

## 2020 Eurasian Watermilfoil Delineation

**Clearwater Lake** (#18-0038)  
Crow Wing County, MN

Surveyed July 20, 2020



### Survey, Analysis, and Reporting by:

James A. Johnson – Aquatic Ecologist, Freshwater Scientific Services, LLC



**Certified Lake Manager**  
[www.NALMS.org](http://www.NALMS.org)

## Purpose of Survey

This mid-summer survey was designed to locate and delineate areas of Eurasian watermilfoil (EWM) in the vegetated portion of Clearwater Lake (#18-0038). This information will help to guide EWM management in the lake and is required as a part of the DNR permitting process for herbicide treatments.

## Survey Method

### EWM Delineation Survey

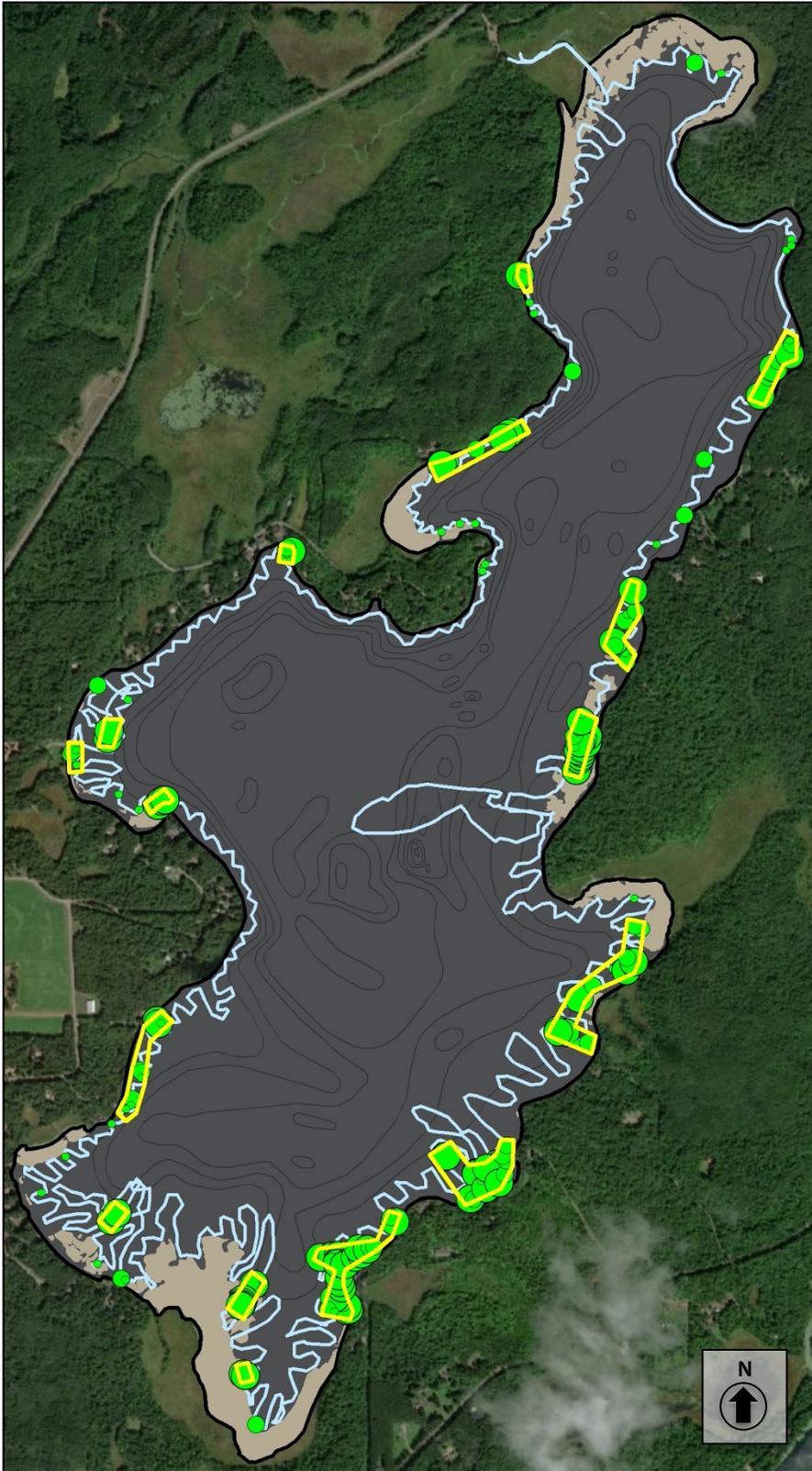
Freshwater Scientific Services surveyed Clearwater Lake on July 20, 2020. During this survey, we navigated a meandering path over the littoral portion of the lake while using a combination of surface observations, sonar readings, and rake tosses to locate and delineate areas of EWM growth. When we encountered EWM plants, we marked the location, recorded the water depth, and rated the density of the growth using visual or rake density scores as described in the table below.

Score	Visual	Rake
1	Light / Solitary plants	1-2 stems
2	Moderate / Scattered dense patches	3 to 9 stems
3	Dense / Uniform dense growth	10+ stems

For rake samples, we dragged a sampling rake over approximately 10 square feet of lake bottom and recorded the EWM density based upon the number of plants (stem count) retrieved on the rake. The recorded water depths and density scores were linked to the appropriate GPS locations and then mapped using desktop GIS software.

# 2020 Eurasian Watermilfoil Delineation Survey

## Clearwater Lake (#18-0038)



**Waterlily/Bulrush**

**Surveyed Path**

**Management Plots**

**EWM Density**

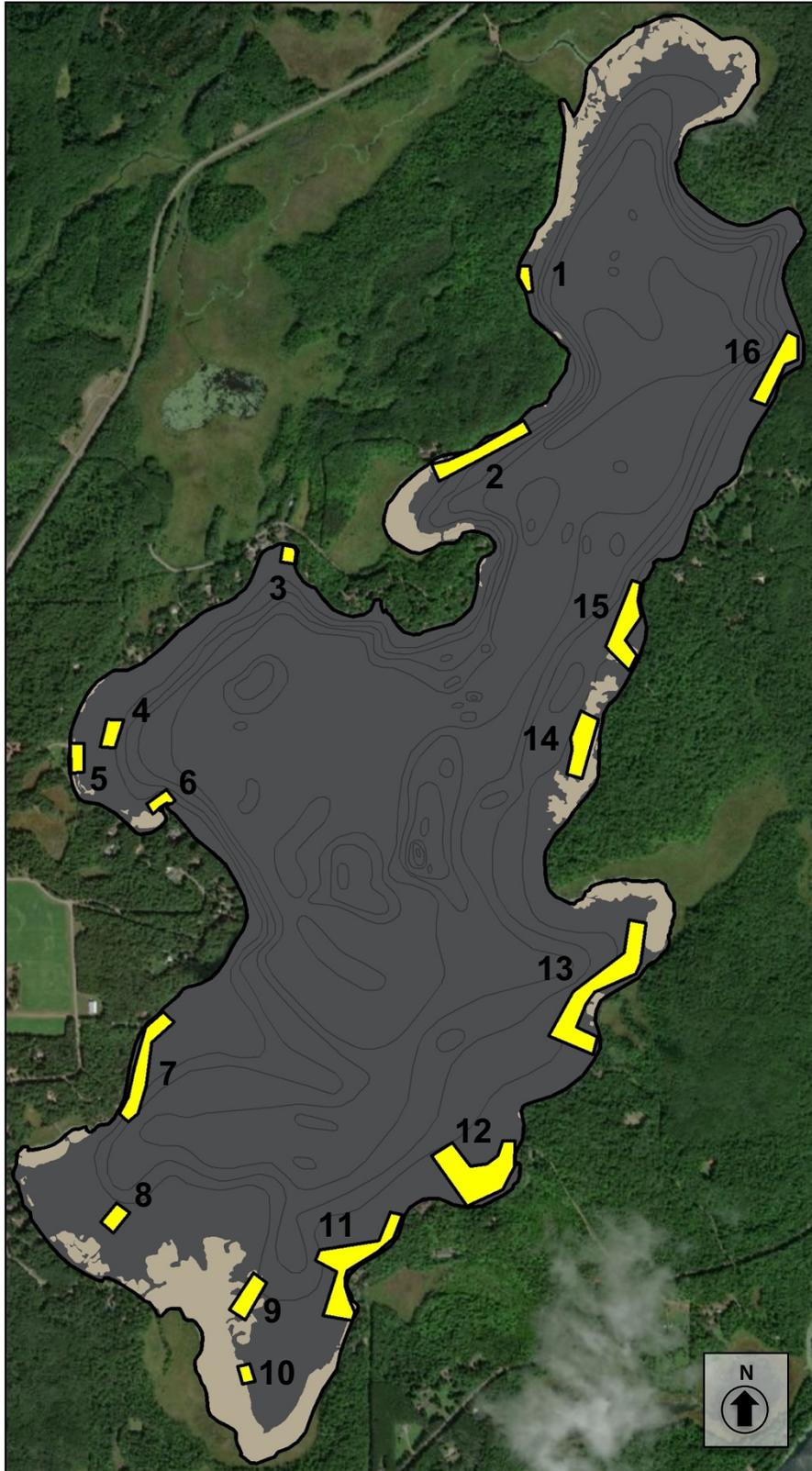
- 1
- 2
- 3

**Surveyed:** July 20, 2020  
**Surveyor:** JA Johnson  
**Methods:** Visual, Sonar, Rake



## 2020 Eurasian Watermilfoil Management Plots

### Clearwater Lake (#18-0038)



### Proposed Management Plots

Plot *	Acres	Mean Depth (ft)	Mean EWM Density (1-3)
1	0.5	4.8	2.3
2	2.8	4.0	2.7
3	0.5	3.2	2.0
4	0.9	6.3	2.3
5	0.8	2.7	1.4
6	0.6	6.8	3.0
7	3.2	5.1	1.8
8	0.9	5.6	3.0
9	1.6	3.5	2.7
10	0.5	3.9	2.7
11	5.1	3.6	2.4
12	5.7	4.1	2.3
13	6.6	4.0	2.3
14	2.4	3.3	2.5
15	3.1	4.1	1.9
16	2.5	4.6	2.3

**Total 37.7**

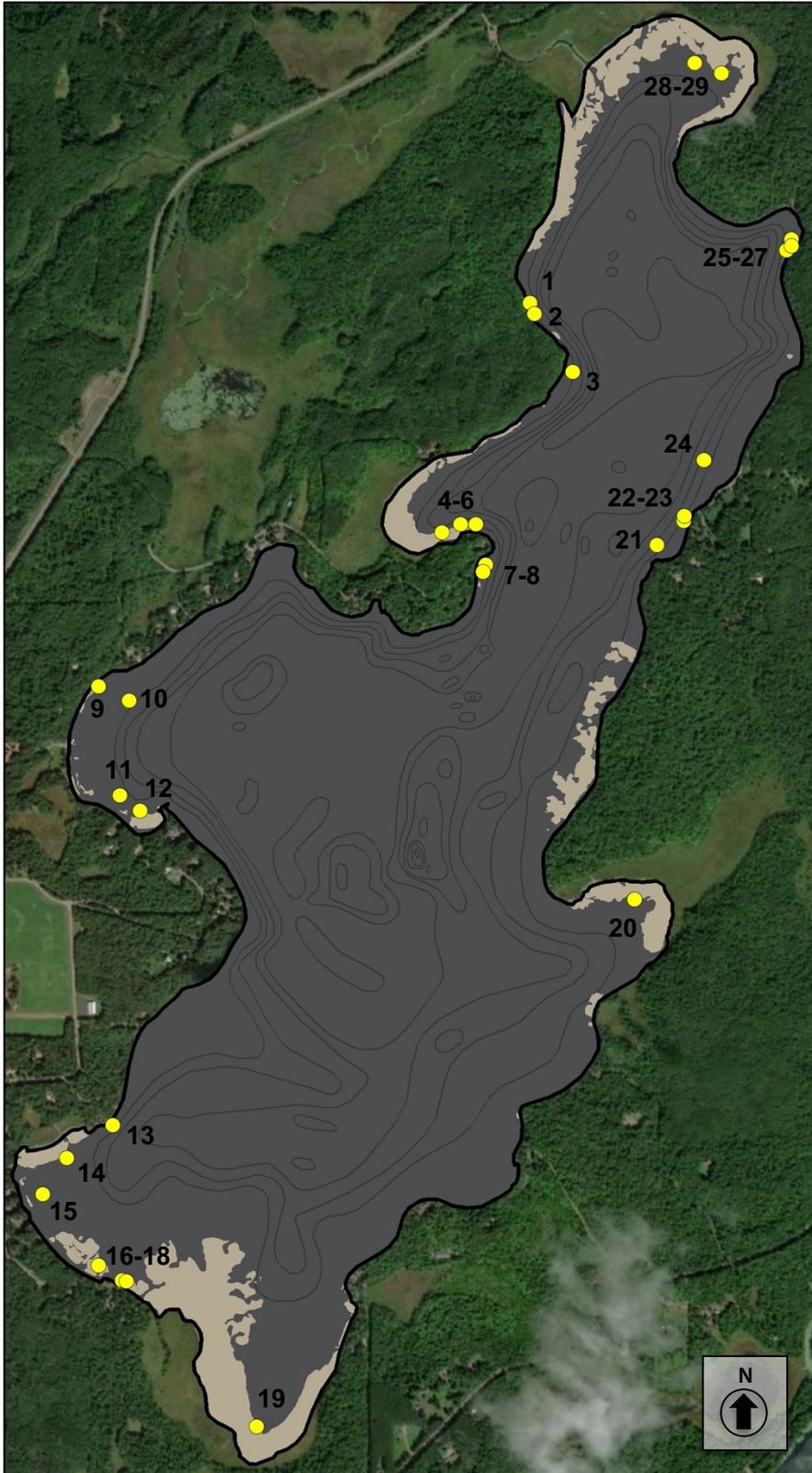
\* **Highlighted plots** are near waterlily and bulrush stands; any treatment in these plots should occur in the fall to minimize damage to these native plants. You should discuss any planned treatments of these plots with your DNR contact and applicator before proceeding.

**Surveyed:** July 20, 2020  
**Methods:** Visual, Sonar, Rake  
**Surveyor:** JA Johnson



15771 Creekside Lane  
 Osseo, MN 55369  
 fixmylake.com  
 (651) 336-8696

## 2020 Eurasian Watermilfoil Manual Removal Sites (Optional Management) Clearwater Lake (#18-0038)



Site	Depth (ft)	Lat*	Long*
1	3.3	46.406672	-93.910026
2	3.3	46.406388	-93.909857
3	6.6	46.404916	-93.908411
4	4.3	46.400741	-93.913203
5	3.3	46.400956	-93.912518
6	3.9	46.400959	-93.911948
7	4.3	46.399920	-93.911558
8	3.3	46.399736	-93.911665
9	3.0	46.396672	-93.925924
10	6.6	46.396318	-93.924774
11	5.6	46.393877	-93.925081
12	3.6	46.393493	-93.924334
13	3.9	46.385391	-93.925214
14	5.9	46.384536	-93.926911
15	4.9	46.383594	-93.927792
16	2.6	46.381784	-93.925681
17	2.0	46.381411	-93.924789
18	2.6	46.381389	-93.924628
19	3.3	46.377691	-93.919713
20	3.3	46.391361	-93.905872
21	5.2	46.400479	-93.905192
22	5.2	46.401108	-93.904205
23	6.2	46.401230	-93.904185
24	5.2	46.402683	-93.903467
25	5.9	46.408101	-93.900495
26	5.9	46.408387	-93.90031
27	4.6	46.408216	-93.900301
28	3.3	46.412641	-93.902987
29	4.6	46.412900	-93.903988

\* GPS coordinate file (.gpx) available

These locations represent patches of EWM that were too small and isolated to warrant treatment with herbicide. Manual removal of EWM (by lake volunteers or hired divers) is not required, but may help to prevent the spread of fragments from these sites.



15771 Creekside Lane  
Osseo, MN 55369  
fixmylake.com  
(651) 336-8696

## **Online Resources & Contacts**

Minnesota Administrative Rules for Aquatic Plant Management

<https://www.revisor.mn.gov/rules/?id=6280>

Minnesota DNR – Aquatic Plant Management Regulations & Permit Application Forms

<http://www.dnr.state.mn.us/apm/index.html>

### **Tim Plude**

Invasive Species Specialist

Minnesota DNR

[timothy.plude@state.mn.us](mailto:timothy.plude@state.mn.us)

(218) 203-4354

### **Wendy Crowell**

AIS Management Coordinator

Minnesota DNR

[wendy.crowell@state.mn.us](mailto:wendy.crowell@state.mn.us)

(651) 259-5085