



Campers on Pike Lake, Scott County, Minnesota, 2015

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# Aquatic Plant Point-Intercept Survey for Pike Lake, Scott County, Minnesota

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[Plant Survey Conducted August 24, 2015]

Prepared for:  
Prior Lake/Spring Lake  
Watershed District



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**March 2016**

# Aquatic Plant Point-Intercept Survey for Pike Lake, Scott County, Minnesota

## Summary

Pike Lake (MnDNR ID #70-0076) is a 43 acre lake located in Scott County, Minnesota. One aquatic plant point-intercept survey was conducted in Pike Lake by Blue Water Science in 2015. The aquatic plant community was sampled on August 24, 2015 to characterize conditions of native aquatic plants and to look for the non-native Eurasian watermilfoil that was first observed in one area in August of 2012.

Pike Lake plant survey results indicated a relatively low diversity of submerged aquatic plants with five species of submerged plants found in the survey. The submerged plants observed on August 24, 2015 were coontail, elodea, flatstem, curlyleaf pondweed, and Eurasian watermilfoil. Three native species as well as two non-native plants, curlyleaf pondweed and Eurasian watermilfoil, were present in the August survey (Figure S1). The native plant coverage for August 24, 2015 is shown in Figure S-1. Eurasian watermilfoil was the dominant aquatic plant.

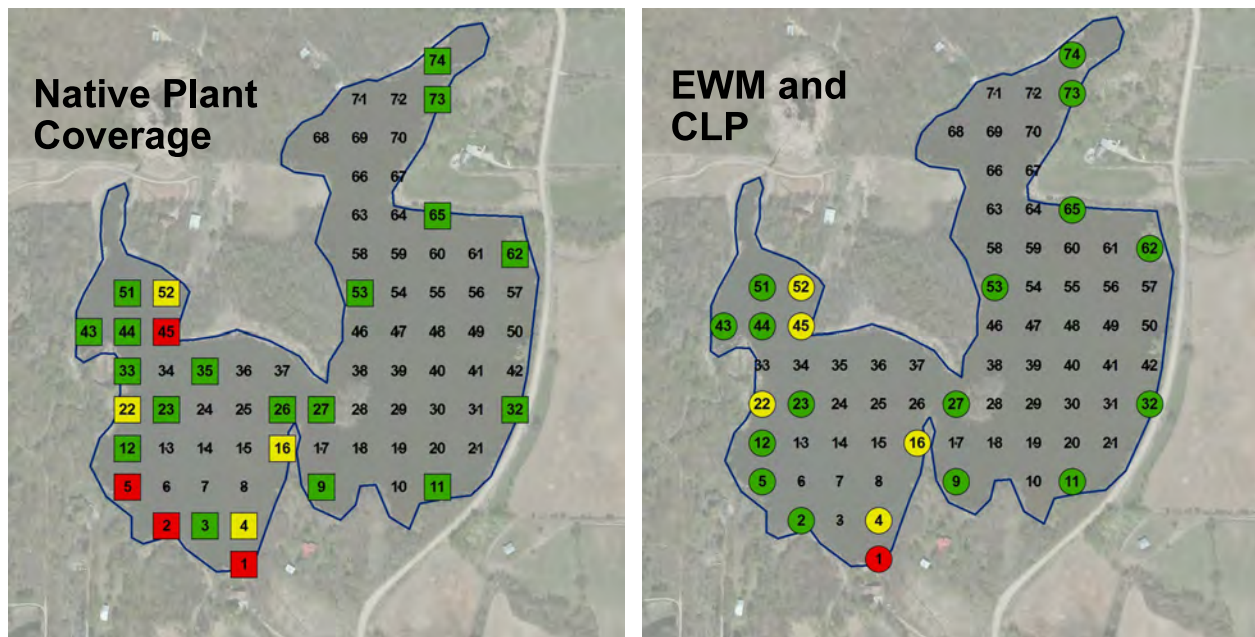


Figure S-1. Submerged native aquatic plant coverage for Pike Lake on August 24, 2015 (left) and non-native Eurasian watermilfoil along with curlyleaf that was observed at one site (Site 2)(right). Key: Green = light growth, yellow = moderate growth, and red = heavy growth.

# Aquatic Plant Point-Intercept Survey for Pike Lake, Scott County, Minnesota

Pike Lake, Scott County (ID: 70-0076)

Size: 43 acres (MnDNR)

Maximum depth: 9 ft (MnDNR)

## Introduction

One aquatic plant point-intercept survey was conducted on 43 acre Pike Lake, located in Scott County, on August 24, 2015. The objective of the survey was to characterize the aquatic plant community.

## Methods

An aquatic plant point-intercept survey of Pike Lake was conducted by Blue Water Science. A total 74 points were sampled and points were spaced 50 meters apart on a grid that covered the lake (Figure 1). At each sample point, a sampling rake was lowered into the water and a plant sample was taken. The plant species were recorded and the density of each species was assigned. Densities were based on the coverage on the teeth of the rake. Density ratings ranged from 1 to 5 with 1 being sparse and 5 being heavy growth.

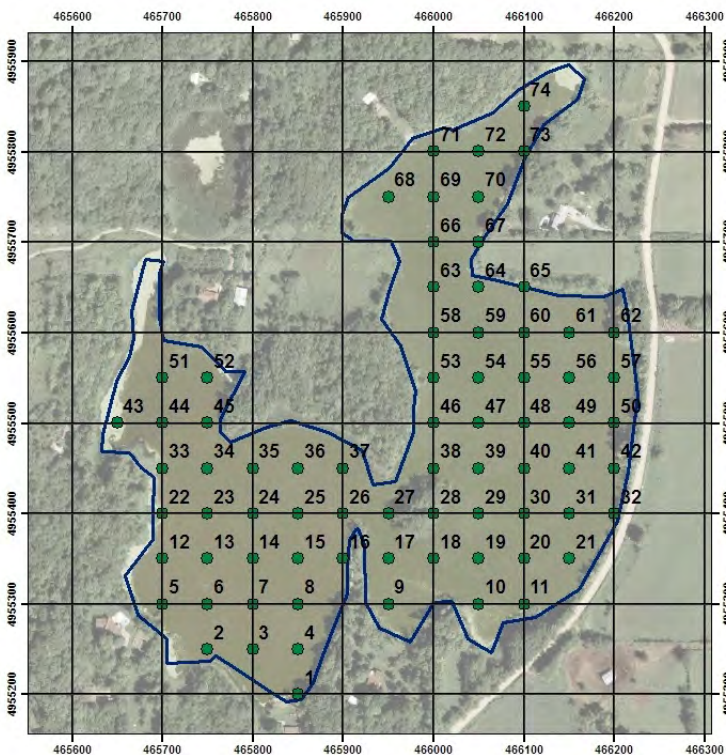


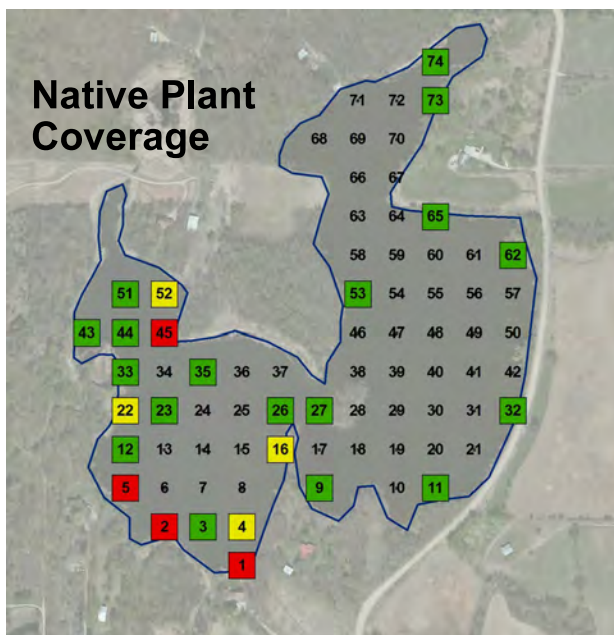
Figure 1. Sample grid map for the aquatic plant survey conducted on Pike Lake.

## Results - Aquatic Plant Survey on August 24, 2015

Results of the summer aquatic plant survey conducted on August 24, 2015 found that three natives submerged plant species and two non-native plant species were present and restricted to water depths of 5 feet or less in Pike Lake (Table 1). Coverage of the native plants species found in the August survey are shown in Figure 2. Native plants were found around the perimeter of the basin of Pike Lake. Eurasian watermilfoil was the dominant aquatic plant and was found at 20 sites (Table 1).

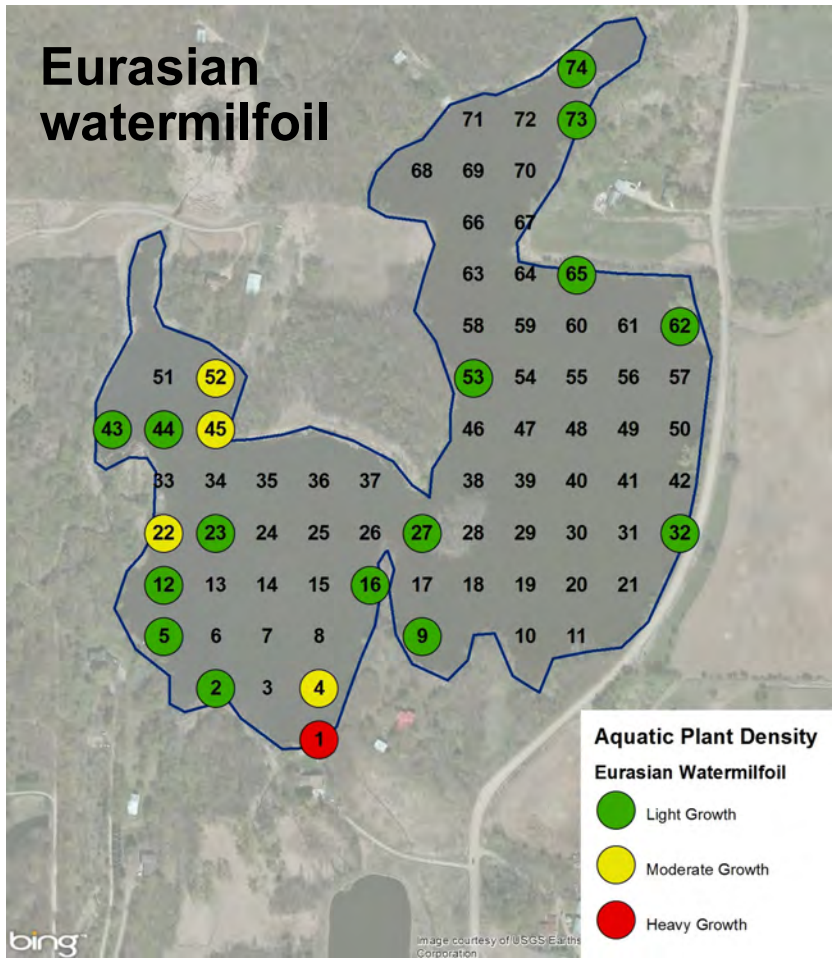
**Table 1. Pike Lake aquatic plant occurrence and density for the August 24, 2015 survey based on 74 sites. Density ratings are 1-5 with 1 being low and 5 being most dense.**

	All Stations (n=74)	
	Occur	Average Density
Coontail ( <i>Ceratophyllum demersum</i> )	15	2.1
Elodea ( <i>Elodea canadensis</i> )	7	1.6
Eurasian watermilfoil ( <i>Myriophyllum spicatum</i> )	20	1.8
Curlyleaf pondweed ( <i>Potamogeton crispus</i> )	1	1.0
Flat stemmed pondweed ( <i>P. zosteriformis</i> )	8	1.1



**Figure 2. [left] Native submerged aquatic plant coverage for Pike Lake on August 24, 2015**  
**Key: Green squares = light growth, yellow squares = moderate growth, and red squares = heavy growth.**  
**[right] Coontail was the dominant plant in Pike Lake in 2015.**

Eurasian watermilfoil has expanded in distribution since the initial discovery at a single site in August of 2012 (Figure 3). It was the most common plant in Pike Lake in 2015.



**Figure 3. [top] Eurasian milfoil distribution and abundance on August 24, 2015.**

**[bottom] Eurasian milfoil growing to the lake surface on August 24, 2015.**

**Key: Green shading = light growth, yellow shading = moderate growth, and red shading = heavy growth.**

**Table 2. Occurrence and density of submerged plants by sites in Pike Lake on August 24, 2015.**

Site	Depth (ft)	Duck-weed	Coon-tail	CLP	Elodea	EWM	Flat-stem	No plants
1	2	1	3			4		
2	3		4	1		1		
3	4		1					
4	4		3			3		
5	4		4			1		
6	5							1
7	5							1
8	5							1
9	4					1		
10	5							1
11	3				1			
12	4		1			1		
13	5							1
14	5							1
15	5							1
16	3		1		3	2		
17	5							1
18								1
19								1
20	5							1
21	6							1
22	4		1			3		
23	5					1		
24	6							1
25	5							1
26	4		1					
27	3				1	1		
28	land							1
29								1
30								1
31								1
32	3				1	1		
33	2		1				2	
34	5							1
35	5		1					
36	5							1
37								1
38	5							1
39								1
40								1
41								1
42	7							1
43	4		2			2		
44	4		2		2	2		
45	3		4			3		
46	6							1
47								1
48								1
49								1
50	6							1
51	4				1			
52	4		3			3		
53	5					1		
54								1
55								1
56								1
57	6							1
58	7							1
59								1
60								1
61	6							1

Site	Depth (ft)	Duck-weed	Coon-tail	CLP	Elodea	EWM	Flat-stem	No plants
62	2					1		
63	7							1
64	5							1
65	4				2	1		
66	7							1
67	2							1
68	7							1
69	7							1
70	5							1
71	7							1
72	7							1
73	1					1		
74	3					2		
Total	--	1	15	1	7	20	1	48

## Plants Sampled in 2015

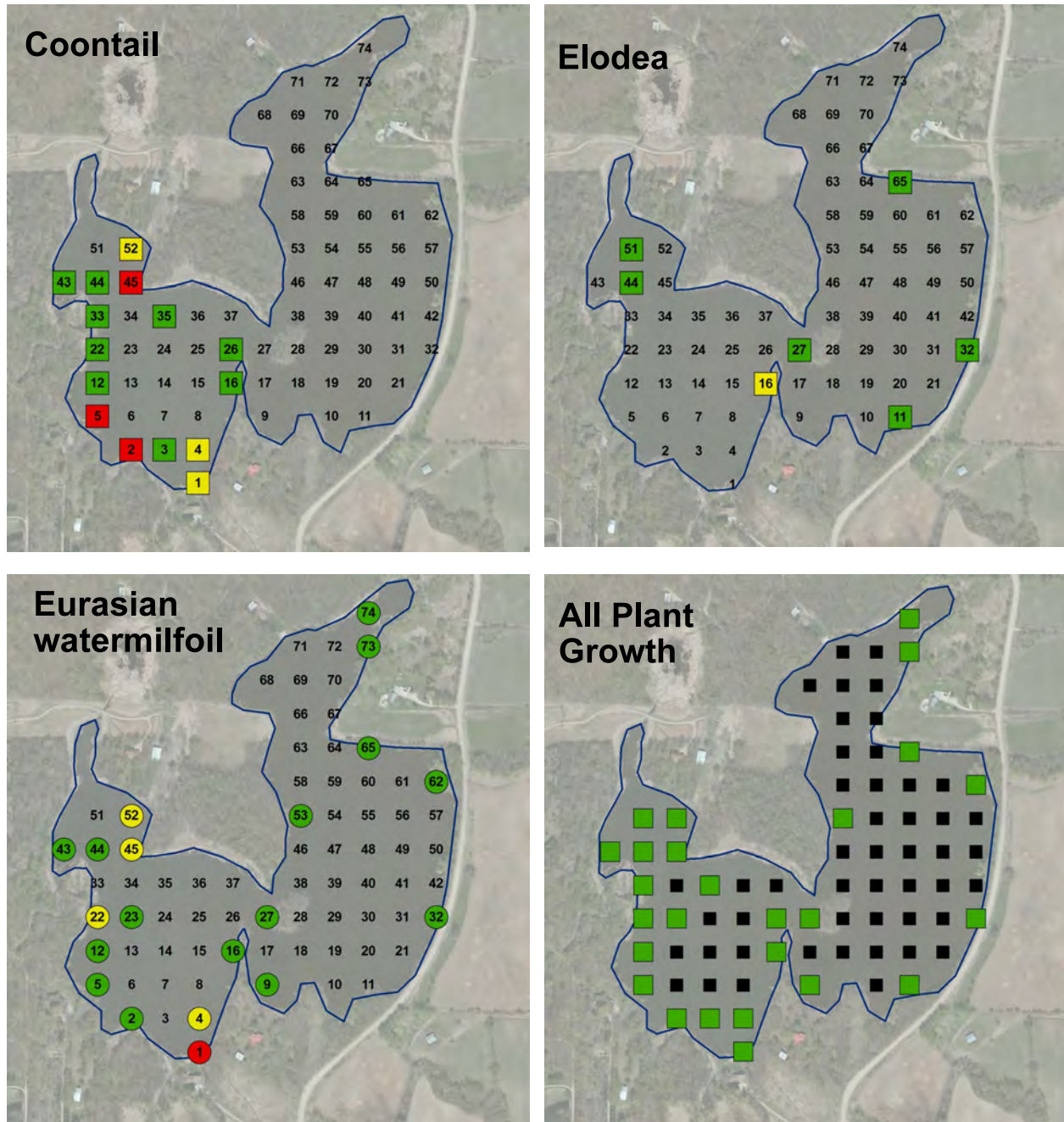


Figure 4. Plant distribution and abundance, August 24, 2015. Top left: Coontail; Top right: Elodea; Bottom left: Eurasian milfoil; Bottom right: Plant coverage.  
Key: Green = light growth, yellow = moderate growth, red = heavy growth, and black = no growth.

## Comparison of 2012, 2013, and 2015 Summer Surveys

Aquatic plant surveys were conducted in the late summer of 2012, 2013, and 2015. Coontail has been a common plant in the three surveys but Eurasian watermilfoil was the most abundant plant in 2015. In the summer plant surveys, submerged aquatic plants are not found deeper than 5 feet of water depth due to low light penetration and elevated algae growth.

In 2015 it was observed that Eurasian watermilfoil had expanded its range and was growing throughout Pike lake. Initially, Eurasian milfoil was found only at one spot in the west basin in 2012 but results from 2015 indicate Eurasian milfoil has expanded its range and now is growing in shallow water of Pike lake.

**Table 3. The percent occurrence of aquatic plants for Pike Lake in 2012, 2013 and 2015. Percent occurrence is calculated based on the number of times a plant species occurs at a sampling station divided into the total number of stations for the survey. For example, if milfoil was found in 25 out of 50 stations, its percent occurrence would be 50%.**

	August 6, 2012 % Occurrence (74 sites)	September 7, 2013 % Occurrence (74 sites)	August 24, 2015 % Occurrence (74 sites)
Duckweed ( <i>Lemna sp</i> )	0	3	1
Coontail ( <i>Ceratophyllum demersum</i> )	9	23	20
Elodea ( <i>Elodea canadensis</i> )	1	0	9
<b>Eurasian watermilfoil (<i>Myriophyllum spicatum</i>)</b>	<b>0*</b>	<b>0</b>	<b>27</b>
Northern watermilfoil ( <i>Myriophyllum spicatum</i> )	1	1	0
Flat-stemmed Pondweed ( <i>Potamogeton zosteriformis</i> )			
Sago pondweed ( <i>Stuckenia pectinata</i> )	1	11	0

\*EWM first observed in 2012 but not on an official sample site.

## General Findings of This Study

- Shoreline areas are mostly natural, emergent plants remain healthy and offer good wildlife habitat.
- Coontail was the dominant native plant in the lake in the summer aquatic plant surveys of 2012 and 2013.
- Eurasian watermilfoil was the dominant plant in 2015 and Eurasian milfoil's range appears to be increasing.
- The reasons for low plant abundance continues to be a combination of low light penetration and the impact of bottom feeding fish such as carp and other rough fish
- An increase in submerged plants probably will not occur unless the roughfish population in Pike Lake is reduced.



# APPENDIX

## Eurasian Watermilfoil Was Collected from a Site North of Point 37 in Pike Lake in 2012

### Pike Lake, Scott County DOW 70-007600

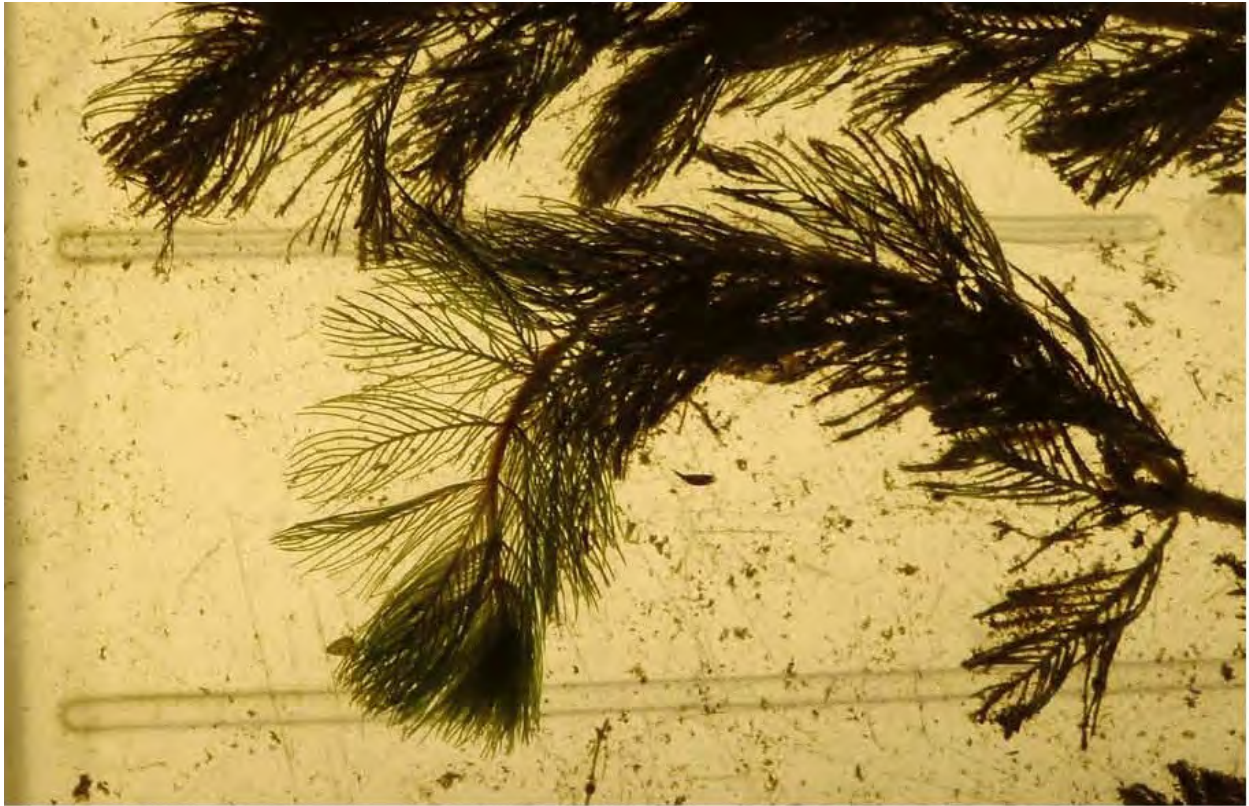
Suspected Eurasian watermilfoil, *Myriophyllum spicatum*, observation



Collected by:  
Steve McComas,  
Blue Water  
Science

August 6, 2012





**Eurasian watermilfoil collected in Pike Lake on August 6, 2012.**

# Pike Lake



Red dot indicates location of suspected Eurasian watermilfoil occurrence.

UTM NAD 1983  
Blue Water Science

# Aquatic Plant Survey Summaries from 2013.

Early season survey (June 13, 2013) found curlyleaf to be the most abundance plant.

	June 13, 2013 % Occurrence (74 sites)	September 7, 2013 % Occurrence (74 sites)	Changes from June to September (+/-)
Cattails ( <i>Typha sp</i> )	1	1	0
Duckweed ( <i>Lemna sp</i> )	0	3	+
Coontail ( <i>Ceratophyllum demersum</i> )	5	23	+
Northern watermilfoil ( <i>Myriophyllum sibiricum</i> )	0	1	+
Curlyleaf pondweed ( <i>Potamogeton crispus</i> )	38	0	-
Stringy pondweed ( <i>P. sp</i> )	4	0	-
Sago pondweed ( <i>Stuckenia pectinata</i> )	16	11	-