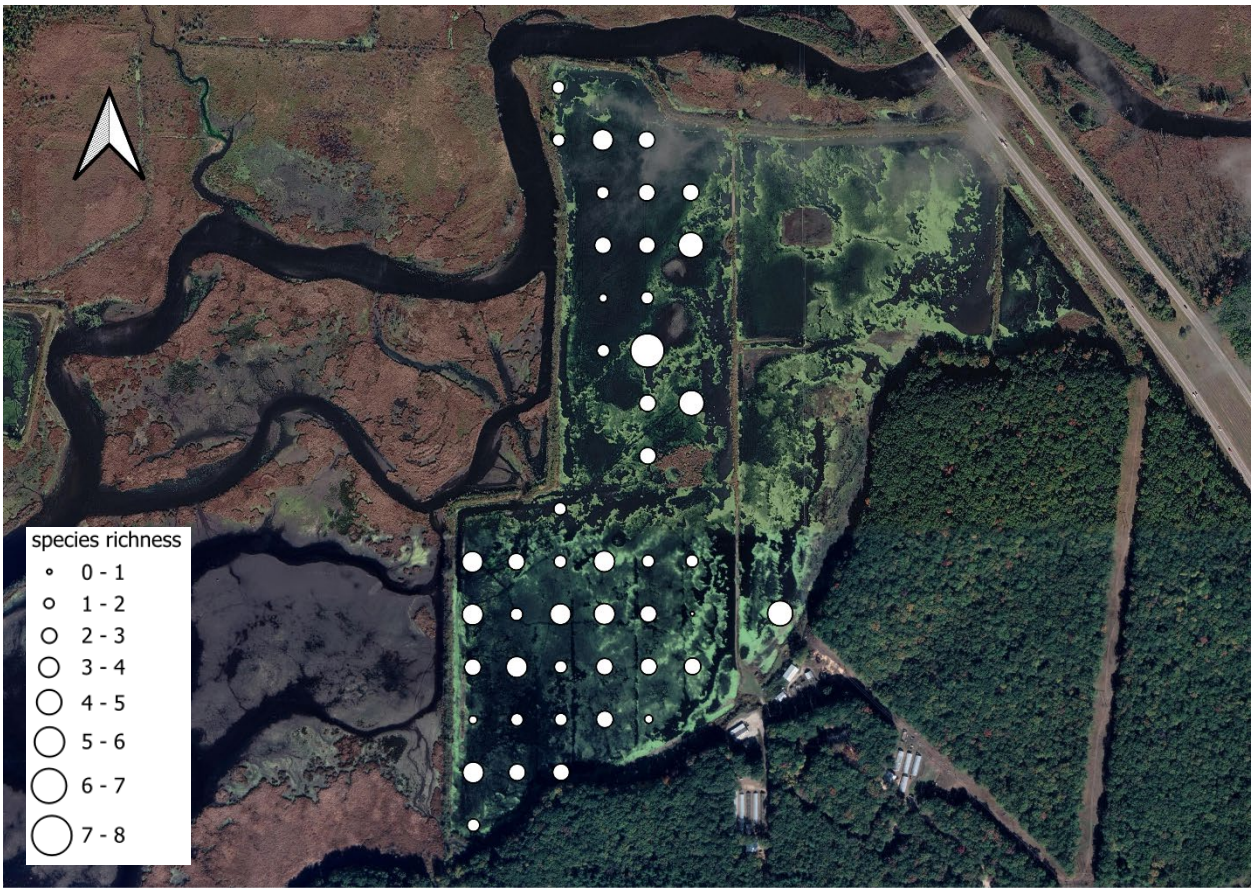


Figure 2. Species richness distribution map (number of aquatic macrophyte species per point).

Table 1. Aquatic species checklist from 46 points surveyed and taxa occurrence metrics. (N) = native species and (I) = invasive species.

Common name		Scientific name	Total sites present	Frequency of occurrence (%)*
Coontail	(N)	*Ceratophyllum demersum*	41	89.13
Canadian waterweed	(N)	*Elodea canadensis*	35	76.09
Star duckweed	(N)	*Lemna trisulca*	33	71.74
Eurasian watermilfoil	(I)	*Myriophyllum spicatum*	29	63.04
Curly-leaf pondweed	(I)	*Potamogeton crispus*	23	50
Leafy pondweed	(N)	*Potamogeton foliosus*	3	6.52
Small pondweed	(N)	*Potamogeton pusillus*	3	6.52
Muskgrass	(N)	*Chara sp.*	2	4.35
Sago pondweed	(N)	*Stuckenia pectinata*	2	4.35
White waterlily	(N)	*Nymphaea odorata*	1	2.17
Water smartweed	(N)	*Persicaria amphibia*	1	2.17
Long-leaf pondweed	(N)	*Potamogeton nodosus*	1	2.17
Flatstem pondweed	(N)	*Potamogeton zosterformis*	1	2.17
Water buttercup	(N)	*Ranunculus aquatilis*	1	2.17
Filiform pondweed	(N)	*Stuckenia filiformis*	1	2.17
Water stargrass	(N)	*Heteranthera dubia*	1	2.17

*Frequency of occurrence (%) based on all sampling points (=46) including those lacking vegetation.