

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
AQUATIC INVASIVE SPECIES GRANT PROGRAM

Application Materials

**Mid Lake AIS Control &
Prevention Project: 2013-2017**
Phase II: 2014-2017

Prepared for the

***Mid Lake Protection &
Rehabilitation District***

August 1, 2013

Onterra LLC
Lake Management Planning

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INTRODUCTION

Mid Lake, Oneida County is 223-acre spring lake with a maximum depth of 12 feet and mean depth of approximately 6 feet (Map 1). The Lake Tomahawk Thoroughfare is a natural waterbody that connects Lake Tomahawk to Lake Minocqua. Mid Lake's short outlet leads to the thoroughfare connecting it to the Minocqua Chain of Lakes to the north and Tomahawk Lake to the south. This system is over 5,600 acres and contains a number of aquatic invasive species including both curly-leaf pondweed (CLP) and Eurasian water milfoil (EWM). Many people visit this chain of lakes and use its waters for recreational activities making it a large asset to local communities and to the state. Much of the Minocqua Chain of Lakes is within the Northern Highland Legion State Forest including all of Mid Lake. Located just south of Mid Lake on the chain is Indian Mounds Campground, a state-managed facility complete with boat launch facilities, handicap access, and 2 public beaches. All together, the chain has over 10 public landings with approximately 116 vehicle-trailer parking spaces, and multiple public facilities including public piers, campgrounds, and beaches.

CLP has a very unusual life cycle compared to our native plants and is at peak biomass within Wisconsin lakes during late spring/early summer. Although the WDNR lists Mid Lake as having CLP since 1979, it is commonly believed that this species was first detected from the lake in 2005 and was subsequently managed that year using chemical control methods. No additional management of this species has occurred on the system until 2009.

Traditionally, CLP control consists of numerous annual herbicide treatments conducted in May of each year. This will kill each year's plants before they are able to produce reproductive turions (asexual seed-like structures). After multiple years of treatment, the turion base in the sediment becomes exhausted and the CLP population decreases significantly. Normally a control strategy such as this includes 3-5 years of treatments of the same area.

PROBLEM IDENTIFICATION

Management Goal #3 of the Mid Lake Comprehensive Management Plan (Draft, June 2010) states: *Control Existing and Prevent Further Aquatic Invasive Species Infestations within Mid Lake*. The proposed project would initiate or continue all four of the management actions the Mid Lake Protection and Management District (MLPMD) developed to reach that goal:

1. Control curly-leaf pondweed infestation on Mid Lake
2. Initiate modified Clean Boats Clean Waters watercraft inspections at Mid Lake public accesses
3. Coordinate annual volunteer monitoring of Aquatic Invasive Species
4. Reduce occurrence of purple loosestrife on Mid Lake shorelands

While the proposed project contains aspects of all four management actions listed above, the core of this project is to control CLP within Mid Lake. Traditionally, CLP control consists of numerous annual herbicide treatments conducted in May/June of each year. This will kill each year's plants before they are able to produce reproductive turions (asexual seed-like structures). After multiple years of treatment, the turion base in the sediment becomes

exhausted and the CLP population decreases significantly. Normally a control strategy such as this includes 3-5 years of treatments of the same area.

Over the winter of 2008-09, with cooperation from the WDNR, an experimental control strategy was developed for CLP. Utilizing the district's mechanical harvester, an early-season harvesting strategy was implemented that would target CLP for harvesting prior to turion production and up until the plant begins to die back in mid-July. The WDNR extended additional grant funds to the district under their existing Lake Planning Grants and awarded an AIS Grant under the Education, Prevention, and Planning category to help cover the costs of monitoring this experimental approach to CLP management through 2011. The goal of this project was to answer two questions: 1) can early-season mechanical harvesting reduce curly-leaf populations within Mid Lake, and 2) can this technique prevent CLP from colonizing new areas of the lake?

While the experimental approach was only evaluated for 3 years, the data indicates that CLP is increasing in density and spreading to new areas of the lake. While it is suspected that the rate of CLP expansion may have been slowed by the early-season harvesting program, CLP continues to spread in Mid Lake. At this time, it appears that to truly begin to gain control of CLP on Mid Lake, large-scale, repeat herbicide treatments will need to occur on an annual basis for several years (5 years or more) to deplete the turion base. During the management planning project, a stakeholder survey indicated that this method was supported or highly supported by 61% of respondents, with an additional 20% being moderately supportive of herbicide control methods.

Herbicides that target submersed plant species are directly applied to the water, either as a liquid or an encapsulated granular formulation. Factors such as water depth, water flow, treatment area size, and plant density work to dilute herbicide concentration within aquatic systems. Concentration-exposure times are important considerations for aquatic herbicides. Successful control of the target plant is achieved when it is exposed to a lethal concentration of the herbicide for a specific duration of time. Much information has been gathered in recent years, largely as a result of a joint research project between the WDNR and the US Army Corps of Engineers (USACE). Based on their preliminary findings, lake managers have adopted two main treatment strategies; 1) spot treatments, and 2) whole-lake treatments.

Spot treatments are a type of treatment strategy where the herbicide is applied to a specific area (treatment site) such that when it dilutes from that area, its concentrations are insufficient to cause significant affects outside of that area. Spot treatments typically rely on a short exposure time (often hours) to cause mortality and therefore are applied at a much higher herbicide concentration than whole-lake treatments. For CLP, endothall is typically applied between 1.5 and 3.0 ppm active ingredient (ai) in spot treatment scenarios.

Whole-lake treatments are those where the herbicide is applied to specific sites, but when the herbicide reaches equilibrium within the entire volume of water (of the lake or a lake basin); it is at a concentration that is sufficient to cause mortality to the target plant within that entire lake or basin. The target herbicide concentration is typically between 0.6 and 1.0 ppm ai when exposed to the target plants for 7-14 or more days. However, these same concentration and exposure times have been shown to impact some native plant species.

PROJECT GOALS

The chief goal of this management project is to minimize the negative impact that AIS can have on the ecology of Mid Lake. These impacts can range from reduced habitat value for fish and wildlife to alterations in lake water quality, including swings in pH and localized-anoxia. Although all of the impacts are undesirable, the potential impacts to the lake's native aquatic plant community are of special concern because of the high floristic quality (27.5) and large number of native species (40 including incidentals).

The objective of this management action is not to eradicate CLP from Mid Lake, as that would be impossible. The objective is to bring CLP down to more easily controlled levels or levels that have minimal effect on the Mid Lake ecosystem. To meet this objective efficiently, a cyclic series of steps is used to plan and implement the treatment strategies. The series includes:

1. A lakewide assessment of CLP completed while the plant is at peak biomass (late spring).
2. Creation of treatment strategy for the following spring building upon success and failures documented from previous treatments (winter).
3. Verification and refinement of treatment plan immediately before treatments are implemented (early spring)
4. Completion of treatments (spring)
5. Assessment of treatment results (early summer before and after treatment).

Once Step 5 is completed, the process would begin again that same summer with the completion of a peak biomass survey. The survey results would then be used to create the next spring's treatment strategy.

PROJECT SCOPE AND TIMELINE

Table 1 provides an approximate timeline for completion of the tasks. The schedule needs to be flexible to accommodate for weather, scheduling conflicts, etc., but it provides a general indication of the dates for completing the proposed components. The proposed project includes cost coverage for the four years of implementation (2014-2017) of this 5-year control project. An AIS-EPP grant has already been secured for the first year of this project, which only includes pretreatment monitoring components.

Table 1. Approximate Project Schedule

Task	2013				2014				2015				2016				2017			
	W	Sp	Su	F																
CLP Pretreatment Survey																				
CLP Treatment																				
Early Season AIS Survey																				
Whole-lake Point-intercept Survey																				
Annual Report																				
Informational Meeting																				
Community Mapping Survey																				
Planning Committee Meeting																				
Aquatic Plant Mangement Plan Update - Draft																				
Aquatic Plant Mangement Plan Update - Final																				

-  Cost Coverage from WDNR AISEPP Grant Application (February 2013)
-  Cost Coverage from WDNR AISEPP Grant Application (August 2013)

Monitoring Strategy

Efficacy: The qualitative monitoring would be completed by comparing pretreatment (late-spring the year before the control action) with post treatment (late-spring immediately following the control action) CLP peak-biomass surveys. This methodology was used to map CLP in 2013 as a part of the first phase of this project (Map 2). The surveys would occur annually during late spring when this plant is at its peak-biomass (growth stage). Large colonies over 40 feet in diameter would be mapped using polygons (areas), while small colonies, clumps of plants, and single plants would be mapped using points. Colonies marked with polygons would also be designated using a 5-tiered density scale from *Highly Scattered* to *Surface Matting*. Please note that the entire littoral zone of Mid Lake would be surveyed from the surface during these field events to assess the previous control actions and discover newly infested areas.

In addition to evaluating the success of the control program using qualitative methods, the treatment monitoring strategy will implement quantitative methods is described in Recommended Baseline Monitoring of Aquatic Plants in Wisconsin: Sampling Design, Field and Laboratory Procedures, Data Entry, and Analysis, and Applications (WDNR PUB-SS-1068 2010). Based on guidance from the WDNR, a point spacing of 55 meters would be used resulting in approximately 300 points (Map 1). Whole-lake point-intercept surveys will be completed each year in late June. The frequency of CLP each spring will be a direct result of the turions that sprouted the previous fall/winter. If the control strategy is effectively killing CLP before it produces turions, a reduction in CLP sprouting from those turions should be apparent after a few years of control. It must be noted that only looking at this data within the confines of a single pre- and post treatment timeframe is problematic as it is suspected that the populations of CLP within some areas will be maintained for years from a large turion base that has built up over time.

Selectivity: To understand the selectivity of the control program, comparisons of whole-lake point-intercept surveys will be used to understand the impacts of the control measures to the native aquatic plant community. As indicated above, the whole-lake point-intercept survey will be conducted annually in late-June. Conducting this survey any later in the year would

not allow CLP to be accessed in this manner, due to the natural die off (senescence) of this species early in the summer. Conducting the survey any earlier in the year would not allow the native plants to be accessed, as the vast majority of them are at peak growth during the mid- to late-summer.

Spring Pretreatment Confirmation & Refinement Survey

A qualitative assessment would be completed prior to the herbicide applications to verify treatment area extents and to inspect the condition of the CLP colonies targeted for treatment. Depending on weather and lake conditions, proposed treatment extents would be verified through the use of a combination of surface surveys, rake tows, and submersible video monitoring. Upon completion of the inspections, Onterra would electronically provide an update to the MLPMD and WDNR describing the results of the assessment and any recommended changes to that year's treatment strategy. If changes are suggested, Onterra would provide the updated treatment areas to the applicator once the updated strategy is approved by the WDNR and MLPMD.

Quantitative sampling would be conducted the spring just previous to the treatment (pretreatment) and the spring following the treatment (post treatment). Because of the early senescence of this species, a post treatment survey a few weeks following the treatment would not differentiate if a reduction in occurrence can be attributed to the herbicide application or the natural die-off of the species.

Community Mapping Surveys

A community mapping survey would also be conducted in the final year of the project (2017). The map represents a snapshot of the plant communities in the lake as they existed during the survey. By comparing this survey with the 2008 survey, changes in mapped communities can be understood. A mapped community can consist of floating-leaf and/or emergent plants. Examples of emergents include cattails, bulrushes, and arrowheads, and floating-leaf species include white and yellow pond lilies. Emergent and floating-leaf communities lend themselves well to mapping because there are distinct boundaries between communities. Submergent species are often mixed throughout large areas of the lake and are seldom completely visible from the surface; therefore, mapping of submergent communities is more difficult and often impossible.

Both the whole-lake point-intercept surveys and the community mapping survey would be useful components in updating Mid Lake's current management plan. After this five year project, this plan as it applies to aquatic plant management will need to be updated to account for the knowledge learned during the control project.

Whole-lake point-intercept surveys have been completed on Mid Lake prior to the proposed project. During those previous surveys, a complete set of pressed plant specimens have been provided to the UW-Steven's Point Herbarium for vouchering. Therefore, the proposed project would only press and gain confirmation on new plant records as well as those plants with difficult field identification.

Chemical Applications

It would be the responsibility of the MLPMD to contract with a commercial aquatic pesticide applicator, certified with the Wisconsin Department of Agriculture and Consumer Protection and licensed by the WDNR to perform the *early season* treatments of Eurasian water milfoil and curly-leaf pondweed. The treatments would occur each year when water temperatures are near or slightly above 50°F. Onterra would create the treatment areas in the form of polygons within their Geographic Information System (GIS) and then transmit them to the applicator in native shapefile format or similar format recognized by the applicator's GPS technology. The applicators treatment paths would be included in the annual and final reports.

STAKEHOLDER PARTICIPATION

Volunteer Herbicide Concentration Monitoring

Herbicide concentrations samples would be collected surrounding the herbicide treatment following protocols developed by the United States Army Corps of Engineers (USACE). In coordination with the USACE, trained members of the MLPMD would collect water samples at various locations and time-periods following the treatment. Properly preserved samples would be sent to the USACE for laboratory analysis.

Clean Boats Clean Waters Program

The intent of the boat inspections would not only be to prevent additional invasives from entering the lake through its public access points, but also to prevent the infestation of other waterways with invasives that originated in Mid Lake. The goal would be to cover the closest landing on the Thoroughfare during the busiest times in order to maximize contact with lake users, spreading the word about the negative impacts of AIS on our lakes and educating people about how they are the primary vector of its spread. The MLPMD would coordinate the timing of these activities with other lake organizations conducting CBCW activities on the system.

Due to the large number of activities that MLPMD volunteers are called upon during the proposed project (AIS monitoring, herbicide concentration monitoring, stakeholder education, ect.), 100 annual hours of paid watercraft inspectors will be used in addition to 100 hours of volunteer.

Purple Loosestrife Control

During the 2008 community mapping survey, numerous occurrences of purple loosestrife were located along the shorelines of Mid Lake and within shallow emergent plant communities. With the aid of WDNR, UW Extension, and/or Oneida County, volunteers would coordinate purple loosestrife control efforts. During the first full year of the project (2013), MLPMD volunteers would survey the lake's shorelands, particularly wetland areas adjacent to the thoroughfare, for purple loosestrife colonies, using the 2008 community map as a guide. With the help of those agencies listed above, colonies would be selected for control methods, likely biological control methods. Ongoing volunteer monitoring would occur over the course of the 5-year project. This project may expand to include all wetland invasive plant species, including pale yellow iris.

Volunteer AIS Surveillance Monitoring

In order to maintain navigation in open water and near shore areas of Mid Lake, the MLPMD has developed a management action to responsibly use mechanical harvesting operations to meet that goal. One guideline that was developed as a part of that management action was that the harvester should avoid areas of dense CLP growth during its operation when this plant contains viable turions. The mechanical harvesting plan would also avoid any Eurasian water milfoil (EWM) occurrences.

The proposed project expands upon these guidelines and alters the existing harvesting strategy to provide added protection to native species within the lake by limiting the spread CLP & EWM. Volunteers would travel the predetermined harvesting lanes prior to each harvesting season and mark with GPS the CLP or EWM colonies within the lanes that are greater than approximately 10 feet in diameter.

As discussed above, professional CLP surveys would be conducted annually during the late-spring. Within Phase I of this project, the MLPMD has purchased a GPS unit that is capable of supporting basemaps. Prior to the start of the harvesting activities, the MLPMD's GPS would be loaded with a basemaps of the spring's treatment areas as well as previous survey's CLP and EWM locations.

A single EWM plant was located within Mid Lake for the first time in 2011. This plant was removed by Onterra field staff using a well-positioned rake. Additional EWM occurrences were located during the 2013 Early Season AIS Survey completed as a part of Phase I of the proposed project (Map 2). These occurrences have been established as a priority for volunteer-based hand-removal.

Volunteers would be trained on proper hand removal of AIS within these areas by Oneida County staff. These locations would be marked with a GPS location and then manually removed, most likely using snorkeling equipment or with a rake. During the subsequent ESAIS, Onterra ecologists would visit all marked locations and access if the plant was successfully removed.

Project Status/Informational Meeting

For reasons outlined within the Introduction Section, controlling CLP using herbicide control methods is an ongoing process that takes multiple years to evaluate. An informational meeting is tentatively planned for the Winter/early-Spring of 2015. At this time, two years of surveys (2013 and 2014) and 1 CLP treatment (2014) would have taken place. This meeting would be an important event in raising stakeholder awareness as described in the project

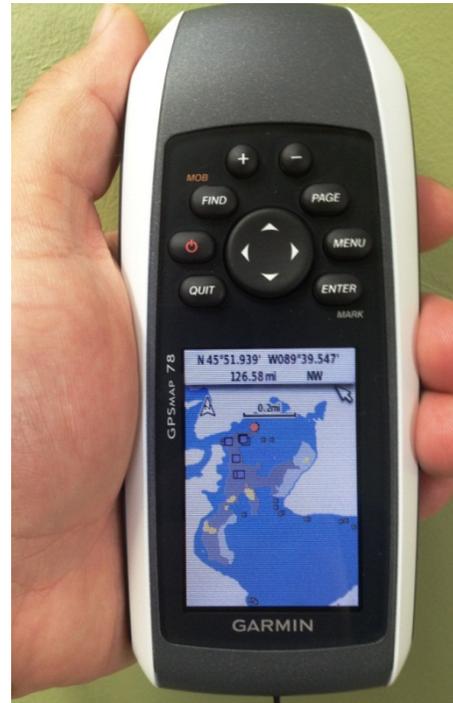


Photo 1. GPS unit with basemap of Mid Lake's 2013 ESAIS Survey results.

goals; therefore, the district would enhance the advertising of this meeting over its normal protocol regarding meeting announcements. The district would also strive to have local media attend the meeting in hopes of producing factual articles that will benefit the project and the lake's stakeholders.

Planning Committee Meeting

Following the completion of the data collection during the summer of 2017 and subsequent analysis of that data, a single meeting would be held in order to present the project's results and preliminary recommendations to a sub-committee (Planning Committee) of the MLPMD and to complete a prioritized implementation plan as it pertains to aquatic plant management. This would be a very important meeting because it would facilitate the combination of the technical aspects of the project and the prioritized goals of the lake stakeholders. The result of this combination would be the updated aquatic plant management plan for Mid Lake (aquatic plant section and related aquatic plant implementation plan).

Because the planning meeting involves a smaller group of people, we suggest that these meetings be held during a weekday afternoon or evening, preferably Monday – Thursday. Often, these meetings are held on a Thursday afternoon at a residence or other location on or near the lake. Onterra would facilitate the meeting by making the necessary contacts and by supplying result summaries in the form of hardcopy maps and narratives along with projected presentations.

Implementation Plan Coordinator

The MLPMD is committed to implementing the management goals and related actions that are outlined within the *Mid Lake Comprehensive Lake Management Plan – March 2013*. To that end, the MLPMD has hired a coordinator (outside of grant funds) to facilitate these objectives. As an extension of the management plan, the Implementation Plan Coordinator would also make sure that the district upholds their obligations as outlined within the proposed project. The MLPMD has also created a website (midlakeprotection.org) to post information pertaining to the district's activities.

PROJECT DELIVERABLES

Annual Reports

During the late-fall/winter following the 2013 treatment, a brief letter report would be provided that would include maps detailing the survey findings and guidance for the following spring's treatment of CLP within Mid Lake. A map depicting the survey results and recommended control strategy would also be included within this report. Cost coverage for this report is included within the Phase I project.

A more comprehensive annual report would be provided each winter following the CLP treatment (2014-2017) that would include all components listed above as well as qualitative and quantitative analysis of the herbicide treatments. All annual reports would be presented in electronic format only. Adobe's Portable Document Format (PDF) would be utilized as the report format for delivery via email.

Mid Lake Aquatic Plant Management Plan Update

The final product for this project would be a single report that would include the methodologies and results of the tasks described above; a discussion concerning those results as they apply to the current health, rehabilitation, and protection of Mid Lake; and the full-color maps described in the Project Scope. Management, protection, enhancement alternatives and recommendations would be presented along with continued public education issues.

Upon finalization of the report and acceptance by the WDNR, two hard copies and two electronic copies on CD would be provided to the MLPMD. The report would be made available electronically via email or other suitable avenue for the WDNR and other interested parties.

Stakeholder Participation

Unless specifically indicated otherwise, the MLPMD would be responsible for providing the necessary deliverables to the WDNR for those components listed within the Stakeholder Participation Section (Volunteer Efforts Subcategory on cost breakdown table). The deliverables for these activities may include entering the appropriate information within the WDNR's Surface Water Integrated Monitoring System (SWIMS) or providing a brief narrative of the activities to the WDNR.

PROJECT COST BREAKDOWN

Please note that within the associated cost breakdown table, “T” preceding a year indicates that the task is associated with that year’s treatment. For example, “T2014 Planning” indicates that this activity will discuss a proposed treatment strategy for 2014.

	Cash Costs	Donated Value
Monitoring and Stakeholder Participation		
Project Administration & Communication	\$970.00	
2013 (Y1)		
Volunteer Coordination & GPS Basemap Creation	<i>w/in Phase I</i>	
2013 Quantitative Monitoring (Whole-lake PI Survey) - Late-June	<i>w/in Phase I</i>	
2013 Early-season AIS Survey - June	<i>w/in Phase I</i>	
2013 Letter Report & T2014 Planning - Winter	<i>w/in Phase I</i>	
2014 (Y2)		
Volunteer Coordination & GPS Basemap Creation	\$285.00	
T2014 Pretreatment Confirmation & Refinement Survey - April/May	\$771.67	
T2014 Final Permit Map & Spatial Data Prep/Transfer	\$156.67	
2014 Quantitative Monitoring (Whole-lake PI Survey) - Late-June	\$1,431.67	
2014 Early-season AIS Survey - June	\$1,450.00	
T2014 Full Report & T2015 Planning - Winter	\$675.00	
2015 (Y3)		
Volunteer Coordination & GPS Basemap Creation	\$285.00	
T2015 Pretreatment Confirmation & Refinement Survey - April/May	\$771.67	
T2015 Final Permit Map & Spatial Data Prep/Transfer	\$156.67	
2015 Quantitative Monitoring (Whole-lake PI Survey) - Late-June	\$1,431.67	
2015 Early-season AIS Survey - June	\$1,450.00	
T2015 Full Report & T2016 Planning - Winter	\$675.00	
Informational Meeting - Winter/Spring	\$640.00	
2016 (Y4)		
Volunteer Coordination & GPS Basemap Creation	\$285.00	
T2016 Pretreatment Confirmation & Refinement Survey - April/May	\$771.67	
T2016 Final Permit Map & Spatial Data Prep/Transfer	\$156.67	
2016 Quantitative Monitoring (Whole-lake PI Survey) - Late-June	\$1,431.67	
2016 Early-season AIS Survey - June	\$1,450.00	
T2016 Full Report & T2016 Planning - Winter	\$675.00	
2017 (Y5)		
Volunteer Coordination & GPS Basemap Creation	\$285.00	
T2017 Pretreatment Confirmation & Refinement Survey - April/May	\$772.00	
T2017 Final Permit Map & Spatial Data Prep/Transfer	\$157.00	
2017 Quantitative Monitoring (Whole-lake PI Survey) - Late-June	\$1,432.00	
2017 Early-season AIS Survey - June	\$1,497.00	
T2017 Full Report & T2017 Planning - Winter	\$675.00	
Whole-lake Point-intercept Survey	\$515.00	
Community Mapping Survey	\$2,952.00	
Map Creation & Data Analysis	\$300.00	
Planning Meeting - Winter/Spring	\$745.00	
Aquatic Plant Management Plan Update	\$1,060.00	
Printing and Vouchering Materials	\$175.00	
Travel Costs (0.58/mile, lodging, and incidentals)	\$2,810.00	
<i>Monitoring and Stakeholder Participation Subtotal</i>	\$29,295.00	\$0.00

Table continued on following page

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Herbicide Application and Related Fees		
T2014 Spot Treatment		
T2014 ~50 Acre Treatment (1.5 ppm a.i. Endothall) - April/May	\$28,791.00	
WDNR Permit Fees	\$1,270.00	
T2015 Spot Treatment		
T2015 ~50 Acre Treatment (1.5 ppm a.i. Endothall) - April/May	\$30,200.00	
WDNR Permit Fees	\$1,270.00	
T2016 Spot Treatment		
T2016 ~50 Acre Treatment (1.5 ppm a.i. Endothall) - April/May	\$31,700.00	
WDNR Permit Fees	\$1,270.00	
T2017 Spot Treatment		
T2017 ~50 Acre Treatment (1.5 ppm a.i. Endothall) - April/May	\$33,300.00	
WDNR Permit Fees	\$1,270.00	
<i>Herbicide Application and Related Fees Subtotal</i>	<i>\$129,071.00</i>	<i>\$0.00</i>
Volunteer Efforts		
Affected Riparian Mailing		
Reproduction & Postage Costs (\$200 x 4 yrs)	\$800.00	
Volunteers (8 hrs x 4 yrs)		\$384.00
Herbicide Concentration Monitoring		
Volunteers (13 events x 2hr = 26hr)		\$312.00
Volunteer Watercraft Use (4 days @ \$70/day)		\$280.00
Informational Meeting		
Volunteer Participation (25 people x 1 hrs)		\$300.00
Planning Committee Meeting		
Volunteer Participation (8 people x 3 hrs)		\$288.00
Clean Boats Clean Waters		
Paid Watercraft Inspections (100 hrs x 4 yrs, 1 yr included w/in Phase I)	\$4,800.00	
Volunteer Watercraft Inspections (100 hrs x 4 yrs, 1 yr included w/in Phase I)		\$4,800.00
AIS Surveillance Monitoring & Hand Removal		
GPS Purchase	<i>w/in Phase I</i>	
Volunteers (20 hrs x 4 years)		\$960.00
Volunteer Watercraft Use (2 days @ \$70/day x 4 yrs)		\$560.00
Purple Loosestrife Monitoring & Control		
Volunteers (20 hrs x 4 years, 1 yr included w/in Phase I)		\$960.00
Volunteer Watercraft Use (2 days @ \$70/day x 4 yrs, 1 yr included w/in Phase I)		\$560.00
Grant Administration		
Volunteers (20 hrs x 4 years, 1 yr included w/in Phase I)		\$960.00
<i>Volunteer Efforts Subtotal</i>	<i>\$5,600.00</i>	<i>\$10,364.00</i>
<i>Project Subtotals</i>	<i>\$163,966.00</i>	<i>\$10,364.00</i>
Total Project	\$174,330.00	
State Share Requested (50%)	\$87,165.00	

Aquatic Invasive Species (AIS) Control Grant Application

Form 8700-307 (12/11)

Notice: Use of this form is required by the DNR for any application filed pursuant to ch. NR 198, Wis. Adm. Code. Personal information collected on this form, including such data as your name, address, phone number, etc., will be used for management and enforcement of DNR programs, and is not intended to be used for any other purpose. Information will be made accessible to requesters under Wisconsin's Open Records laws (s. 19.32-19.39, Wis. Stats.) and requirements.

Section I: Application Type

Check one:

- Education, Prevention & Planning
 Early Detection & Response
 Established Population Control

Legislative District Numbers		To determine your legislative district, go to http://165.189.139.210/WAML/ Type in complete address, next screen shows information
Senate	Assembly	
12	34	

Section II: Applicant Information

Applicant			Type of Eligible Lake or River Applicants			
Mid Lake Protection and Rehabilitation District			<input type="checkbox"/> County	<input type="checkbox"/> Tribe	<input type="checkbox"/> Other Gov't Unit	<input type="checkbox"/> Federal
Waterbody Name			<input type="checkbox"/> City	<input type="checkbox"/> Sanitary Dist.	<input type="checkbox"/> Nonprofit Org.	<input type="checkbox"/> State
Mid Lake			<input type="checkbox"/> Village	<input checked="" type="checkbox"/> Dist.	<input type="checkbox"/> College, School, etc.	<input type="checkbox"/> Other
Project County/Township/Section/Range			<input type="checkbox"/> Town	<input type="checkbox"/> Assoc.		
Oneida/T39N/R07E/S18						
Authorized Representative Named by Resolution			Project Contact Name			
Jim Anderson			Tim Hoyman			
Authorized Representative Title			Project Contact Title			
Chairperson			Aquatic Ecologist; Onterra, LLC			
Address			Address			
P.O. Box 1304			815 Prosper Road			
City	State	ZIP Code	City	State	ZIP Code	
Woodruff	WI	54568	De Pere	WI	54115	
Daytime Phone (area code) (715) 892-0429	Evening Phone (area code) (715) 892-0429		Daytime Phone (area code) 920.338.8860	Evening Phone (area code)		
E-Mail Address andymidlake@yahoo.com			E-Mail Address thoyman@onterra-eco.com			

Mail Check to: (if different from applicant)

Name and Title			Address		
Organization			City	State	ZIP Code

For DNR Use Only

Application Type	Date Received	Date Reviewed (AIS/LC/RC)	AIS/Lake/River Coordinator Approval/Date
Waterbody ID #	Adequate Public Access <input type="checkbox"/> Yes <input type="checkbox"/> No		Environmental Grants Specialist Approval / Date
Eligible Project <input type="checkbox"/> Yes <input type="checkbox"/> No	Eligible Applicant <input type="checkbox"/> Yes <input type="checkbox"/> No	Project Priority Rank	Research / Demo Project <input type="checkbox"/> Yes <input type="checkbox"/> No
Prior Grant Award(s) <input type="checkbox"/> Yes <input type="checkbox"/> No	Fiscal Year(s)	Amount Received to Date \$	Project Awarded <input type="checkbox"/> Yes <input type="checkbox"/> No

Section III: Project Information

Project Title Mid Lake AIS Control & Prevention Project: 2013-2017 <i>Phase II: 2014-2017</i>	Proposed Ending Date June 30, 2018
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Other Management Units	Letter of Support	Other Management Units	Letter of Support
1. Town of Woodruff	<input type="checkbox"/>	4.	<input type="checkbox"/>
2. Oneida Land & Water Conserv. Committee	<input checked="" type="checkbox"/>	5.	<input type="checkbox"/>
3.	<input type="checkbox"/>	6.	<input type="checkbox"/>

Section IV: Public Access

Number of Public Vehicle Trailer Parking Spaces Available at Public Access Sites: 116

Number of Public Access Sites Including Boat Launches and Walk-ins: 10 (Minocqua Chain of Lakes)

Section V: Cost Estimate and Grant Request

**Section V must be completed or application will be returned.
Details in support of Section V are welcome.**

	Project Costs		
	Column 1 Cash Costs	Column 2 Donated Value	DNR Use Only
1. Salaries, wages and employee benefits (Paid CBCW)	\$4,800.00		
2. Consulting services	\$29,295.00		
3. Purchased services: (Herbicide Application Costs)	\$123,991.00		
4. Other purchased services (specify) : (WDNR Permit Fees)	\$5,080.00		
5. Plant material			
6. Supplies (specify): (Affected Riparian Mailing & Reproduction Costs – by district)	\$800.00		
7. Depreciation on equipment			
8. Hourly equipment use charges			
9. State Lab of Hygiene (SLOH) Costs			
10. Non-SLOH Lab Costs			
11. Other (specify): (Volunteer In-kind Labor)		\$10,364.00	
12. Subtotals (Sum each column)	\$163,966.00	\$10,364.00	
13. Total Project Cost Estimate (sum of column 1 plus sum of column 2)	\$174,330.00		
14. State Share Requested (up to 75% of total costs may be requested)	\$87,165.00		

Subject to the following maximum grant amounts:

- Education, Prevention and Planning Projects—up to \$150,000
- Early Detection and Response Projects—up to \$20,000
- Established Infestation Control Projects—up to \$200,000

Use of Federal funding as match: (check box below if applicable)

We are using or planning to apply for Federal funds to be used as match.
If known, indicate source of funding:

Section VI: Attachments (check all that are included)

A. For all applicants: (Refer to instructions for applicability.)

- 1. Authorizing resolution
- 2. Letters of support
- 3. Map of project location and boundaries
- 4. Lake map with public access sites identified (per Section VI of this application and page 20 of the guidelines)
- 5. Itemized breakdown of expenses
- 6. For projects that entail sending samples to the State Laboratory of Hygiene (SLOH) only: a completed SLOH Projected Cost Form
- 7. Project scope/description:
 - a. Description of project area
 - b. Description of problem to be addressed by project
 - c. Discussion of project goal and objectives
 - d. Description of methods and activities
 - e. Description of project products or deliverables
 - f. Description of data to be collected, if applicable
 - g. Description of existing and proposed partnerships
 - h. Discussion of role of project in planning and/or management of lake
 - i. Timetable for implementation of key activities
 - j. Plan for sharing project results
 - k. Other information in support of project not described above

B. For applicants that are Lake Management Organizations (LMOs), River Management Organizations (RMOs) or Qualified Non-profit Organizations:

- 1. For first time applicant LMOs/RMOs only: A completed Form 8700-226 (Lake Association Organizational Application) or 8700-287 (River Management Organization Application)
- 2. For first time applicant Qualified Nonprofit Organizations only: Copy of IRS 501(c)(3) determination letter and copies of your Articles of Incorporation and Bylaws
- 3. List of national and/or statewide organizations with which you are affiliated
- 4. List of board members' names, including municipality and county of residence. Designate officers
- 5. Documentation of current financial status
- 6. Brochures, newsletters, annual reports or other information about your organization

C. Education, Prevention and Planning Projects: (No additional attachments required.)

D. Early Detection and Response Projects:

- 1. APM Permit

E. Established Infestation Control Projects:

- 1. Management Plan
- 2. APM Permit

Section VII: Certification

I certify that information on this application and all its attachments are true and correct and in conformity with applicable Wis. Statutes

Print/Type Name of Authorized Representative Jim Anderson	Title of Authorized Representative Chairperson
Signature of Authorized Representative	Date Signed

**Wisconsin Department of Natural Resources
Grant Project
Resolution**

**RESOLUTION OF Mid Lake Protection and Rehabilitation District
Oneida County, Wisconsin**

WHEREAS Mid Lake, Oneida County, is an important resource used by the public for recreation and enjoyment of natural beauty; and

WHEREAS we recognize that a well-planned and holistic lake *and* aquatic invasive species management project will better the lake now and for future users, and

WHEREAS the control and prevention of aquatic invasive species are important to the health and well-being of the lake; and

WHEREAS we are qualified to carry out the responsibilities of the planning project

IT IS, THEREFORE, RESOLVED THAT:

The **MLPRD** requests the funds and assistance available from the Wisconsin Department of Natural Resources under and

HEREBY AUTHORIZES **Jim Anderson** to act on behalf of the **MLPRD** to: submit an application to the State of Wisconsin for financial aid for monitoring, planning and education purposes; sign documents; and take necessary action to undertake, direct, and complete an approved grant.

BE IT FURTHER RESOLVED THAT the **MLPRD** will meet the obligations of the planning project including timely publication of the results and meet the financial obligations under this grant including the prompt payment of our 50% commitment to project costs.

We understand the importance of a continuing management program for **Mid Lake** and intend to proceed on that course.

Adopted this 1st day of September, 2012

By a unanimous vote of the District Board

BY: _____
Jim Anderson, President
Mid Lake Protection and Rehabilitation District

Conservation & UWEX
Education Committee
Tom Rudolph, Chair
Bob Martini, Vice
Greg Berard
Jim Intrepidi
Bob Mott
Clint Zimbeck, FSA
Members



Land & Water Conservation Department
3375 Airport Rd # 10
Rhineland, Wisconsin 54501
Phone (715) 365-2750
Fax (715) 365-2760

Jean Hansen
County Conservationist

Michele Sadauskas
AIS Coordinator

Kerri Ison
Administrative Assistant

January 29, 2013

Mr. Kevin Gauthier
Water Resources Management Specialist
DNR North Central District
107 Sutliff Avenue
Rhineland, WI 54501

Dear Kevin,

As the Oneida County Aquatic Invasive Species (AIS) Coordinator, it gives me great pleasure to write a letter of support for the Mid Lake P & R District and their proposed AIS Control Project. I fully support their goals and long-term vision for Mid Lake and feel their application for a WDNR AIS Control Strategy Grant is a worthwhile and extremely important proposal.

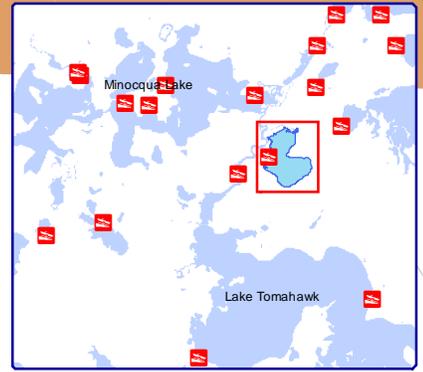
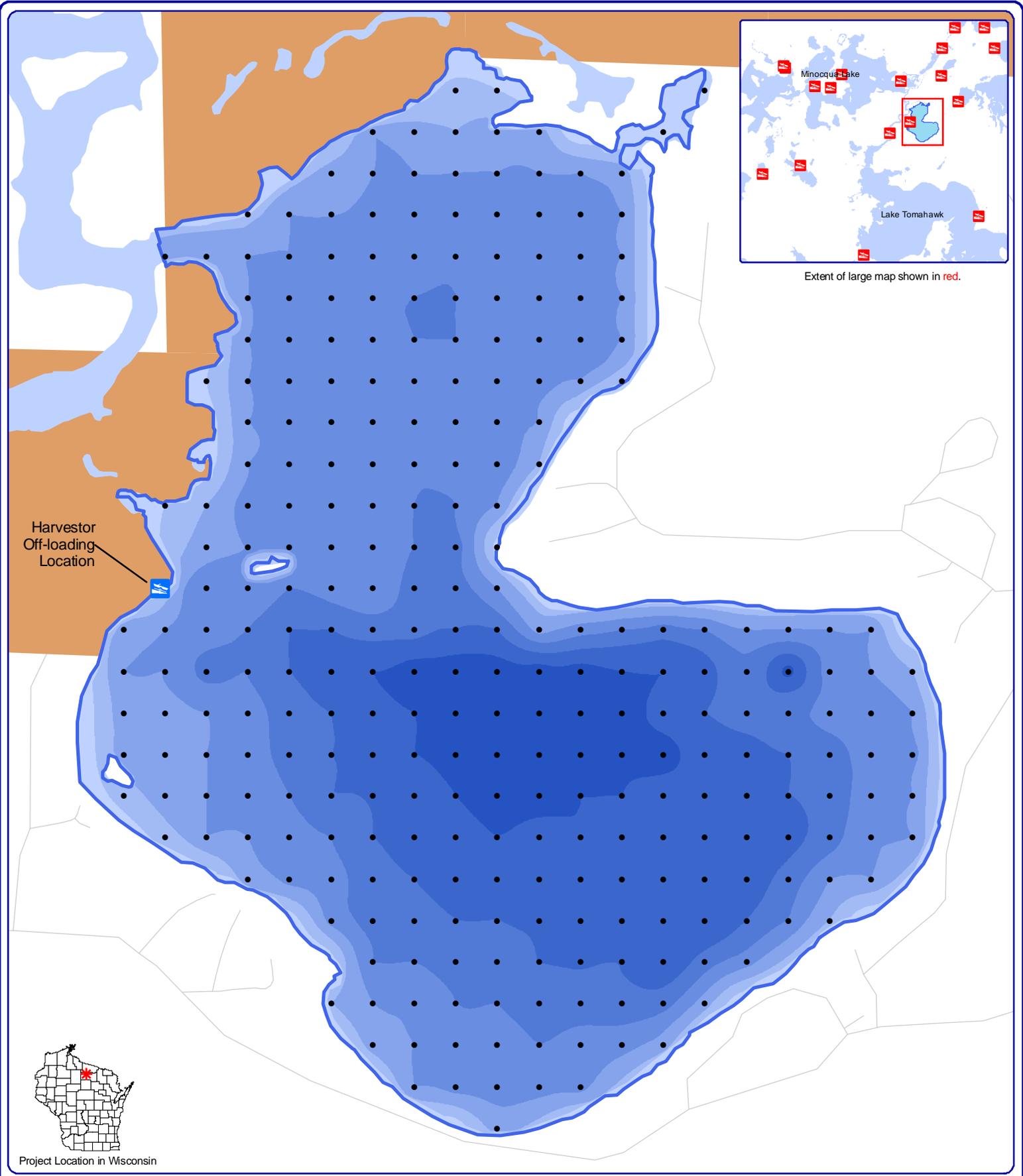
Mid Lake P & R District has been a strong leader in AIS management and control. Just recently, a 3-year experimental control project for Curly-leaf Pondweed (CLP) was completed. The study found that early-season harvesting of CLP was not "preventing spread nor decreasing densities in the colonized CLP". For this reason, Mid Lake P & R District has applied for a one-year project grant to further assess and manage their CLP colonies. I commend Mid Lake P & R for taking part in an earlier 3-year harvesting project and fully support their current application for an assessment and management project of CLP in Mid Lake.

Without continued WDNR support, the Oneida County Land & Water Conservation Department will most certainly lose one of its strongest partners in the field of AIS management and control. I am certain that the efforts of Mid Lake P & R protects all of Oneida County's lakes and rivers from AIS, and without further funding, Oneida County will be negatively affected.

I am excited about and look forward to working with Mid Lake P & R on their proposed projects for 2013. I highly recommend them for a WDNR AIS Control Strategy Development grant. Without strong partners such as Mid Lake P & R, Oneida County will have a much more difficult time combating and winning the war against AIS!

Sincerely,

Michele Sadauskas
Oneida County AIS Coordinator
3375 Airport Road #10
Rhineland, WI 54501
Phone: 715-365-2750
Email: msadauskas@co.oneida.wi.us

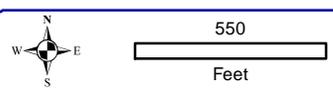


Extent of large map shown in red.

Harvestor
Off-loading
Location



Project Location in Wisconsin



Onterra LLC
Lake Management Planning
815 Prosper Rd
De Pere, WI 54115
920.338.8860
www.onterra-eco.com

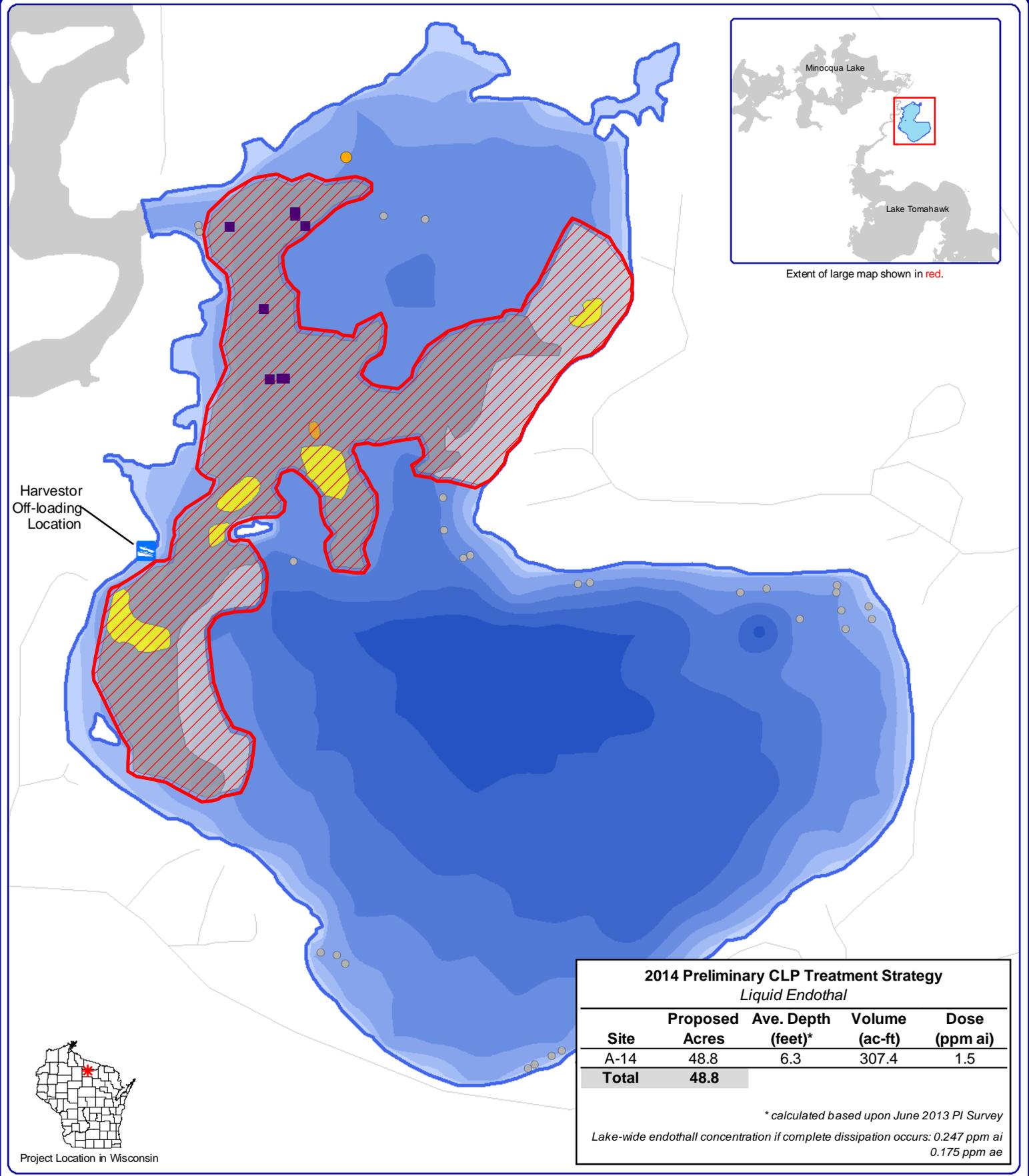
Sources:
Roads and Hydro: WDNR
Bathymetry: Onterra 2013 PI Survey
Map Date: July 22, 2013
Filename: Map1_Mid_Location.mxd

Legend

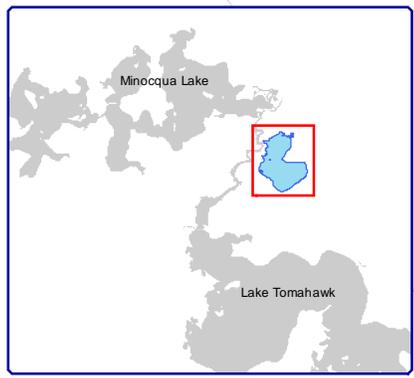
-  Project Boundaries
-  Quantitative Monitoring Location

- Land Ownership**
-  Federal (none shown)
 -  State
 -  County (none shown)

Map 1
Mid Lake
Oneida County, Wisconsin
Project Boundaries



Harvester
Off-loading
Location



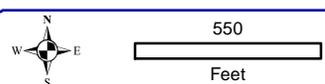
Extent of large map shown in red.



Project Location in Wisconsin

2014 Preliminary CLP Treatment Strategy				
<i>Liquid Endothal</i>				
Site	Proposed Acres	Ave. Depth (feet)*	Volume (ac-ft)	Dose (ppm ai)
A-14	48.8	6.3	307.4	1.5
Total	48.8			

* calculated based upon June 2013 PI Survey
 Lake-wide endothal concentration if complete dissipation occurs: 0.247 ppm ai
 0.175 ppm ae



Onterra LLC
 Lake Management Planning
 815 Prosper Rd
 De Pere, WI 54115
 920.338.8860
 www.onterra-eco.com

Sources:
 Roads and Hydro: WDNR
 Aquatic Plant Survey: Onterra, 2013
 Bathymetry: Onterra 2013 PI Survey
 Map Date: July 10, 2013
 Filename: Map2_Mid_CLP_T2014Prelim1.mxd

- Legend**
- CLP Survey (June 2013)**
- Highly Scattered
 - Scattered
 - Dominant
 - Highly Dominant
 - Surface Matting (None)
 - Single or Few Plants
 - Clumps of Plants
 - Small Plant Colony (None)
 - Single EWM Occurrence

2014 Preliminary CLP Treatment Strategy

Map 1
 Mid Lake
 Oneida County, Wisconsin
2014 Preliminary CLP Treatment Strategy

Aquatic Invasive Species Control Grants Established Population Control Ranking Questions 37 Maximum Points	Ranking Points	Projected Aug13 Score	
A. The degree to which the project includes a prevention and control strategy. (6 points possible)			
1) The water being controlled has, or the project includes, a Clean Boats, Clean Waters watercraft inspection program per the requirements of s. NR 198.22 (1)(d) or an approved Alternative Equivalent (see guidance).	2 points	2	100 paid, 100 volunteer for each year
2) The project will conduct other complimentary source containment activities that go above and beyond minimum level of inspection and signage (e.g. boat washing or cleaning stations, augmented enforcement).	2 points	0	
3) The water being controlled has, or the project will train, volunteers to identify AIS and conduct water body surveillance monitoring for early detection using accepted WDNR or citizen-based monitoring (CLMN/Project RED, etc) protocols where data is being entered into SWIMS.	2 points	2	Volunteers have been trained on AIS surveillance and hand removal techniques. Will focus on removing AIS occurrences within mechanical harvesting lanes, as well as newly found EWM locations. Purchased GPS and have basemap transfer of Onterra's survey results
B. The degree to which the project will prevent the spread of aquatic invasive species. (7 points possible)			
1a) The control activity will take place on a Statewide AIS Source Water listed on the following table. OR	5 points	5	Minocqua Chain on List
1b) The control activity will take place on a major AIS source water with high public use (lakes greater than 500 acres and all boat-able rivers that meet or exceed the minimum boating access criteria in NR 1.91(4) or wetlands greater than 500 acres in public ownership) or the project includes a Statewide AIS Source Water where less than 50% of the activities are directed. OR	4 points	got 1a	
1c) The control activity takes place on a significant AIS source water with high public use (lakes between 500 and 100 acres and all rivers that meet or exceed the minimum boating access criteria in NR 1.91(4); wade-able streams with public access or wetlands between 500 and 100 acres in public ownership). OR	3 points	got 1a	
1d) The control activity takes place on an a minor AIS source water (lakes less than 100 acres that meet or exceed the minimum boating access criteria in NR 1.91(4); any river or stream with public access or wetlands less than 100 acres in public ownership).	2 points	got 1a	
2) The project will control a NR40 prohibited species e.g Hydrilla, yellow floating heart, spiny water flea, red swamp crayfish, etc.	2 points	0	EWM and CLP are "restricted," not "prohibited"
C. The degree to which the project protects or improves the aquatic ecosystem's diversity, ecological stability or recreational uses. (3 points possible)			
1) Project plan implementation includes stocking or planting to reintroduce native community species or implements other actions or changes in management strategies that will provide <u>added</u> protection to native species beyond herbicide treatments alone.	2 points	??	*Implements changes in management strategies: volunteer AIS monitoring of mechanical harvesting lanes, removing occurrences prior to harvesting
2) Project area has a high degree of native biodiversity or is critical habitat, as expressed by: <ul style="list-style-type: none"> • an above eco-region average aquatic or wetland plant FQI • the presence of a listed aquatic species (NHI endangered, threatened or watch) • is an ERW or ORW water • has a Sensitive Area or Critical Habitat designation • is within or adjacent to a State Natural Area, State Park, other publicly owned unique natural ea or such an area owned/managed by a nonprofit conservation organization (e.g., Nature Conservancy). 	1 point	1	<ul style="list-style-type: none"> • Floristic Quality exceeds ecoregion median (FQI = 39.8) • ~30% (1 mile of 3.5 mile perimeter) of shoreline is American Legion State Forest (see Map 1)
D. The stage of the infestation in the water body. (4 points possible)			
1) Project addresses a pioneer population (as defined by s.198.12 (8)), or was a past early response project.	2 points	0	Neither
2) The target species is low in density and still at a controllable level as determined by being found in 25%, or less, of the colonizable area of the project water body (e.g. only the littoral zone of a lake can be colonized by EWM).	1 point	1	Preliminary analysis of June 2013 PI data indicates CLP is present in 18 of 293 PI locations (~6%). ~43 acres of colonized CLP, regardless of density. This is 19% of 225 acres of littoral zone
3) It is well documented (P/I surveys or GIS mapping, verified) that the target species is a rapidly expanding population (doubling annual increase in areal coverage or FOO). Population is still under 25% threshold above.	1 point	0	Not rapidly expanding, but population under 25%
E. The degree to which the project will be likely to result in successful long-term control. (4 points possible)			
1) As also included in the approved management plan, the project employs multiple strategies (for the same species) to achieve and maintain control objectives. [e.g. hand pulling in combination with chemical treatment and biocontrol, draw downs, etc.]	2 points	2	Hand pulling of EWM in 2013, particularly within native plant mechanical harvesting areas. Coordinated effort through the district-owned GPS unit that is periodically updated following Onterra's surveys
2) The sponsor has had a pre-application grant scoping consultation with the Department and the application is consistent with the results of those discussions.	1 point	1	Numerous correspondences
3) There is a low risk of reestablishment and spread after control activity occurs. All of the following apply: the project site is not impounded; is not tributary to or connected to any other AIS populated water and; the entire AIS population is being targeted for control.	1 point	0	Is impounded & connected to other AIS populated waters.

Aquatic Invasive Species Control Grants Established Population Control Ranking Questions 37 Maximum Points	Ranking Points	Projected Aug13 Score	
F. The availability of public access to, and public use of, the water body. (2 points possible)			
1) Any lake of 100 surface acres or greater and any boat-able river that has more than the minimum public boating access as defined in s. NR 1.91(4) or any wetland greater than 50 acres in public ownership.	1 point	1	Exceeds access
2) The water provides significant alternative public access and use opportunities that include <u>two</u> of the following at separate locations: public swimming beach; park or other public land with accessible frontage; public fishing pier or wildlife observation area; two or more private resorts, youth camps or sportsmen clubs; or where more than 50% of the lake or river shore in the project area is in public ownership.	1 point	1	Numerous public/parklands, resorts, etc on the chain
G. The degree to which the proposed project includes or is complemented by other management efforts including watershed pollution prevention and control, native vegetation protection and restoration and other actions that help control aquatic invasive species or resist future colonization. (2 points possible)			
Applicant demonstrates that they have implemented, or been a significant participant in, or the project proposes, a shoreland restoration, habitat protection, sediment and nutrient control, water level management or other substantial lake stewardship activity (not including education or planning) that protects the lake ecosystem. (Score 1 point per action, provide documentation).			
Activity 1	1 point	??	Hired an Implementation Plan Coordinator to carry out activities outlined within the lake management plan
Activity 2	1 point	0	
2) The sponsor is a Green Tier Community Charter Member. (City of Middleton, Bayfield, Fitchburg, Appleton, Weston, Monona, Eau Claire, La Crosse, & the Village of Bayside)	1 point	0	
H. Community support and commitment, including past efforts to control aquatic invasive species. (5 points possible)			
1) This is demonstrated by requesting less than the maximum state share cost rate (cash costs) for the total project costs. No more than 25% of the project match can be in-kind or donated labor. The sponsor is requesting: 65% State Share			
	1 points	-	
OR			
50% State Share	2 points	2	
2) The project has financial support from additional management units, interest groups or organizations committing > 10% of the hard cash local match .			
	1 point	0	
3) The sponsor conducted AIS control, consistent with their Department-approved plan, in the previous season without financial assistance from the State. They may have begun implementation without a grant or received grants in past but not the past season.			
	1 point	1	Implemented early-season mechanical harvesting of CLP in previous seasons without a grant to pay for the implementation costs. Did have a grant to pay for monitoring costs.
I. Whether the sponsor has previously received a grant for a similar project for the same water body. (2 points)			
1) There has not been an AIS Established Population Control grant for the same species in the same waterbody in the last five years.			
	2 points	2	No Prior AIS-EPC Grant
J. The degree to which the project will advance the knowledge and understanding of the prevention and control of aquatic invasive species. (1 point possible)			
1) Project has an evaluation component that will be conducted by an objective outside entity to assess project outcomes or is a participant in a Department-sponsored research and demonstration project on the AIS research priority list.			
	1 point	1	Herbicide concentration monitoring will be conducted in association with T2014 & T2015 if invited.
		22	

Overview Category	Points
The degree to which the project includes a prevention and control strategy.	A 4 / 6
The degree to which the project will prevent the spread of aquatic invasive species.	B 5 / 7
The degree to which the project protects or improves the aquatic ecosystem's diversity, ecological stability or recreational uses.	C 1 / 3
The stage of the infestation in the water body.	D 1 / 4
The degree to which the project will be likely to result in successful long-term control.	E 3 / 4
The availability of public access to, and public use of, the water body.	F 2 / 2
The degree to which the proposed project includes or is complemented by other management efforts including watershed pollution prevention and control, native vegetation protection and restoration and other actions that help control aquatic invasive species or resist future colonization.	G 0 / 3
Community support and commitment, including past efforts to control aquatic invasive species.	H 3 / 5
Whether the sponsor has previously received a grant for a similar project for the same water body.	I 2 / 2
The degree to which the project will advance the knowledge and understanding of the prevention and control of aquatic invasive species.	J 1 / 1

22 / 37