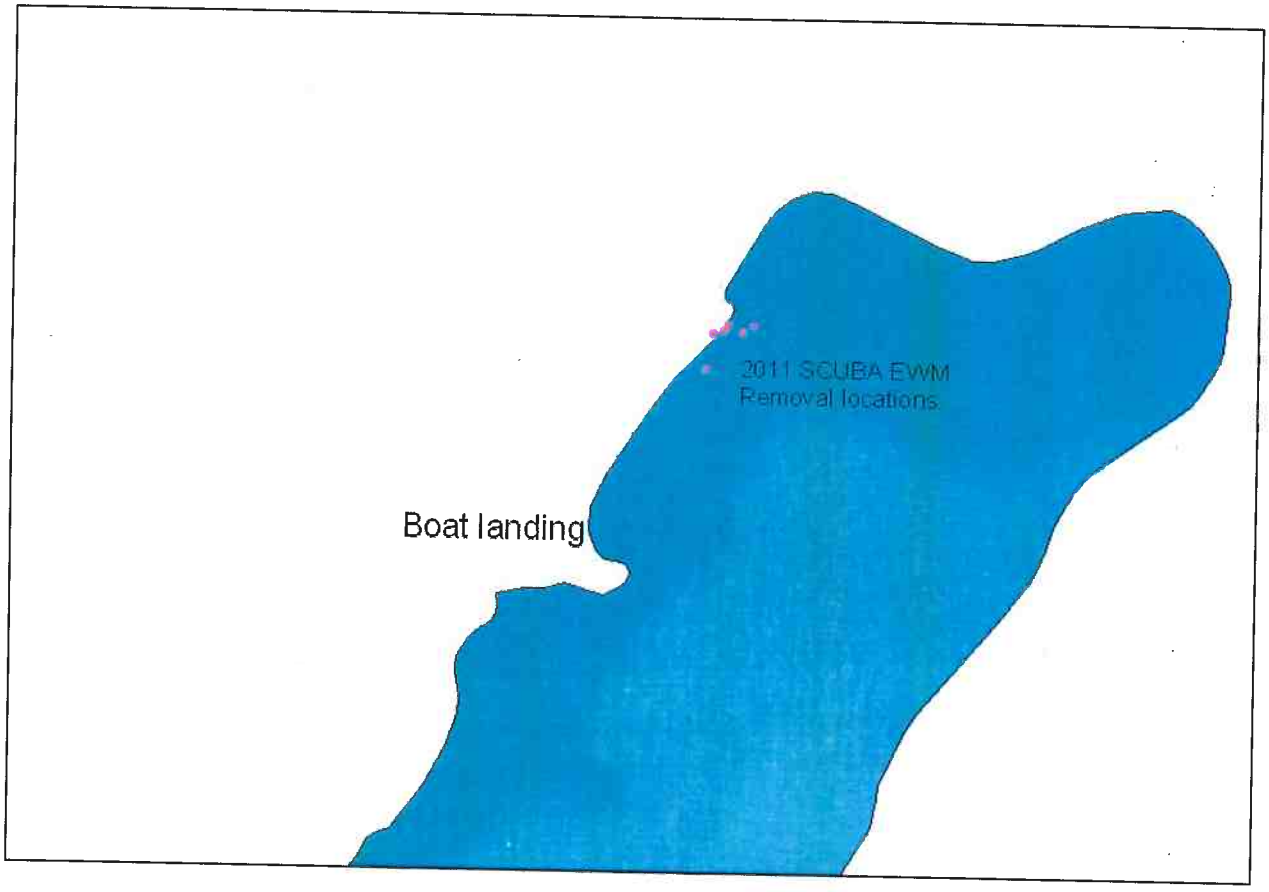
Pike Lake EWM SCUBA removal and monitoring summary:

EWM monitoring was conducted each May and July, 2010-2014. The EWM was treated with herbicides in 2010 and 2013, the resulting of monitoring observations those years.

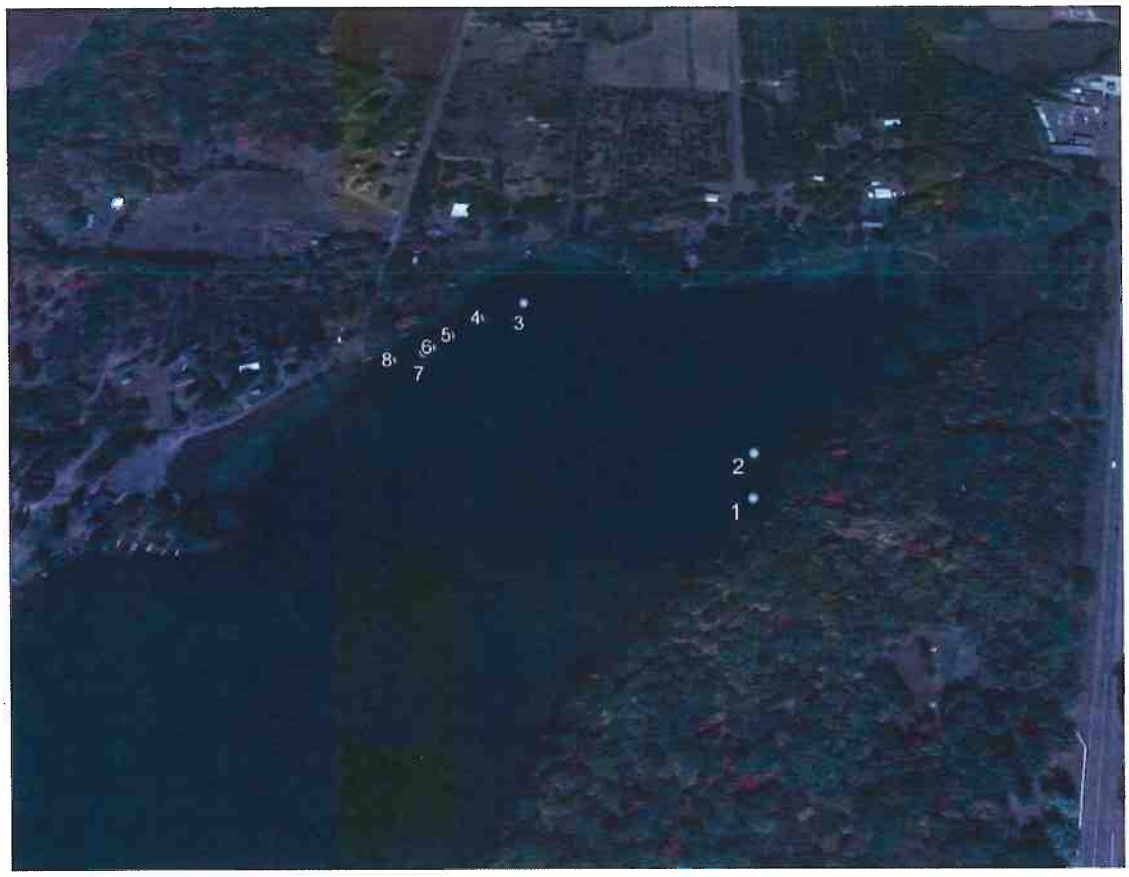
EWM was removed using SCUBA in 2011, 2012, and 2014 (after grant)

2011 Locations/Removal sites:



2 divers removed approximately 2-33 gallon garbage cans of EWM (approximately ¾ full) for an estimated volume of 50 gallons of EWM plants. There was 6 hours total diving time. A few plants remained that could be seen, however there was dense natives mixed in at various locations, leading to potential remaining EWM plants.

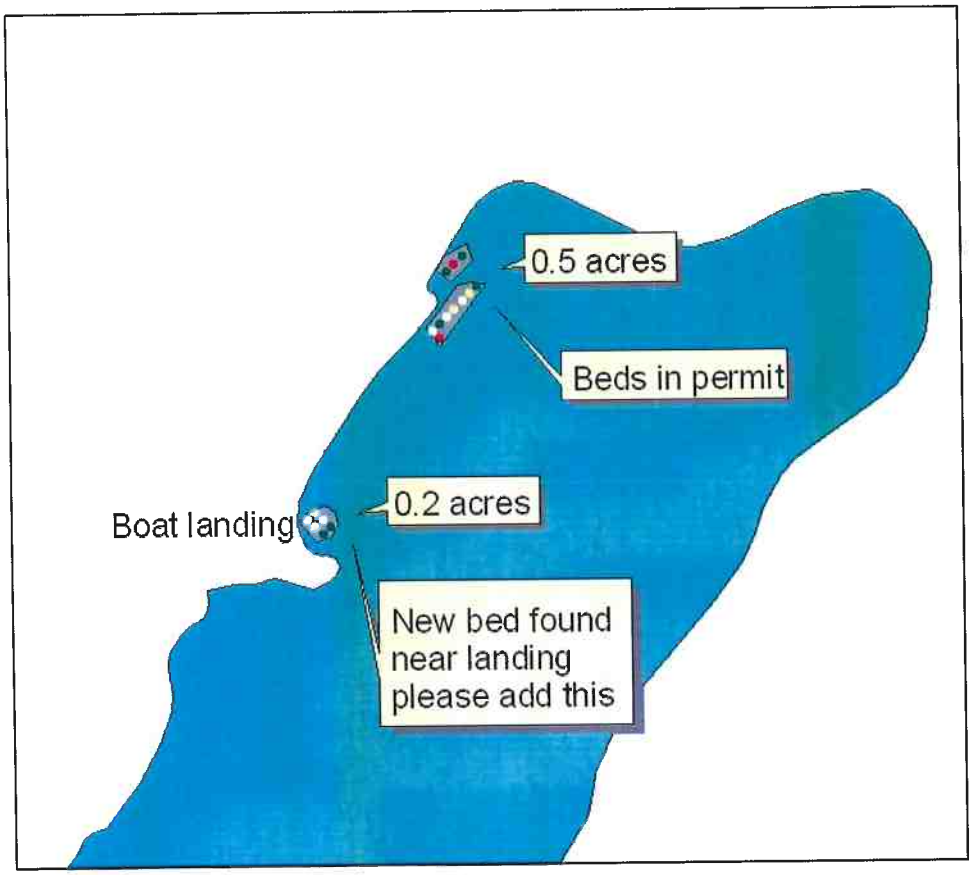
2014 Monitoring-EWM locations-May 2014:



As this photo shows, the EWM has two locations across the lake from the original location. These will be removed by hand in July, 2014. There was no EWM found at the landing, which was treated in 2013.

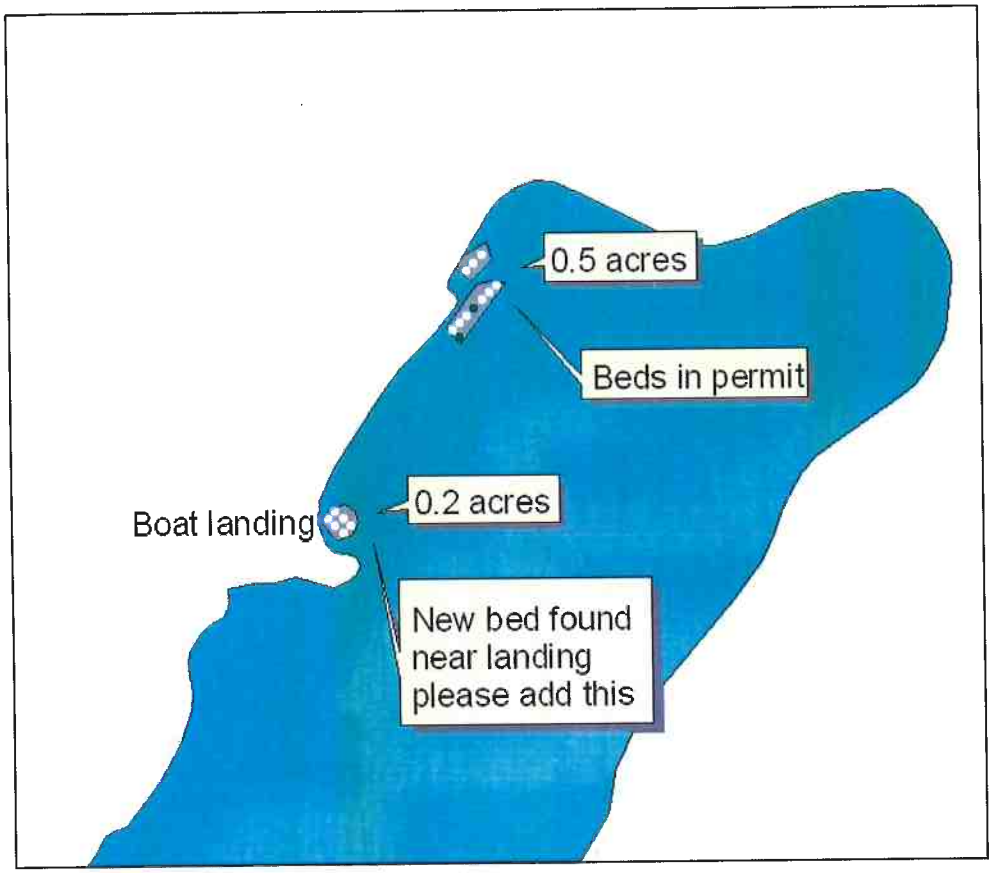
Pike Lake 2013 EWM Pre/Post Summary

0.7 acres treated with 1.5 ppm 2,4-D



Pretreatment Frequency=70.5%

Pretreatment mean density=1.18



Post treatment frequency=12.8%

Post treatment mean frequency=0.13

EWM herbicide frequency reduction=-57.7% (significant reduction according to chi-square p=.0005)

EWM herbicide mean density reduction=-1.05

Native plant data:

Sample pt	*Chara sp.*	*Ceratophyllum demersum*	*Elodea canadensis*	*Myriophyllum sibiricum*	*Potamogeton richardsonii*	*Potamogeton zosteriformis*	*Potamogeton pusillus*	*Potamogeton praelongis*	*Lemna trisulca*	*Nymphaea odorata*
1	1	0	1	1	0	0	0	0	1	1
2	1	0	1	1	0	1	0	0	0	0
3	0	0	1	1	0	0	0	0	0	0
4	0	0	1	0	0	2	0	0	1	1
5	0	0	0	0	0	1	0	0	0	0
6	1	0	0	1	0	0	0	0	0	0
7	1	1	0	1	0	1	0	0	0	0
8	1	1	0	1	0	1	0	0	0	0
9	1	1	1	1	1	0	1	0	0	0
10	2	1	0	0	0	0	0	0	0	0
11	0	2	1	2	0	0	2	0	0	0
12	1	2	0	1	1	0	0	0	0	0
13	1	1	1	1	0	1	0	0	0	0
14	1	1	1	0	1	0	0	0	0	0
15	1	1	0	1	1	0	0	0	1	1
16	0	2	0	1	0	0	0	1	0	0
17	3	0	0	0	0	0	0	0	0	0
Pre Freq	**0.71**	**0.53**	**0.47**	**0.71**	**0.24**	**0.35**	**0.12**	**0.06**	**0.18**	**0.18**
1	1	0	1	1	0	0	0	0	1	1
2	1	0	1	1	0	1	0	0	0	0
3	0	0	1	0	0	0	0	0	0	0
4	0	0	1	0	0	2	0	0	1	1
5	0	0	0	0	0	1	0	0	0	0
6	1	0	0	1	1	0	0	0	0	0
7	1	1	0	1	0	1	0	0	0	0
8	1	1	0	1	0	1	0	0	0	0
9	1	1	1	1	1	0	1	0	0	0
10	2	1	0	0	0	0	0	0	0	0
11	0	2	1	1	0	0	1	0	0	0
12	1	2	0	0	1	0	1	0	0	0
13	2	1	0	1	0	1	0	0	0	0
14	1	1	1	0	1	0	0	0	0	0
15	1	1	0	0	1	0	0	0	1	1
16	0	2	0	1	0	0	0	1	1	0
17	3	0	0	0	0	0	0	0	0	0
Post Freq	**0.71**	**0.53**	**0.41**	**0.53**	**0.29**	**0.35**	**0.18**	**0.06**	**0.24**	**0.18**

Reduction in frequency (not significant according to chi-square analysis (p=0.29)

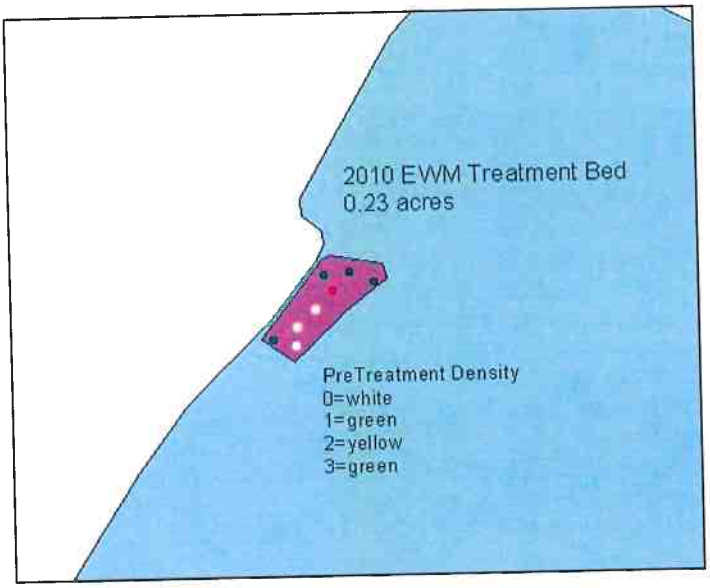
The data shows that the treatment was successful in reducing the frequency of EWM within the beds and had no negative impact upon the native plants present in the treatment beds.

2010 Pike Lake Pre/Post Treatment Results

Area delineated for treatment = 0.23 acres (pioneer community and not found anywhere else on lake).

Treatment was 1.5 ppm 2,4-D.

Pretreatment Frequency and Density:

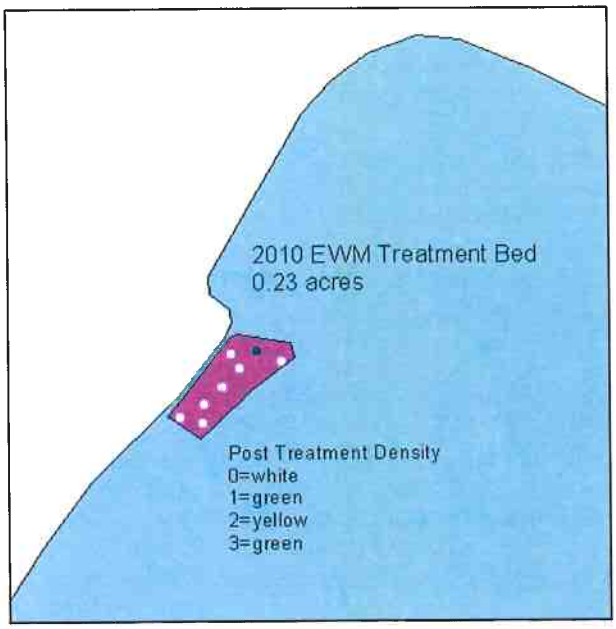


Sample pt	Pre-EWM
1	1
2	0
3	2
4	2
5	3
6	1
7	1
8	1

Mean density= 1.38

Frequency of occurrence=87.5%

Post treatment Frequency and Density:



Sample pt	Post-EWM
1	0
2	0
3	0
4	0
5	0
6	0
7	1
8	0

Mean density=0.13

Frequency of occurrence=12.5%

Treatment frequency reduction= -75% (significant according to chi-square, p=0.003)

Mean density reduction = 1.25

Native plants data:

Pre treatment						
Sample pt	*Chara sp.*	*Ceratophyllum demersum*	*Myriophyllum sibiricum*	*Elodea canadensis*	*Potamogeton richardsonii*	*Potamogeton zosteriformis*
1	1	1	1	1	1	0
2	1	2	1	0	1	0
3	1	2	1	0	0	0
4	0	1	2	0	0	0
5	0	1	1	1	0	1
6	1	1	1	0	0	1
7	1	1	0	0	0	0
8	1	1	0	1	0	0
Freq.	0.75	1	0.75	0.375	0.25	0.25
Post treatment						
Sample pt						
1	1	2	1	1	1	0
2	1	2	1	0	1	0
3	1	2	0	0	0	0
4	1	1	1	1	0	0
5	0	1	1	1	0	1
6	1	1	1	0	0	1
7	1	1	0	0	0	0
8	1	1	0	1	0	0
Freq.	0.875	1	0.625	0.5	0.25	0.25

A slight decrease in *M. sibiricum*, was not significant according to the chi-square ($p=0.60$)

Herbicide treatment successfully reduced EWM frequency and no significant reduction in native plants species occurred.