INTRODUCTION

A Eurasian water milfoil (EWM) herbicide treatment was completed on Clear Lake during May 2009. This report discusses the methods used to evaluate the treatment and the criteria used to determine if it was successful beginning with the summer 2008 survey (summer pretreatment) completed during August 2008. The report goes on to discuss the condition of the EWM in the treatment areas in the spring before the 2009 treatment (spring pretreatment) and then in August 2009 (summer post treatment) following the herbicide application. Similar to last year, the peak biomass survey was completed in August 2009 to gather information used in creating the 2010 proposed treatment areas, which are discussed near the end of the report. Once agreed upon by the Friends of Clear Lake and the Wisconsin Department of Natural Resources (WDNR), the proposed treatment areas will be used to obtain a conditional treatment permit for the May 2010 treatment.

TREATMENT MONITORING

Determining the success or failure of chemical treatments on Eurasian water milfoil (EWM) is often a difficult task because the criteria used in determining success or failure is ambiguous. Most people involved with EWM management, whether professionals or laypersons, understand that the eradication of EWM from a lake, or even a specific area of a lake, is nearly, if not totally, impossible. Most understand that achieving control is the best criteria for success. There are two different methods of evaluation used to understand the level of control that is achieved by the chemical treatment. A qualitative assessment was determined for each treatment site by collecting spatial data with a sub-meter Global Positioning System (GPS), in addition to, comparing detailed notes from the pre- and post treatment observations.

Quantitative monitoring of the treatments were completed following protocols disbursed by the Wisconsin Department of Natural Resources (WDNR) in April 2007. This protocol calls for the monitoring of target plants (EWM) and native plants before and after treatments. Pretreatment surveys are completed the summer before treatment and the spring of the treatment. Post treatment surveys are completed the summer following treatment and the next spring following the treatment. The Friends of Clear Lake successfully applied for an Aquatic Invasive Species (AIS) Education, Planning, and Prevention Grant and implemented this protocol starting with the 2008 spring pretreatment survey. An amendment to this grant was submitted and awarded to secure funds for the Friends of Clear Lake for monitoring through the 2009 treatment. A quantitative assessment of the treatment was begun by collecting data at 59 out of 139 point-intercept sample locations (80 point-intercept locations were outside of treatment areas) on Clear Lake (Appendix A). At these locations, EWM presence and rake fullness were documented as well as water depth and substrate type. Native plant abundances were also determined at each plot during the post treatment surveys, that summer.

Statistical Analysis of Pre- and Post Treatment Survey Data

Scientists often rely on the use of statistical analysis to understand whether the observed differences in nature are merely a product of chance or can be attributed to a particular factor. In the case of the pre- and post treatment monitoring surveys completed on Clear Lake, the particular factor we are concerned with is the herbicide treatment. The desired result is a decrease in EWM within the treatment areas. The amount of EWM within a treatment site is measured with the sub-sampling surveys and expressed in terms of percent frequency of occurrence. The EWM frequency is a percentage of sub-sampling sites that contain EWM relative to the total sub-sampling sites in the treatment area. For example, if a treatment site has 20 sub-sampling locations and 5 of those locations contained EWM, then the EWM frequency would be 25%.

As a part of the treatment monitoring, the sub-sampling sites are visited before and after the treatments to produce the pre- and post treatment data. By comparing those data, we can see if there is more, less, or the same amount of EWM before and after the treatment. As mentioned above, the desired result is to have less EWM after treatment. If there is a difference between the pre- and post treatment data, statistical analysis is used to determine if the difference is sufficient to be attributed to the treatment or if the difference may have occurred randomly. If the difference is sufficient, it is considered to be *significantly different*, if it is not sufficient, it is considered to be *insignificantly different*. In the end, a significant difference can be attributed to some factor, while an insignificant difference can only be attributed to random chance.

With guidance from WDNR Integrated Sciences, a Chi-square distribution analysis (alpha = 0.05) was used to determine if the quantitative data collected before the treatment are statically different from the data collected after the treatment. The alpha value is set such that we consider the results statistically significant when the test is 95% confident that the results are truly different and non-random.

The number of sub-sample sites within a treatment area must be considered when evaluating the treatment impacts on that particular site. A higher sample size (N), leads to more credible results and conclusions. In general, sites containing less than 8 sub-sample locations are not considered sufficient for analysis; however, those data are considered valuable when pooled (combined) with the other sub-sample sites within the lake for the lakewide analysis. A 20-meter spacing (resolution) between sub-sample locations is considered the closest that hand-held GPS technology can effectively allow.

The caveat to all of this is that we assume that the differences observed were caused by the herbicide treatment, but truly, without having comparable data from a non-treatment site (control group), this cannot be absolutely certain. For example, was the reduction in EWM caused by interannual variations caused by competitive dynamics between species, fluctuating water levels, natural plant cycles, or changes due to climatic conditions? Without a true experimental design that uses a control site, we cannot absolutely answer that question. In the end, it is impractical to take the risk of not treating a colony of EWM within a lake just to make sure that the results of the studies are scientifically sound; therefore making the educated-assumption that the difference is caused by the herbicide treatment is reasonable.

Pretreatment Survey – 05/09/09

The purpose of this survey was to refine the treatment areas used in the conditional permit, which was created using the 2008 peak biomass survey results, to more accurately and effectively coordinate the control method. The weather conditions on the day of the survey were windy and cloudy. The EWM was somewhat difficult to view from the surface, especially in deep water, due to the windy conditions. The surface water temperature was approximately 53°

F. The ambient air temperature was 55° F. The use of an aqua scope and underwater camera were used to assist in observing EWM occurrences and determining colony extents.

During this survey, it was determined that the extents laid out the previous summer were largely accurate. The northwest side of R-09 was expanded near the boat landing to encompass a few clumps and single plants found outside the proposed treatment area in the spring (Map 1). Sites X-09 and Y-09 were joined into one treatment area (Y-09) to include a few clumps of EWM found growing between the sites in the spring pretreatment survey (Map 1). A total of 1.6 acres were added to the conditional permit to create the final permit for the spring treatment.

Post Treatment & Peak biomass EWM Survey – 09/18/09

During this survey, all treatment areas were visited to determine the efficacy of the chemical application. The conditions were partly cloudy, with a slight breeze. At this time of year the EWM has reached its peak biomass, so the plants have nearly reached the surface, making viewing relatively effortless. All point-intercept sample locations were also revisited and data were collected in the same manner as during the pretreatment survey. Native plant occurrences were also documented at the sub-sample locations during this survey for comparison with past and future summer surveys.

The success of the herbicide treatments can be evaluated in multiple ways. Qualitatively, a successful treatment on a particular site would include a reduction of EWM density as demonstrated by a decrease in density rating (e.g. highly dominant to dominant). In terms of a treatment as a whole, at least 75% of the acreage treated that year would decrease by one level of density as described above for an individual site.

Quantitatively, a successful treatment on a specific site would include a significant reduction in EWM frequency following the treatments as exhibited by at least a 50% decrease in EWM frequency based upon the sub-sampling. In other words, if the EWM frequency of occurrence before the treatment was 80%, the post treatment frequency would need to be 40% or lower for the treatment to be considered a success for that particular site. Evaluation of the treatment-wide effectiveness would follow the same criteria based upon pooled sub-sample data from all treatment sites. Further, there would be a noticeable decrease in rake fullness ratings within the fullness categories of 2 and 3. Preferably, there would be no rake tows exhibiting a fullness of 2 or 3 during the post treatment surveys.

During this field visit, a peak biomass EWM survey was conducted to provide an accurate account of all EWM locations within the lake to aid in coordinating the 2009 management actions. These recommendations are provided within this section.

Site A-09 A few single EWM plants were found in what was a scattered area of EWM before the treatment (Maps 1 and 2). The area that was highly dominant EWM is now a small colony of EWM about 10 feet long after the treatment (Maps 1 and 2). There was also one small clump found just outside the west side of the treatment area. The small colony is recommended for treatment in 2010 as part of a new treatment area (Map 3, C-10). Both before and after the treatment, only one of the 15 sub-sample locations with this treatment area contained EWM.

Determining quantitative change on a relatively low-density EWM colony with such a small sample size is difficult, as was the case in Site A-09.

Site G-09 The density of the main EWM colony at this site went from highly dominant to dominant after the treatment. Additionally the clumps observed last year were not found in the northern part of the site and only a few plants were found in the southern portion of the site after the treatment. This site has been reduced to a 0.3 acre treatment for 2010 (Map 3, B-10).

Site M-09 and O-09 The treatments at both of these sites were also successful. Only a few single EWM plants were found after the treatment at Site M-09 and there were no EWM plants found at O-09 (Maps 1 and 2). These sites are not recommended for treatment next year (Map 3).

Site P-09 The EWM density of this site was reduced from dominant to scattered after the treatment (Maps 1 and 2). There were a few new single EWM plants found on the west side of this treatment site (Map 2) and this site is recommended for treatment in 2010 to include these EWM occurrences (Map 3, A-10).

Sites R-09 The treatment was highly successful at this site. Last year there was a large dominant area of EWM within this site and this year only three plants were found throughout the site (Maps 1 and 2). This site is not recommended for treatment in 2010 (Map 3).

Site S-09 The density of EWM at this site was reduced by one density level after the treatment (Maps 1 and 2). The northern portion of the site now has a small dominant area of EWM and the southern portion has scattered EWM (Map 2). This site is recommended for treatment in 2010 and has expanded slightly to include a few plants just outside the 2009 treatment area (Map 3, G-10).

Site U-09 The area that contained highly dominant EWM in 2008 has been reduced by one density level to a dominant rating after the 2009 treatment (Maps 1 and 2). Additionally, there were only two remaining small colonies of EWM found in the scattered area after the 2009 treatment and none found in the dominant area on the far southern end of the treatment site (Maps 1 and 2). A smaller treatment is proposed for 2010 that would target the dominant area of EWM and the small colonies (Map 2). Just south of U-09, a grouping of EWM plants was observed and proposed for treatment in 2010 (Map 3, E-10).

Site Y-09 A small area of scattered EWM was observed within this site after the treatment (Maps 1 and 2). This is a decrease in one density level from last year. Throughout the rest of the site a few small colonies, clumps, and single plants of EWM were found after the treatment (Maps 1 and 2). Two treatment sites are proposed for 2010 since the EWM is spaced too far apart to warrant being targeted as a single site (Map 3, C-10 and D-10).

CONCLUSIONS AND RECOMMENDATIONS

The 2008 herbicide treatment on Clear Lake reduced EWM frequency of occurrence within the treatment areas from 18% of the sub-sample locations before the treatment to 4% after the treatment. That low frequency of EWM carried over to 2009 when three point-intercept sub-sample location out of 59 yielded EWM prior to the 2009 treatment. This sparse amount of EWM prior to treatment makes measuring differences following the treatment very difficult. In fact, following the 2009 treatment, only 3 sub-samples yielded EWM once again showing no detectable change in EWM frequency on a lake-wide basis.

A rake fullness rating of 1-3 was used to determine abundance of EWM at each sub-sample location. Of the three points that contained EWM before the treatment, two contained rake fullness ratings of 1 and one contained a rating of 2. After the treatment, all three locations had rake fullness ratings of 1.

Native Plants

Although it is never the intent of the treatments to impact native species, it is important to remember that these non-target impacts can only be considered in the context of the areas treated and not on a *lake-wide* basis. In other words, the impact of the treatments on a non-target species in the treatment areas cannot be extrapolated to the entire population of that plant within the lake, unless the plant species is only found in locations where there is EWM. The same cannot be said for EWM, because by targeting EWM within the lake, it is intentionally being impacted on a lake-wide basis. One may claim that an impact to non-target natives may leave a 'hole' where pioneer infestations of EWM can take hold. The herbicide used in 2009 (2,4-D) is broad-leaf (dicot) specific and as long as a particular treatment site is not dominated by broad-leaf natives, native monocots, of which most aquatic plants are, will provide ample competition to compete against the non-native threat.

Native plant frequencies were monitored on Clear Lake during the 2008 summer pre treatment survey and the 2009 summer post treatment survey (Figure 1). Please note that Figure 1 is displaying the difference between frequency of occurrence determined during the summer of 2008 and the summer of 2009 for each native plant listed and <u>not</u> a percent change in frequency. For example, coontail occurred in approximately 55.9% of the plots during the summer of 2008 and 27.1% during the summer of 2009. Therefore, the chart indicates a negative difference (decrease) of approximately 28.8 (27.1% – 55.9%) and <u>not</u> a percent change. If percent change was calculated, we would see in this example that coontail decreased by 51.5% ((27.1 – 55.9) / 55.9 x 100%).

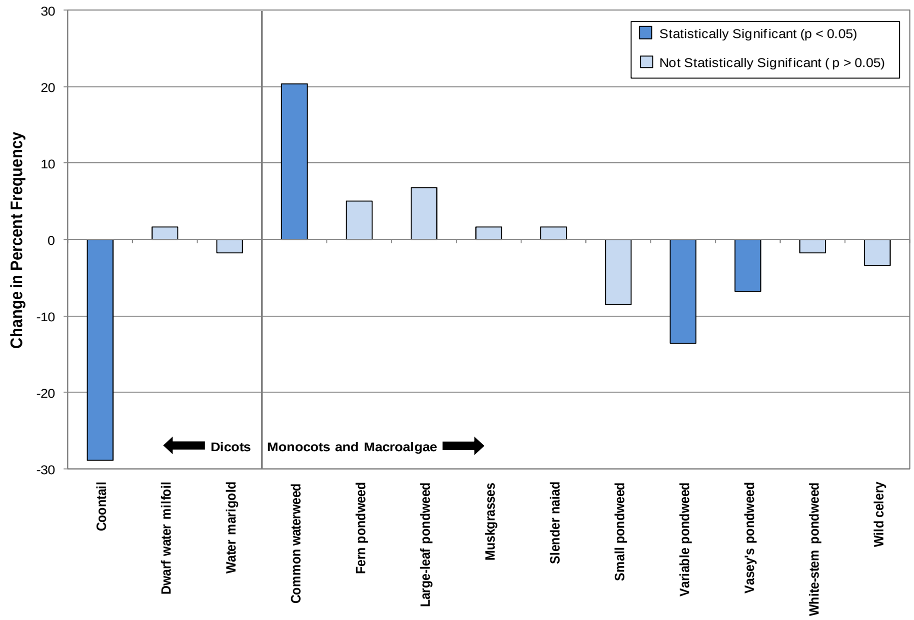


Figure 1. Native plant change in percent frequency from 2008 to 2009 on Clear Lake.

Three plants were found to have a statistically significant decline within the treatment areas on Clear Lake (Figure 1). One of these plants species is a dicot and two are monocots (Figure 1). The dicot species are more of concern than the monocots when it comes to treating with 2, 4-D, as mentioned above. Coontail was the only dicot that showed a significant decline (Figure 1). Herbicide application occurred in May before the majority of our native plants should be actively growing in order to target EWM specifically, but it is possible that coontail could have been affected by the herbicide. There was one species that had a statistically significant increase in occurrence, common waterweed, which is a monocot (Figure 1).

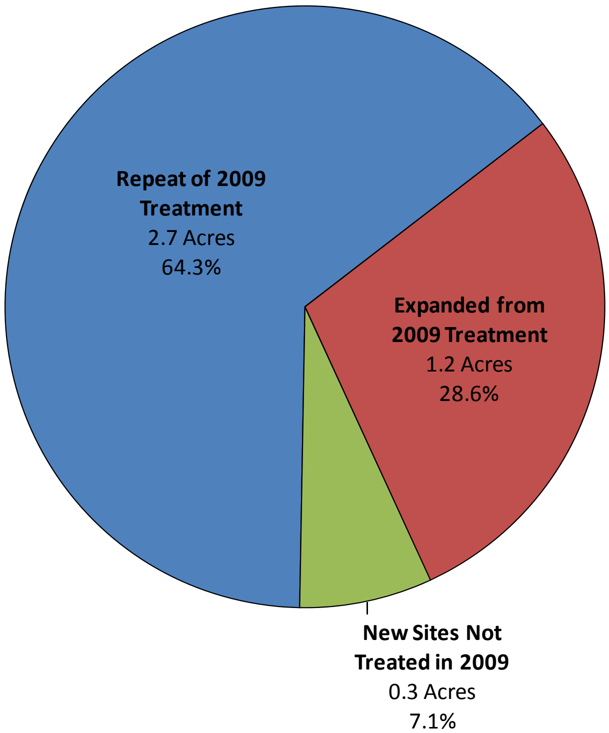


Figure 2. Common acreage comparison between 2008 treatment and proposed treatment for 2009.

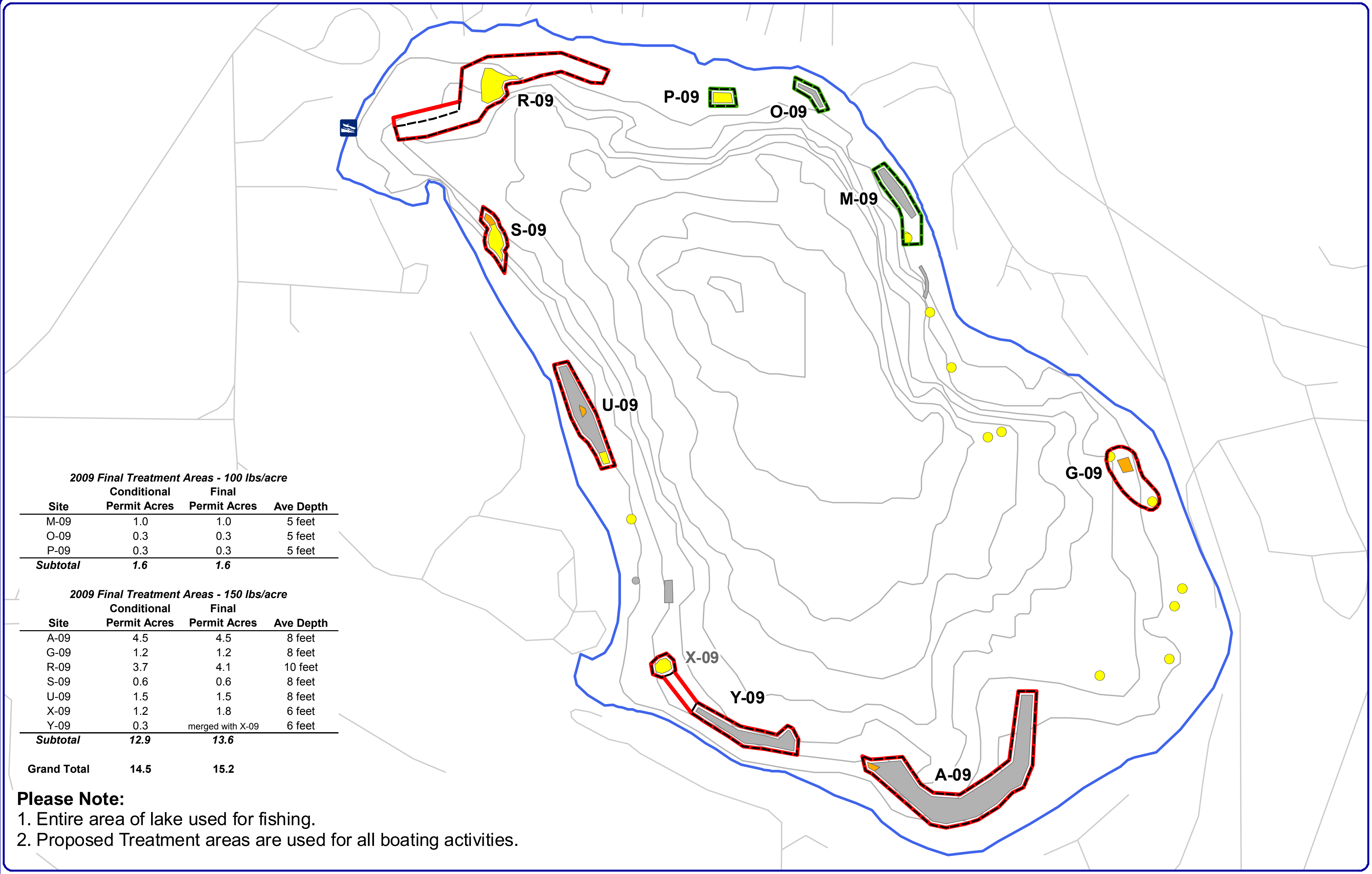
As indicated on Map 3, there are approximately 4.2 acres of EWM proposed for treatment in Clear Lake for 2010. Five of the sites (or portions of those sites) that were treated in 2009 are proposed for treatment in 2010 (Maps 2 and 3), resulting in 64.3% of the 2010 treatment being common to areas treated during May 2009 (Figure 2). There is one site, comprising 0.3 acres, (Map 3, E-10) that is a new, proposed treatment area that is completely independent from previously treated areas (Figure 2). Please note that this area was discovered during the 2007 summer pretreatment survey, as opposed to being newly discovered during the 2009 peak-biomass survey. In other words, it was treated successfully in 2008 and no EWM was found in the 2009 spring treatment so it was therefore not treated. However, the EWM population in this area has rebounded and again warrants treatment. The remaining 28.6% are new areas adjacent to 2009 treatment sites as a result of the colony's expansion.

Although the quantitative success criteria was not met, more than 75% of the treatment areas were reduced by at least one density rating, which meets the qualitative success criteria for the 2009 treatments. The 2009 peak biomass survey also revealed that none of the 2009 treatment areas had EWM matting at the surface and there were only a few small areas of dominant EWM. Overall, there was a 74% reduction in EWM acres from 2008 to 2009.

On the whole, it is perceived that the treatment was successful on Clear Lake. Smaller treatments are proposed in 2010 for most of the sites treated in 2009 (Map 3). Two treatment sites, P-09 and S-09, were made a bit larger in order to treat a few single EWM plants found just outside the treatment area (Maps 2 and 3). Due to their small sizes, it is recommended that all of the proposed sites for 2010 be treated at 200 lbs/acre with granular 2,4-D (Map 3). The increased dose rate is recommended for these small sites in order to keep herbicide concentrations sufficient to kill the target plants. If larger treatment areas are developed as a part of the spring pretreatment surveys or as a part of future treatments, the dose should be reduced back down to 150 lbs/acre.

The Friends of Clear Lake intend on continuing to manage the EWM population on Clear Lake in 2010 using herbicide applications without the aid of WDNR grant funds. A peak-biomass survey would be conducted each summer to setup treatment areas for the following spring.

These areas would be used to submit a conditional herbicide application permit to the WDNR months prior to the treatment. A spring survey would be completed approximately one to two weeks before the scheduled treatment and would be focused upon the treatment areas determined the previous summer. These treatment areas would be visually inspected and if needed, refined based upon existing EWM. The WDNR, the Friends of Clear Lake, and the applicator would be notified of treatment area modifications. Qualitative post treatment monitoring would be conducted during July or August and would coincide with the EWM peak-biomass survey used to setup the following year's treatment.



2009 Final Treatment Areas - 100 lbs/acre

Site	Conditional Permit Acres	Final Permit Acres	Ave Depth
M-09	1.0	1.0	5 feet
O-09	0.3	0.3	5 feet
P-09	0.3	0.3	5 feet
Subtotal	***1.6***	***1.6***	

2009 Final Treatment Areas - 150 lbs/acre

Site	Conditional Permit Acres	Final Permit Acres	Ave Depth
A-09	4.5	4.5	8 feet
G-09	1.2	1.2	8 feet
R-09	3.7	4.1	10 feet
S-09	0.6	0.6	8 feet
U-09	1.5	1.5	8 feet
X-09	1.2	1.8	6 feet
Y-09	0.3	merged with X-09	6 feet
Subtotal	***12.9***	***13.6***	
Grand Total	**14.5**	**15.2**	

Please Note:

1. Entire area of lake used for fishing.
2. Proposed Treatment areas are used for all boating activities.

N W E S

700

Feet

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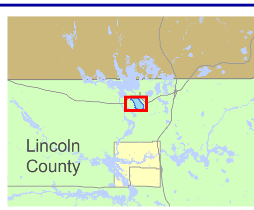
Sources:
Roads & Hydro: WDNR
Aquatic Plant Survey: Onterra, 2009
Bathymetry: WDNR, digitized by Onterra

Map date: November 4, 2009

File Name: Map1_Clear_T2009_EWMTrt_Perm1.mxd



Extent of large map shown in red.

2009 Proposed Treatment Area

2009 Final Treatment Area - 100 lbs/acre

2009 Final Treatment Area - 150 lbs/acre

EWM Survey Results **(August 2008)**

Single or Few Plants

Clumps of Plants

EWM Survey Results **(August 2008)**

Highly Scattered *(none found)*

Scattered

Dominant

Highly Dominant

Surface Matting *(none found)*

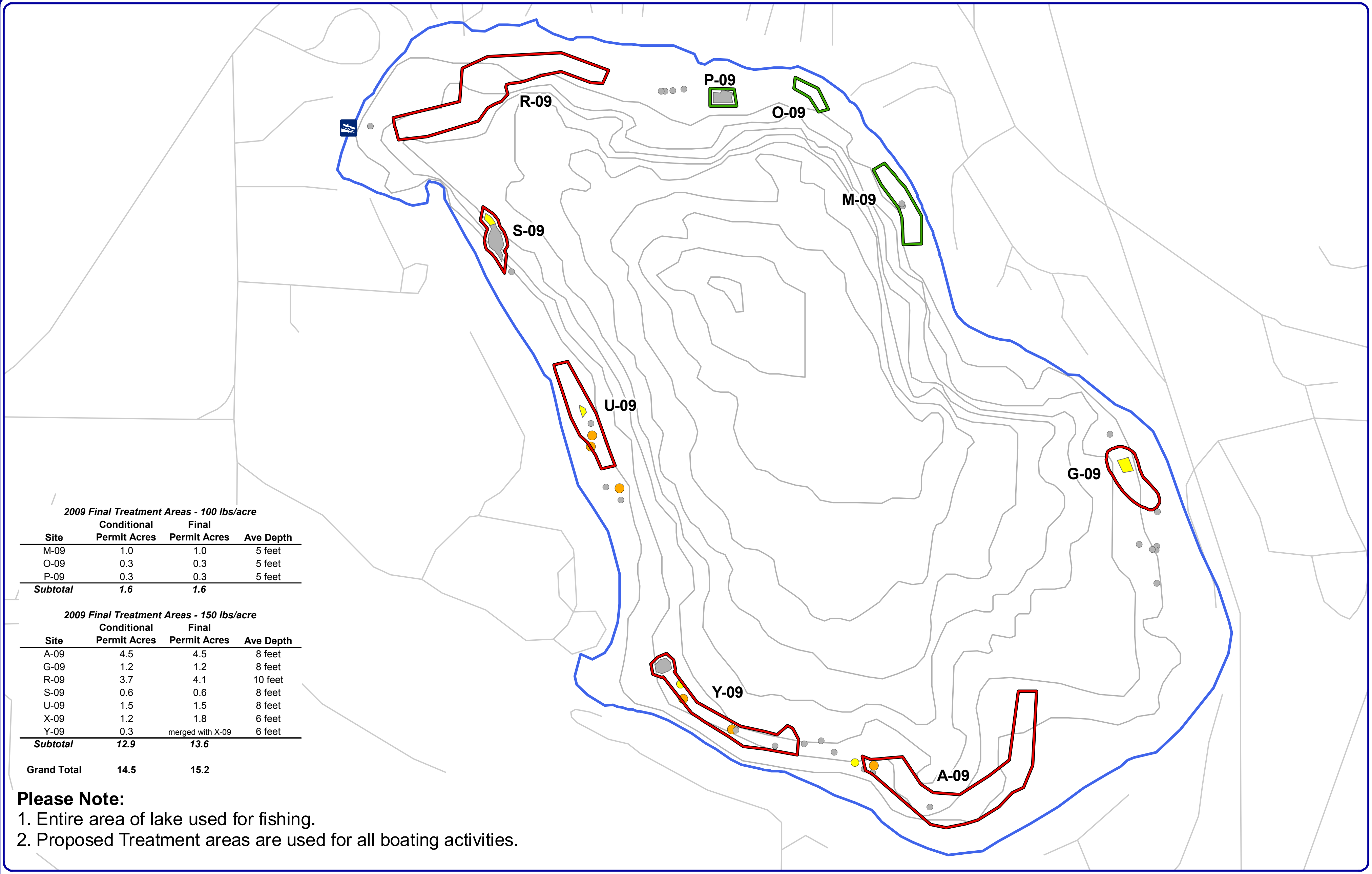
Private Access *(Besse's on Clear Lake)*

Map 1

Clear Lake

Lincoln County, Wisconsin

2008 EWM Densities and 2009 Treatment Areas



2009 Final Treatment Areas - 100 lbs/acre

Site	Conditional Permit Acres	Final Permit Acres	Ave Depth
M-09	1.0	1.0	5 feet
O-09	0.3	0.3	5 feet
P-09	0.3	0.3	5 feet
Subtotal	***1.6***	***1.6***	

2009 Final Treatment Areas - 150 lbs/acre

Site	Conditional Permit Acres	Final Permit Acres	Ave Depth
A-09	4.5	4.5	8 feet
G-09	1.2	1.2	8 feet
R-09	3.7	4.1	10 feet
S-09	0.6	0.6	8 feet
U-09	1.5	1.5	8 feet
X-09	1.2	1.8	6 feet
Y-09	0.3	merged with X-09	6 feet
Subtotal	***12.9***	***13.6***	
Grand Total	**14.5**	**15.2**	

Please Note:

1. Entire area of lake used for fishing.
2. Proposed Treatment areas are used for all boating activities.

N W E S

700

Feet

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De Pere, WI 54115
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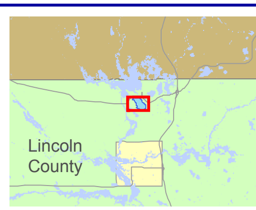
Sources:
Roads & Hydro: WDNR
Aquatic Plant Survey: Onterra, 2009
Bathymetry: WDNR, digitized by Onterra

Map date: November 18, 2009

File Name: Map2_Clear_T2009andPB.mxd



Extent of large map shown in red.

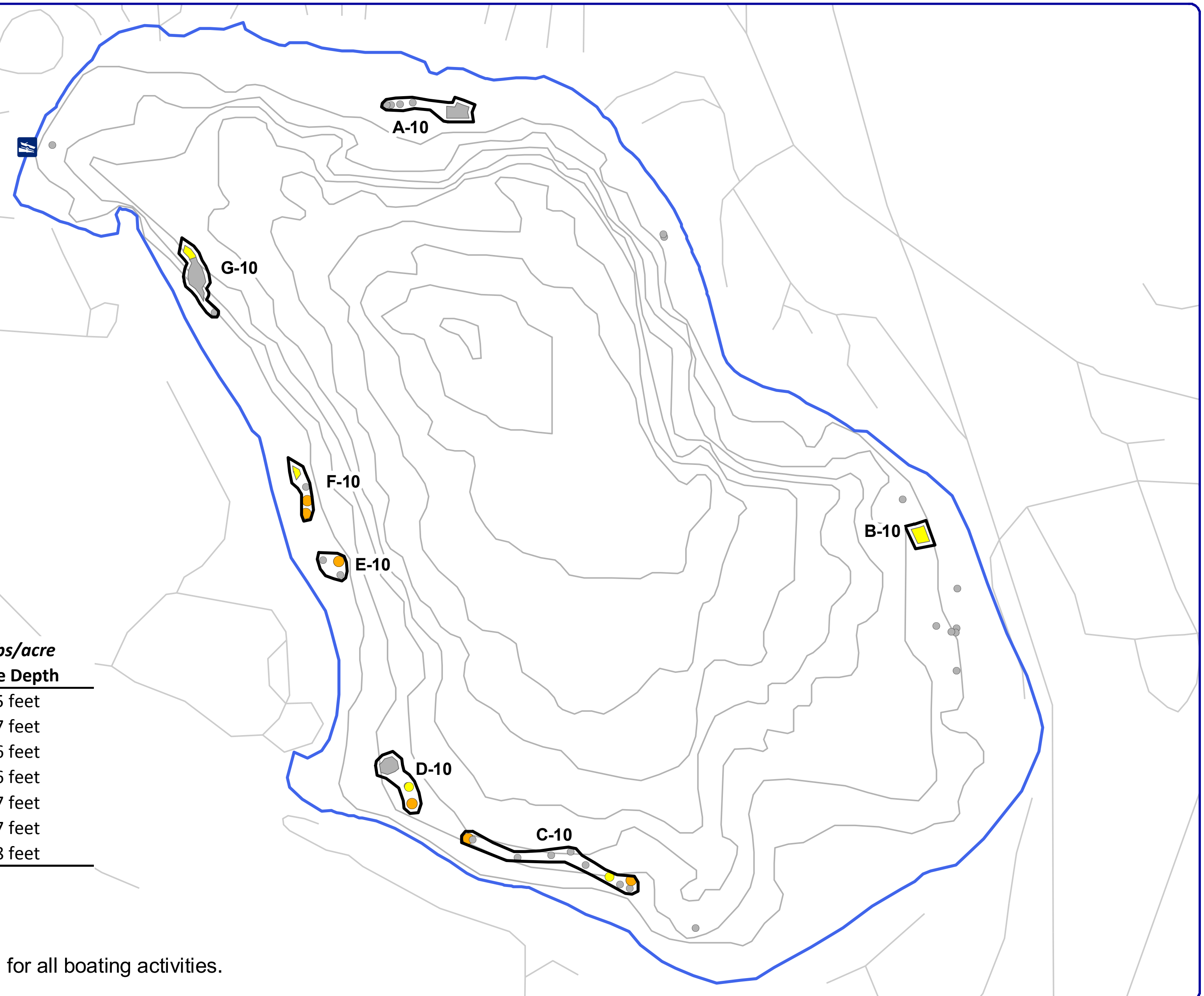
2009 Final Treatment Area - 100 lbs/acre
2009 Final Treatment Area - 150 lbs/acre
Private Access *(Besse's on Clear Lake)*

EWM Survey Results (Sept 2009)
Single or Few Plants
Clumps of Plants

EWM Survey Results (Sept 2009)
Highly Scattered *(none found)*
Scattered
Dominant
Highly Dominant *(none found)*
Surface Matting *(none found)*

Map 2
Clear Lake
Lincoln County, Wisconsin

2009 EWM Treatment Areas and Post Treatment Densities



2010 Proposed Treatment Areas - 200 lbs/acre

Site	Acres	Ave Depth
A-10	0.7	5 feet
B-10	0.3	7 feet
C-10	1.2	6 feet
D-10	0.6	6 feet
E-10	0.3	7 feet
F-10	0.4	7 feet
G-10	0.7	8 feet
Total	***4.2***	

Please Note:
1. Entire area of lake used for fishing.
2. Proposed Treatment areas are used for all boating activities.

N W E S

875

Feet

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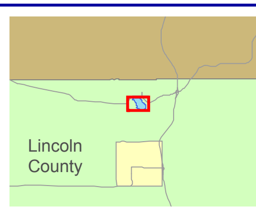
Sources:
Roads & Hydro: WDNR
Aquatic Plant Survey: Onterra, 2009
Bathymetry: WDNR, digitized by Onterra
Map date: November 18, 2009
File Name: Map3_Clear_T2010Cond1andPB.mxd



Extent of large map shown in red.

Legend

2010 Proposed Treatment Area *200 lbs/acre*

Private Access *(Besse's on Clear Lake)*

EWM Survey Results (Sept 2009)
- Single or Few Plants
- Clumps of Plants

EWM Survey Results (Sept 2009)
- Highly Scattered *(none found)*
- Scattered
- Dominant
- Highly Dominant *(none found)*
- Surface Matting *(none found)*

Map 3
Clear Lake
Lincoln County, Wisconsin

2010 Proposed Eurasian Water Milfoil Treatment Areas

Number	Latitude	Longitude	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	Eurasian water milfoil	Coontail	Muskgrasses	Common waterweed	Water marigold	Large-leaf pondweed	Variable pondweed	White-stemmed pondweed	Small pondweed	Fern pondweed	Stiff pondweed	Vasey's pondweed	Wild celery
3	45.52658	-89.71931	7	M	P				1						3			1
4	45.52663	-89.71906	5	M	P				2						2	1		
5	45.52669	-89.71882	6	M	P		1		1		1				1			3
10	45.53180	-89.71592	8	M	P		2								1			1
11	45.53198	-89.71592	7	M	P		1		1						1			2
12	45.53179	-89.71569	8	M	P						1	1			1			1
13	45.53197	-89.71568	7	M	P		1		1							1		1
16	45.53166	-89.71540	6	M	P		1											2
19	45.53149	-89.71529	5	M	P		1				1							1
22	45.53133	-89.71519	5	M	P		1	1	1									2
26	45.53116	-89.71509	5	M	P		1	1			1	1						1
49	45.53620	-89.72079	7	M	P			1			1	1			1			1
53	45.53741	-89.72256	5	M	P		1		1						1			1
54	45.53730	-89.72229	5	M	P		2		1						1			1
55	45.53715	-89.72214	7	M	P	1	1	1	1						1			1
85	45.53794	-89.73009	7	M	P		1								1			1
86	45.53505	-89.72912	5	M	P						1			1	1			1

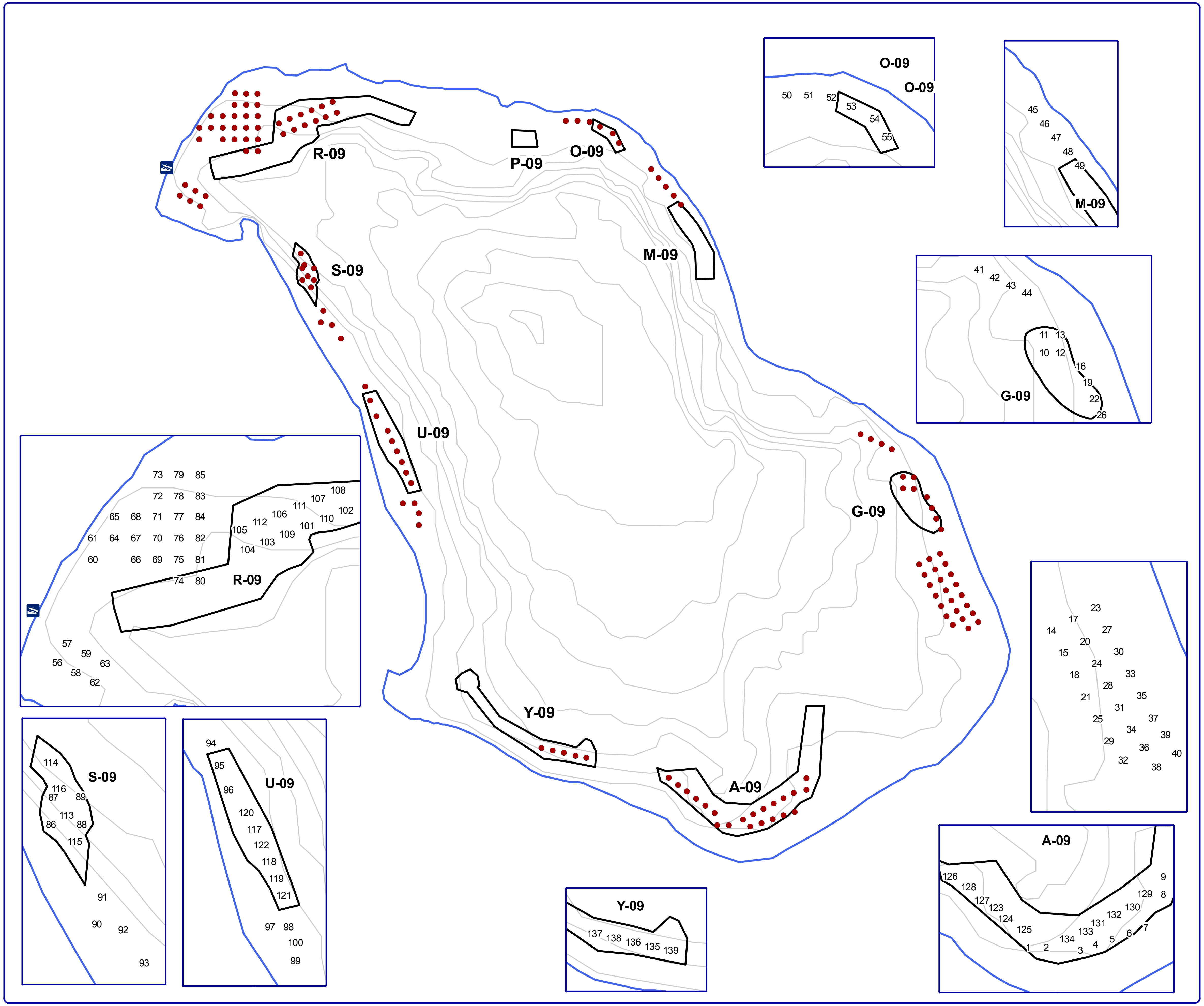
Number	Latitude	Longitude	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	Eurasian water milfoil	Coontail	Muskgrasses	Common waterweed	Water marigold	Large-leaf pondweed	Variable pondweed	White-stemmed pondweed	Small pondweed	Fern pondweed	Stiff pondweed	Vasey's pondweed	Wild celery
87	45.53523	-89.72912	5	M	P				1									2
88	45.53505	-89.72887	9	M	P		1											1
95	45.53318	-89.72764	5	M	P		1		1		1							1
96	45.53294	-89.72751	4	M	P		1				1							2
102	45.53763	-89.72835	8	M	P										1			1
103	45.53737	-89.72929	8	M	P		1											1
104	45.53730	-89.72952	9	M	P		1								1			1
105	45.53747	-89.72962	8	M	P					1					3			
106	45.53760	-89.72914	9	M	P		1								1			1
107	45.53773	-89.72868	5	M	P										1			2
108	45.53780	-89.72844	5	M	P		1			1	1				1			1
109	45.53743	-89.72905	10	M	P		1								1			
110	45.53756	-89.72858	7	M	P		2								1			1
111	45.53767	-89.72890	8	M	P										2			
112	45.53753	-89.72938	8	M	P										1			2
113	45.53510	-89.72900	9	M	P		1	1			1							1
114	45.53545	-89.72914	8	M	P	2												1

Number	Latitude	Longitude	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	Eurasian water milfoil	Coontail	Muskgrasses	Common waterweed	Water marigold	Large-leaf pondweed	Variable pondweed	White-stemmed pondweed	Small pondweed	Fern pondweed	Stiff pondweed	Vasey's pondweed	Wild celery
115	45.53493	-89.72892	8	M	P		1		2									1
116	45.53528	-89.72907	7	M	P		1		1		1				1			1
117	45.53255	-89.72715	7	M	P		1				1	1						
118	45.53223	-89.72694	8	M	P				1						1			1
119	45.53206	-89.72684	10	M	P					2					1			1
120	45.53271	-89.72725	8	M	P		1			1								1
121	45.53190	-89.72674	7	M	P						1			1	1		1	
122	45.53239	-89.72705	6	M	P		1				1		1		1			
123	45.52700	-89.72049	6	M	P				1	1		1			1			1
124	45.52689	-89.72029	8	M	P										1			2
125	45.52678	-89.72009	6	M	P		1		1						1	1		2
126	45.52733	-89.72109	7	M	P	1			1	1	1	1						1
127	45.52711	-89.72069	7	M	P		1			1								3
128	45.52722	-89.72089	6	M	P				1	1		1				1	1	1
129	45.52709	-89.71834	9	M	P		1								2	1	1	
130	45.52701	-89.71857	9	M	P							1					1	1
131	45.52684	-89.71901	7	M	P		1					1				1		1

Number	Latitude	Longitude	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	Eurasian water milfoil	Coontail	Muskgrasses	Common waterweed	Water marigold	Large-leaf pondweed	Variable pondweed	White-stemmed pondweed	Small pondweed	Fern pondweed	Stiff pondweed	Vasey's pondweed	Wild celery
132	45.52693	-89.71878	10	M	P		1		1						1	1		1
133	45.52676	-89.71924	7	M	P										1			1
134	45.52668	-89.71947	6	M	P				2						1			2
135	45.52768	-89.72314	5	M	P				2	1	1							1
136	45.52772	-89.72339	5	M	P		1				1				1			2
137	45.52780	-89.72389	5	M	P				2			1						1
138	45.52776	-89.72364	6	M	P				1		1	1			1			2
139	45.52764	-89.72291	5	M	P			1		1	1							1

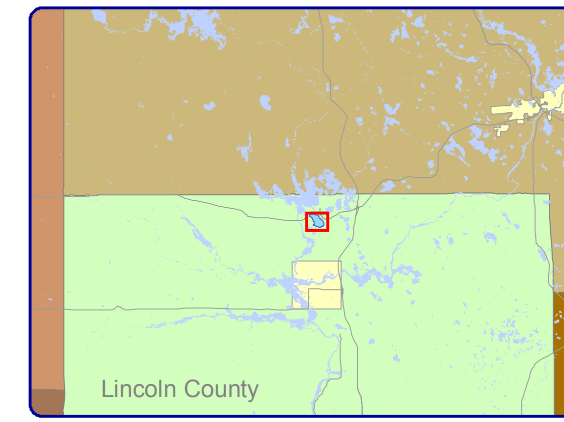
Point Number	Latitude	Longitude	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	Notes	Eurasian water milfoil	Coontail	Muskgrasses	Common waterweed	Water marigold	Dwarf water milfoil	Slender naiad	Large-leaf pondweed	Variable pondweed	Small pondweed	Fern pondweed	Wild celery
3	45.52658	-89.71931	6	S	P					1				1			1	2
4	45.52663	-89.71906	6	M	P			1		2							1	2
5	45.52669	-89.71882	6	S	P				1					1				
10	45.53180	-89.71592	7	M	P			1		1					1			1
11	45.53198	-89.71592	6	M	P												1	1
12	45.53179	-89.71569	7	M	P		1			1							1	1
13	45.53197	-89.71568	6	M	P					3				1				2
16	45.53166	-89.71540	6	M	P			1		3				1				1
19	45.53149	-89.71529	6	M	P					3							1	1
22	45.53133	-89.71519	6	M	P					1				1			1	2
26	45.53116	-89.71509	6	M	P		V			1				1				1
49	45.53620	-89.72079	6	S	P									1			1	1
54	45.53741	-89.72256	4	S	P				1			1						
55	45.53730	-89.72229	6	S	P				1	1	2			1		1		1
53	45.53715	-89.72214	5	S	P						1						1	1
85	45.53794	-89.73009	6	M	P			1									1	2
86	45.53505	-89.72912	4	S	P									2				1
87	45.53523	-89.72912	5	S	P				1	1				1				
88	45.53505	-89.72887	6	S	P					1				1			2	
96	45.53318	-89.72764	5	S	P									2				1
95	45.53294	-89.72751	5	S	P				1					1				1
103	45.53763	-89.72835	11	M	P												1	1
104	45.53737	-89.72929	8	M	P												3	1
105	45.53730	-89.72952	8	M	P												2	
106	45.53747	-89.72962	9	M	P			1		1							1	1
107	45.53760	-89.72914	6	M	P									1			3	1
108	45.53773	-89.72868	5	M	P					1	1			1				
109	45.53780	-89.72844	11	M	P			1									3	
110	45.53743	-89.72905	8	M	P			1		1						1	1	1
111	45.53756	-89.72858	8	M	P					1	1						1	1
112	45.53767	-89.72890	9	M	P												2	
113	45.53753	-89.72938	5	S	P					1				1			1	

Point Number	Latitude	Longitude	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	Notes	Eurasian water milfoil	Coontail	Muskgrasses	Common waterweed	Water marigold	Dwarf water milfoil	Slender naiad	Large-leaf pondweed	Variable pondweed	Small pondweed	Fern pondweed	Wild celery
114	45.53510	-89.72900	11	M	P													
115	45.53545	-89.72914	7	M	P												1	1
116	45.53493	-89.72892	8	S	P			1	1	1			1	1				1
117	45.53528	-89.72907	6	S	P			1		1						1		1
118	45.53255	-89.72715	5	S	P			1		1							1	1
119	45.53223	-89.72694	10	S	P												1	1
120	45.53206	-89.72684	6	S	P		1	1		1								1
121	45.53271	-89.72725	7	S	P			1		2					1		1	1
122	45.53190	-89.72674	6	S	P				1	1				1		1		1
123	45.53239	-89.72705	9	M	P					1					1			1
124	45.52700	-89.72049	9	M	P			1		1							1	1
125	45.52689	-89.72029	9	M	P												1	1
126	45.52678	-89.72009	6	S	P		1	1		1				1				1
127	45.52733	-89.72109	8	M	P					1	1						1	1
128	45.52711	-89.72069	7	S	P						1						1	1
129	45.52722	-89.72089	7	M	P					1							1	1
130	45.52709	-89.71834	9	M	P			1									2	2
131	45.52701	-89.71857	8	M	P					1							1	1
132	45.52684	-89.71901	8	M	P												1	2
133	45.52693	-89.71878	7	M	P					3							1	1
134	45.52676	-89.71924	7	M	P												1	2
135	45.52668	-89.71947	6	S	P					1	1			1				1
136	45.52768	-89.72314	6	S	P					1				1			1	1
137	45.52772	-89.72339	5	S	P			1		1							1	1
138	45.52780	-89.72389	6	S	P					1				1			1	1
102	45.52776	-89.72364	8	M	P						1						1	1
139	45.52764	-89.72291	6	S	P					1	1			1			1	1



Appendix A
Clear Lake
Lincoln County, Wisconsin

2009 Eurasian Water Milfoil Treatment Point-Intercept Monitoring Locations



Extent of large map shown in red.

Legend
- # EWM Point-Intercept Location
- 2009 Treatment Area
- Private Access *(Besse's on Clear Lake)*

Sources:
Roads & Hydro: WDNR
Bathymetry: WDNR -Digitized by Onterra
Aquatic Plant Data: Onterra, 2009
Map Date: December 16, 2008

File Name: AppA_Clear_2009_EWM_PI.mxd

N E S W

450
Feet

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