WISCONSIN DEPARTMENT OF NATURAL RESOURCES
AQUATIC INVASIVE SPECIES GRANT PROGRAM

**Application Materials**

# *Little Saint Germain Aquatic Invasive Species Control & Prevention Project*

*Prepared for the*

## Little Saint Germain Lake Protection & Rehabilitation District

**August 1, 2009**

Onterra LLC
Lake Management Planning

135 South Broadway Suite C, De Pere, WI 54115 Voice: 920.338.8860 Fax: 920.338.8865 www.onterra-eco.com

## INTRODUCTION AND PROBLEM IDENTIFICATION

Little Saint Germain Lake, Vilas County (Map 1), comprises five main basins (Lower East Bay, East Bay, No Fish Bay, West Bay and South Bay) with a surface area of 980 acres. Muskellunge Creek flows from Muskellunge Lake into Little Saint Germain Lake in East Bay. The water level of Little Saint Germain Lake is held approximately 5 feet higher than its natural level by a dam that is maintained by the Wisconsin Valley Improvement Company (WVIC). The WVIC uses the lake as a storage impoundment, where each winter it releases about 1.5 feet of water height for use in hydroelectric power generation downstream. Little Saint Germain Lake empties into the Wisconsin River System at the Rainbow Flowage.

Like many lakes in northern Wisconsin, invasive species establishment threatens the health and beauty of the ecosystem. Little Saint Germain Lake is known to harbor Eurasian water milfoil, curly-leaf pondweed, and on its shores, purple loosestrife. In 2004, the Town of Saint Germain initiated the creation of an Aquatic Plant Management Plan for 8 of the town's lakes which included Little Saint Germain Lake. At the same time, the Wisconsin Department of Natural Resources (WDNR) was drafting a document which later received the title, Aquatic Plant Management in Wisconsin. This guidance document was intended to assure that our public waterways were being managed in a holistic manner intended to maintain our lakes as healthy ecosystems for current and future generations to enjoy – not just the select few who own property on them.

In early 2005, the Little Saint Germain Lake Protection and Rehabilitation District (LSGLPRD) successfully applied for a WDNR AIS grant to aid in the control of Eurasian water milfoil and curly-leaf pondweed within the lake. After the grant was awarded, Onterra was contracted to locate and map the AIS and setup the treatments. During the course of this multi-year project, the scope of the project morphed into monitoring the treatments to determine effectiveness.

During the 2004 point-intercept survey, conducted as a part of the management planning process, did not locate EWM in any of the sample locations. This survey was repeated in 2008, finding EWM in approximately 2% of the vegetated plots. The EWM infestation was first discovered in West Bay, and in recent years has spread to all lake basins. Similarly, CLP was first detected in No Fish Bay and parts of East Bay. It has since spread to South Bay. It is clear from the annual treatment reports that the treatments on Little Saint Germain Lake, especially the CLP treatments, are effective. However, much of the lake appears to be suitable habitat for these two AIS and is rapidly spreading throughout the system.

The original five year control project on Little Saint Germain Lake ended in 2008. Based on the results of the AIS project, the WDNR requested that the LSGLPRD complete an aquatic plant management (APM) plan using the latest version of the guidance document before lake management actions involving chemical treatments or harvesting activities commence in 2009. A draft of the Little Saint Germain Lake Management Plan was submitted to the WDNR in December 2008.

During the planning process, numerous management actions were developed aimed at helping the district achieve the following three main management goals: 1) maintain recreational access to Little Saint Germain Lake for shoreland property owners and other lake users, 2)

maintain or enhance current water quality conditions, and 3) control aquatic invasive species within Little Saint Germain Lake.

Management Goal 3 within the Little Saint Germain Lake Comprehensive Management Plan calls for the control of aquatic invasive species within Little Saint Germain Lake. This proposed project implements all four Management Actions included in this goal. Specifically, the project would: *1) continue Clean Boats Clean Waters watercraft inspections at the public boat landing, 2) coordinate annual volunteer monitoring of AIS, 3) control Eurasian water milfoil and curly-leaf pondweed infestations using herbicide applications,* and *4) monitor native and non-native aquatic plants on a lake-wide basis.*

In 2009, the LSGLPRD received partial funding ($50,000 award) for the proposed 4-year project. This award covered a portion of the first year's treatment and monitoring program. The current grant application continues these efforts for the remaining 3 years of the originally proposed project.

Little Saint Germain Lake is a highly sought after location amongst recreationists and anglers. In addition to the main public boat landing which contains a public pier, Little Saint Germain contains a canoe access site on Muskellunge Creek at Birchwood Drive. As defined by NR 1.91(4d), Little Saint Germain Lake exceeds minimum public boating access by having more than one access site with a total of more than 28 car-trailer parking spaces (1 per 35 open water acres). The system also contains 18 resorts, of which 6 contain their own private boat landing. In October 2009, the 21$^{st}$ Annual Greater Wisconsin Muskie Tournament will take place on ten Saint Germain Area Lakes which includes Little Saint Germain.

These intense public use opportunities most likely contributed to Little Saint Germain Lake becoming infested with AIS. Although many lakes in the region contain EWM, Little Saint Germain Lake is one of only eight lakes in Vilas County containing CLP with the next closest lake containing CLP being over 8 miles away (Mid Lake, Oneida County). The proposed project would be beneficial to the downstream Rainbow Flowage, which does not contain CLP. The proposed project would further educate stakeholders about AIS; and along with the Clean Boats Clean Waters program, help reduce new infestations to the lake and reduced the risk of AIS from Little Saint Germain Lake infecting other area lakes.

The LSGPRD conducts numerous management actions on the system. They have worked intensively with the United States Geologic Society (USGS) and Barr Engineering to discover the sources of external nutrient inputs, which were found to be minimal. Internal nutrient sources appear to be driving the productivity in the system, and a partial lake alum treatment is proposed for Little Saint Germain Lake in 2010.

Dissolved oxygen levels were also shown to be quite low, particularly during the months of ice cover on Little Saint Germain. Multiple aeration systems have been purchased by the district in efforts of increasing winter dissolved oxygen levels.

Narrow and shallow constrictions between lake basins have been designated as slow-no-wake zones, marked with buoys, to increase public safety and decrease negative effects on near-shore areas. Additional slow-no-wake zones have also been designated in areas of high native

biodiversity to minimize the effects that high speed boating can have on the ecology of these areas. Mike Meyers, WDNR, is currently in the process of designating areas for shoreline enhancement and once WDNR Protection Grant Funds have been secured, shoreline enhancement activities will be implemented in these areas.

As a part of the current project, the LSGPRD plans to update their signage at the main public boat landing to reflect an updated AIS message, including innovative signage aimed at users leaving the water. One sign would be placed half-way up the steep boat landing ramp reminding boaters to remove all aquatic plants from their boats and trailers. Another sign would be placed designating an area where stakeholders can pull over and conduct these activities. Placing signage of this nature at boat landings that contain AIS will serve to help protect other uninfected lakes in the area and within the state.

## PROJECT GOALS & SUCCESS CRITERIA

The chief goal of this management project is to minimize the negative impact that AIS can have on the ecology of Little Saint Germain 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 Little Saint Germain Lake's native community is of special concern because of the high floristic quality (FQI=49.6) and the occurrence of Vasey's pondweed, a species of special concern in Wisconsin. Although this species is secure globally, it is "imperiled" in Wisconsin because of rarity.

The impacts to native submersed species described above, are believed to occur when the non-native species reaches an aerial coverage of approximately 50% (dominance). Therefore, by minimizing the occurrence of these dense stands, the exotic's impact on the lake's ecology will also be minimized. Even with the success of this project, it must be understood that in some portions of the lake, areas that were once considered to contain scattered EWM or CLP will become denser and reach the critical occurrence level of roughly 50% aerial coverage warranting chemical treatment.

Three levels of criteria would be used to determine the success of this project on controlling EWM & CLP; 1) determining the success of annual treatments on a site-by-site basis, 2) determining success of annual treatments on a lake-wide scale, and 3) determining the success of the 4-year project as a whole. In general, two methods are used to measure the success, qualitative evaluations and quantitative sampling. The qualitative methodology is linked with the AIS mapping efforts and includes designating the density of each area within a specific category based primarily on aerial coverage. This methodology is most applicable for EWM, but a similar methodology would be implemented for qualitatively evaluating CLP treatments. The designations used in this project would include:

> ***Scattered*** If the target plant occurs in an area that can be enclosed by some geographic boundary, such as a shoreline and a depth contour or in a small bay and that exotic's aerial coverage does not meet the density descriptions described below, then that area would be labeled as "scattered". Another way of looking at this description would be to consider a small bay that contained many occurrences of the exotic that could be represented with point-based

mapping, but because there is some geographical boundary, the multiple occurrences can be enclosed using that boundary and GPS data.

***Dominant*** This rating is used when the colony boundaries are distinct and the exotic appears to be at roughly 50 percent aerial coverage (meaning it is likely the dominant plant in the area).

***Highly Dominant*** These colonies have exotic aerial coverage clearly exceeding 50 percent. The exotic is obviously the dominant species in these colonies, but there is no surface matting.

***Surface Matting*** This rating would be reserved only for the densest colonies. In these colonies, exotic aerial coverage approaches 100 percent and the plants are canopied and matted on the surface. Boating in these areas may be difficult due to the mass of exotic plants at the surface.

The areas that approach or exceed a dominant rating are the areas believed to have a significant, negative impact on the ecology of the lake as described above, and as a result, these areas are targeted for treatment.

The quantitative surveys of treatment areas utilize a modified point-intercept methodology as explained in the Treatment Monitoring Section below. These data are analyzed in the following manner:

1. 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 results, expressed as frequency of occurrence, we can determine if there is more, less, or the same amount of EWM before and after the treatment. As mentioned above, the obvious desired result is to have less EWM after treatment. If there is a difference between the pre- and post treatment data, statistical analysis would be 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.

   A Chi-square distribution analysis (alpha = 0.05) would be 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 6 or less 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 lake-wide analysis.

2. Rake fullness distribution would be charted as histograms with rake fullness on the x-axis and number of plots (frequency) on the y-axis. The charts would resemble length-frequency histograms for fish data. Both pre- and post treatment data would be plotted on the same chart. Comparisons would be made on individual sites, on a treatment-wide basis, and on a project-wide basis. Visual interpretation of the charts would need to be used to determine success and cannot be quantified here.

Both the qualitative and the quantitative methodologies would be used to judge treatment and project success. Within the project, the analysis results would be used to tune the next year's treatment plan. In terms of the 4-year project, the success analysis would be used to develop the long-term control strategy for Little Saint Germain Lake.

## Treatment Evaluation Criteria

Qualitatively, a successful treatment on a particular site would include a reduction of AIS density as demonstrated by a decrease in density rating. For example, areas shown to be highly dominant would be required to decrease to at least 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 and as a whole would include a significant reduction in AIS frequency following the treatments as exhibited by at least a 50% decrease in AIS frequency from the sub-sampling. In other words, if the AIS 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. Further, there would be a noticeable decrease in rake fullness ratings within the categories of 2 and 3 (see Point 2, above). Preferably, there would be no rake tows completed during the post treatment surveys exhibiting a fullness of 2 or 3.

## Project Evaluation Criteria

Qualitatively, a successful project would result in all currently known areas of AIS in Little Saint Germain Lake being below a dominant density. Specifically, all areas indicated for treatment during the spring of 2009 would be considered to have a scattered or lighter occurrence of AIS following project completion. Further, the total acreage of EWM proposed for treatment during the spring of 2013, would not exceed 15 acres and the total acreage of CLP would not exceed 20 acres.

Based on a survey conducted by Onterra in 2007, EWM frequency within Little Saint Germain Lake was shown to be 1.8% of point-intercept locations shallower than the maximum depth of plants. Success of the project would be indicated by EWM frequency being observed at less than 1.8% of the littoral point-intercept locations within a whole-lake survey. It is not applicable to evaluate CLP occurrence using the whole-lake point-intercept survey, as this plant has largely died-off by the date in which this survey should occur.

# PROJECT SCOPE

## Field Surveys

The AIS treatments associated with this project would be monitored through the combined efforts of professionals and volunteers. A group of volunteers would work to monitor the lake for existing and new aquatic invasive species, while professional staff from Onterra would complete surveys to determine prospective treatment areas and complete quantitative sampling. Concerning EWM and the associated treatments included within this project, volunteers would scout Little Saint Germain Lake in late July or early August to supplement and enhance surveys completed by Onterra staff during August. Surveys aimed at mapping curly-leaf pondweed would be conducted by volunteers in late May to early June. The results of the surveys would be used to create the prospective treatment areas for the following year. This scheme involves volunteers within the monitoring program, and essentially trains and calibrates them to detect AIS and create realistic treatment areas.

### Annual Volunteer Monitoring for Aquatic Invasives

In lakes without AIS, early detection of pioneer colonies commonly leads to successful control and in cases of very small infestations, possibly even eradication. Even in lakes where these plants occur, monitoring for new colonies is essential to successful control. For this project in particular, AIS occurrences mapped by the volunteers would be used as supplemental information for the professional monitoring efforts.

Volunteers from the LSGLPRD would monitor AIS and other aquatic invasive species within Little Saint Germain Lake using the training they had in 2008 by Onterra staff. This training included identification of target species and native look-a-likes, proper use of GPS for recording aquatic plant occurrences, note taking, and transfer of data utilizing the grant-funded GPS unit. Volunteers were also trained on proper hand removal techniques for varying conditions of water depth and clarity.

Suspicious plants would be marked by knowledgeable lake users (riparians and fishing guides) using the grant-funded marker buoys. These locations would later be visited by trained volunteers and assessed whether hand removal is applicable. If applicable, the location would be marked and the plant would be removed. If the location is not suitable for hand removal, the location would be properly marked by the volunteer and notes would be collected reflecting the description of the location (single plant, clump, or colony) and the height of the plant within the water column. During the subsequent AIS peak biomass mapping survey, Onterra ecologists would visit all marked locations including the sites where plants were removed.

Volunteers would continue their efforts to reduce the occurrence of CLP from Muskellunge Creek. Since it was located in 2006; volunteers have been surveying Muskellunge Creek for this plant. When found, the plant was removed with a rake, as this is the best control method with the soft sediments and the flowing water. During the proposed project, these locations would be marked with a GPS before removal and later visited by Onterra ecologists to verify the control method was successful.

## Treatment Monitoring

Monitoring associated with chemical treatments would occur during the peak growing season and early spring following protocol currently being developed by the WDNR and in general would use guidance supplied in Aquatic Plant Management In Wisconsin (2007) and Pre and Post AIS Chemical Herbicide Treatment Monitoring (Draft) (April 2008). In general, treatment areas would be quantitatively (modified P-I) and qualitatively monitored before and after treatments. Before a treatment is completed on a particular area, the area would be monitored during the growing season the summer before treatment and during the spring of the treatment. That same area would also be monitored during the same timeframe following the treatment throughout the course of this project. Therefore, within this four-year project, EWM treatment areas determined during the summer of 2008 that would be scheduled for treatment during the spring of 2009 would be monitored during the summer of 2008 and the spring of 2009 before the treatment occurs and then after the treatments during the spring of 2010 and the summers of 2009, 2010, and 2011 (see table below). Treatment areas created during the summer surveys of 2010, 2011, 2012 would follow the same regime. The summer surveys would include native and exotic determinations while the spring surveys would only include exotics. Following this protocol would allow for the assessment of treatment effectiveness and the impacts the treatments are having (positive or negative) on important native species and habitat.

| Calendar Year | Treatment 2009 | Treatment 2010 | Treatment 2011 | Treatment 2012 |
|---|---|---|---|---|
| 2008 | Peak Biomass Survey<br>~~Pre-treatment Summer Survey~~ | | | |
| 2009 | Pre-treatment Spring Survey<br>**Treatment Occurs**<br>Post Treatment Summer Survey | Peak Biomass Survey<br>Pre-treatment Summer Survey | | |
| 2010 | Post Treatment Spring Survey<br>Post Treatment Summer Survey | Pre-treatment Spring Survey<br>**Treatment Occurs**<br>Post Treatment Summer Survey | Peak Biomass Survey<br>Pre-treatment Summer Survey | |
| 2011 | Post Treatment Summer Survey | Post Treatment Spring Survey<br>Post Treatment Summer Survey | Pre-treatment Spring Survey<br>**Treatment Occurs**<br>Post Treatment Summer Survey | Peak Biomass Survey<br>Pre-treatment Summer Survey |
| 2012 | | Post Treatment Summer Survey | Post Treatment Spring Survey<br>Post Treatment Summer Survey | Pre-treatment Spring Survey<br>**Treatment Occurs**<br>Post Treatment Summer Survey |

***Please Note:*** *Events shaded in grey which occurred in 2008 and 2009 were financially covered under the $50,000 award received by the LSGLPRD in 2009.*

The spring AIS surveys would be completed approximately one to two weeks before scheduled treatments and would be focused upon the treatment areas determined the previous summer. These treatment areas would first be visually inspected from the surface and may also be surveyed using rake tows and submersible video. These observations would be used to refine the treatment areas based upon existing EWM. The colony extents would then be marked using submeter GPS. If conditions permit, recorded submersed video may be used to further document the level of infestation. The WDNR, LSGLPRD, and applicator would be notified of treatment area modifications.

EWM post treatment monitoring would be conducted during July or August and would utilize the same methodology as described above. The quantitative monitoring would be completed using the same plot locations as the pretreatment survey.

Monitoring the effectiveness of the herbicide treatments on curly-leaf pondweed differs slightly than the model discussed above for Eurasian water milfoil. A spring pretreatment survey (year of treatment) will need to be compared to a spring post treatment survey, the year following treatment. Because curly-leaf pondweed normally dies back in early summer, it is impossible to determine if the treatment was successful based upon a post treatment survey completed during early summer. This is because it would remain unknown whether the observations were a result of the treatment or simply related to the normal life cycle of the plant. The treatment would also be evaluated during the following spring (2 years after treatment) to determine the long-term efficacy of the control measure.

## Comprehensive Plant Survey

### Point-intercept Survey

The point-intercept method as described in "Appendix C" of the WDNR document, Aquatic Plant Management in Wisconsin, (April, 2007) would be used to characterize the plant community of Little Saint Germain Lake. As elaborated on above, these surveys would document the occurrence of EWM within the lake at the end of the project to aid in determining efficacy of the four year project. This survey would also document changes in the native plant populations, which may be impacted by the control plan or undergo changes by environmental conditions and/or natural cycles.

### Community Mapping Survey

As stated above, a community mapping survey would be conducted in the final year of the project (2012). 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 submergent, floating-leaf, or emergent plants, or a combination of these life-forms. Examples of submergent plants include wild celery and pondweeds; while 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 surveys would be useful components in updating Little Saint Germain Lake's current management plan. After this four year control plan, this plan will need to be updated to account for the knowledge learned during the control project. The 2012 point-intercept survey and community mapping survey would be compared to similar studies conducted in 2004, and 2008, allowing for an understanding of the temporal dynamics of the Little Saint Germain aquatic plant community.

While these plant surveys would be funded by the proposed AIS Control project, other components needed to update the LSGLPRD's management plan would likely require funding through the WDNR Lake Planning Grant program or the AIS Education, Prevention, and Planning.

## Stakeholder Participation

### Clean Boats Clean Waters Program Training

For the past four years, the Town of Saint Germain has completed grant-funded watercraft inspections on town lakes as a part of their AIS education and prevention program. The town is currently applying for additional funds through the AIS Grant Program to continue this work on the other seven main lakes located within the township

The intent of the boat inspections would not only be to prevent additional invasives from entering the lake through its public access point, but also to prevent the infestation of other waterways with invasives that originated in Little Saint Germain Lake. The goal would be to cover the landing 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.

Due to the large number of activities that volunteers are called upon during the proposed project (AIS monitoring, stakeholder education, ect.), paid watercraft inspectors will be used to monitor the Little Saint German Lake's single improved public boat landing.

### Sharing of Project Results and News with Stakeholders

The LSGLPRD would share project information with its membership and other interested parties through periodic newsletters, its website, and reports at its annual meetings. Examples of information that would be shared would be proposed treatment areas, treatment reports, and general information regarding the identification and marking of EWM and CLP with the grant-funded buoys.

## Chemical Applications

It would be the responsibility of the LSGLPRD 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. The treatments would occur each year before June 1 and/or water temperatures reach 60°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. If applicable, the applicators treatment paths would be included in the annual and final reports.

Dosage rates discussed in this application are only recommendations created primarily for budgeting needs. Actual application rates should be determined by the applicator and based upon previous successful experience. Generically, plants growing in deeper water would require higher dosage rates to overcome the effects of dilution, but should not exceed approved label rates. Map 2 displays the final 2009 EWM treatment areas which are based on the results of the 2008 peak biomass EWM mapping survey (August) and the 2009 pretreatment survey (May). Map 3 displays the final 2009 CLP treatment areas which are based on previously treatment areas as well as the results of the 2009 pretreatment survey. Along with this grant application, a conditional permit would be submitted to the WDNR indicating the 2010 EWM and CLP proposed treatment areas.

However, a revised conditional permit would be sent to the WDNR based on the results of the 2009 peak biomass survey, which will not be completed before the grant application deadline. This project budgets for treatment acreage (Table 1) less than what is displayed on the conditional permit applications.

**Table 1. Proposed treatment acreages on Little Saint Germain Lake during the remaining 3 years of the project**

| Project Year | Treatment Year | Estimated Treatment Acreage | |
|---|---|---|---|
| | | Eurasian water milfoil | Curly-leaf pondweed |
| 2010 | 2 | 40 | 40 |
| 2011 | 3 | 30 | 20 |
| 2012 | 4 | 20 | 20 |

## PROJECT DELIVERABLES

During the fall/winter following each treatment, an annual report would be completed discussing the results of the surveys and outlining the proceeding year's treatment plan. The format and content of the annual report would be similar to that found in the Little Saint Germain Lake 2008 Treatment Report. This report would be distilled and distributed to stakeholders via the district's website and newsletter publications.

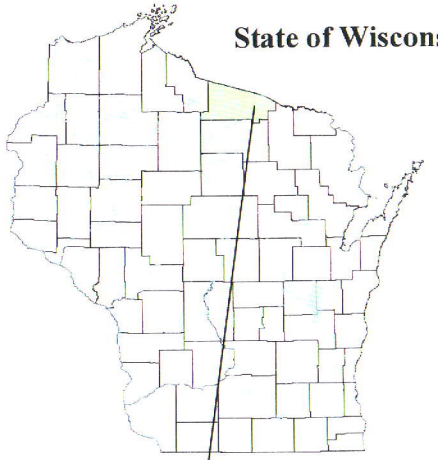
During the winter of 2012/2013, a final report would be completed that would discuss the results and conclusions of the entire project. This report would also contain a section describing the future of EWM management on Little Saint Germain Lake starting in 2013.

Two hardcopies of the final report would be provided to the LSGLPRD and two would be provided to the WDNR. Two CD-ROMs containing the final report and data in PDF would also be supplied to each of these groups.

## PROJECT SCHEDULE (INCLUDES TASKS INCLUDED UNDER 2009 AWARD)

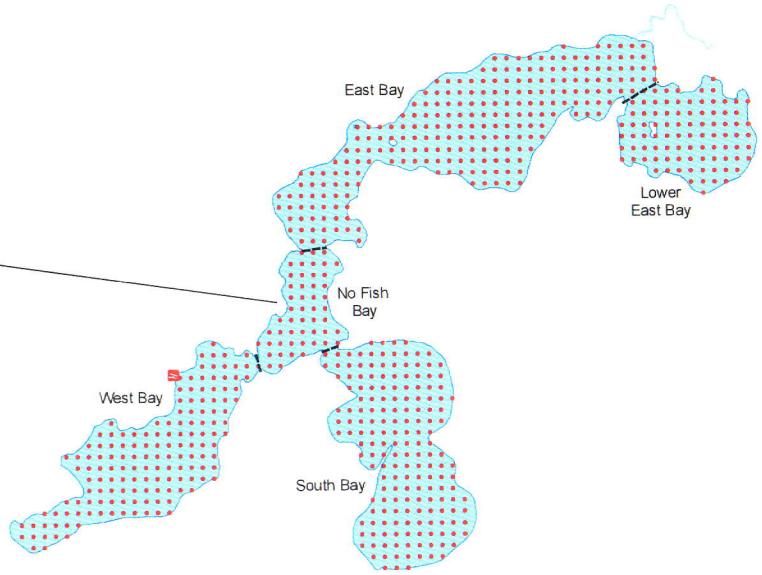
| Task | Timing |
|---|---|
| Spring Pretreatment AIS Surveys | May 2009-2012 |
| Spring Post Treatment AIS Surveys | May 2009-2012 |
| Herbicide Applications | May 2009-2013 (Following Spring Surveys) |
| Early Summer Volunteer CLP Surveys/Hand Removal | May/June 2009-2012 |
| Summer Volunteer EWM Surveys/Hand Removal | July/August 2009-2012 |
| Summer Post Treatment EWM Surveys | August 2009-2012 |
| EWM Peak Biomass Survey | August 2009-2012 |
| Applications for Conditional Permit Completed | February 2009-2013 |
| Annual Summary Report | February 2010-2012 |
| Final Report | February 2013 |
| Aquatic Plant Survey* | July/August 2012 |

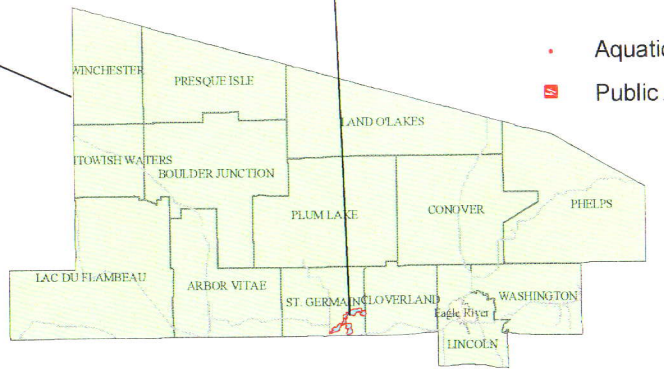
* Point-intercept plant survey and emergent/floating-leaf community mapping survey




Vilas County

Little Saint Germain Lake




Aquatic Plant Sample Location

Public Access

# Map 1

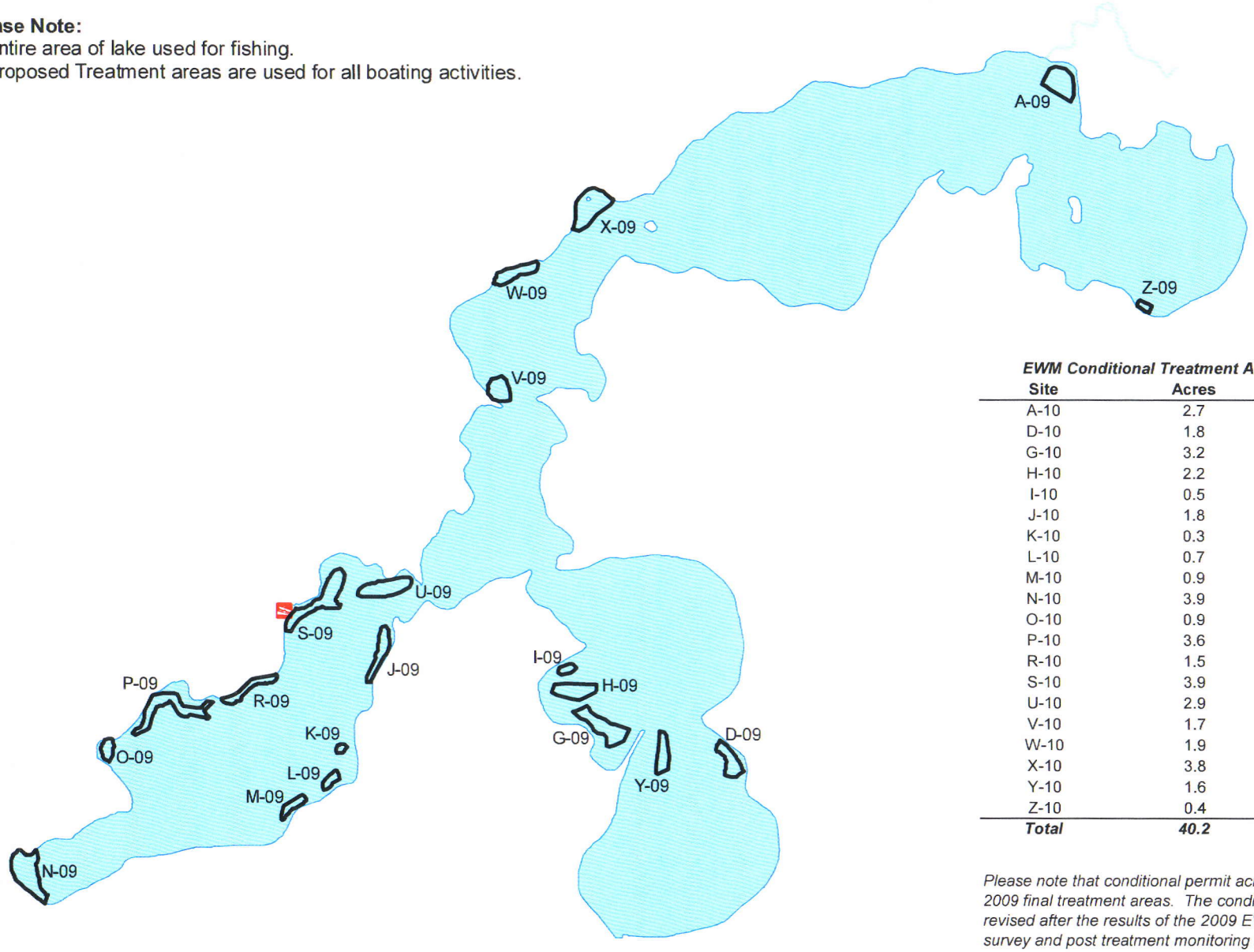
## Little Saint Germain Lake

Vilas County, Wisconsin

## Project Location & Aquatic Plant Sample Locations

Onterra LLC
Lake Management Planning
135 South Broadway Suite C
De Pere, WI 54115
920.338.8860
www.onterra-eco.com

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




***EWM Conditional Treatment Areas - 150 lbs/acre***

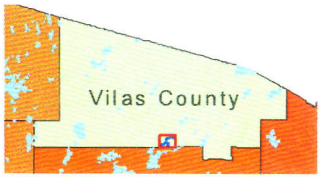
| Site | Acres | Ave Depth |
|---|---|---|
| A-10 | 2.7 | 4 feet |
| D-10 | 1.8 | 5 feet |
| G-10 | 3.2 | 6 feet |
| H-10 | 2.2 | 5 feet |
| I-10 | 0.5 | 5 feet |
| J-10 | 1.8 | 5 feet |
| K-10 | 0.3 | 5 feet |
| L-10 | 0.7 | 6 feet |
| M-10 | 0.9 | 5 feet |
| N-10 | 3.9 | 4 feet |
| O-10 | 0.9 | 8 feet |
| P-10 | 3.6 | 8 feet |
| R-10 | 1.5 | 7 feet |
| S-10 | 3.9 | 9 feet |
| U-10 | 2.9 | 9 feet |
| V-10 | 1.7 | 5 feet |
| W-10 | 1.9 | 3 feet |
| X-10 | 3.8 | 6 feet |
| Y-10 | 1.6 | 7 feet |
| Z-10 | 0.4 | 8 feet |
| ***Total*** | ***40.2*** | |

*Please note that conditional permit acres are the same as the 2009 final treatment areas. The conditional permit map will be revised after the results of the 2009 EWM peak-biomass survey and post treatment monitoring has occurred.*

N
W E
S
1,900
Feet

Onterra LLC
Lake Management Planning
135 South Broadway Suite C
De Pere, WI 54115
920.338.8860
www.onterra-eco.com

Sources:
Roads & Hydro: WDNR
Aquatic Plants Surveys: Onterra 2008-09
Map date: July 28, 2009



Extent of large map shown in red.

**Legend**

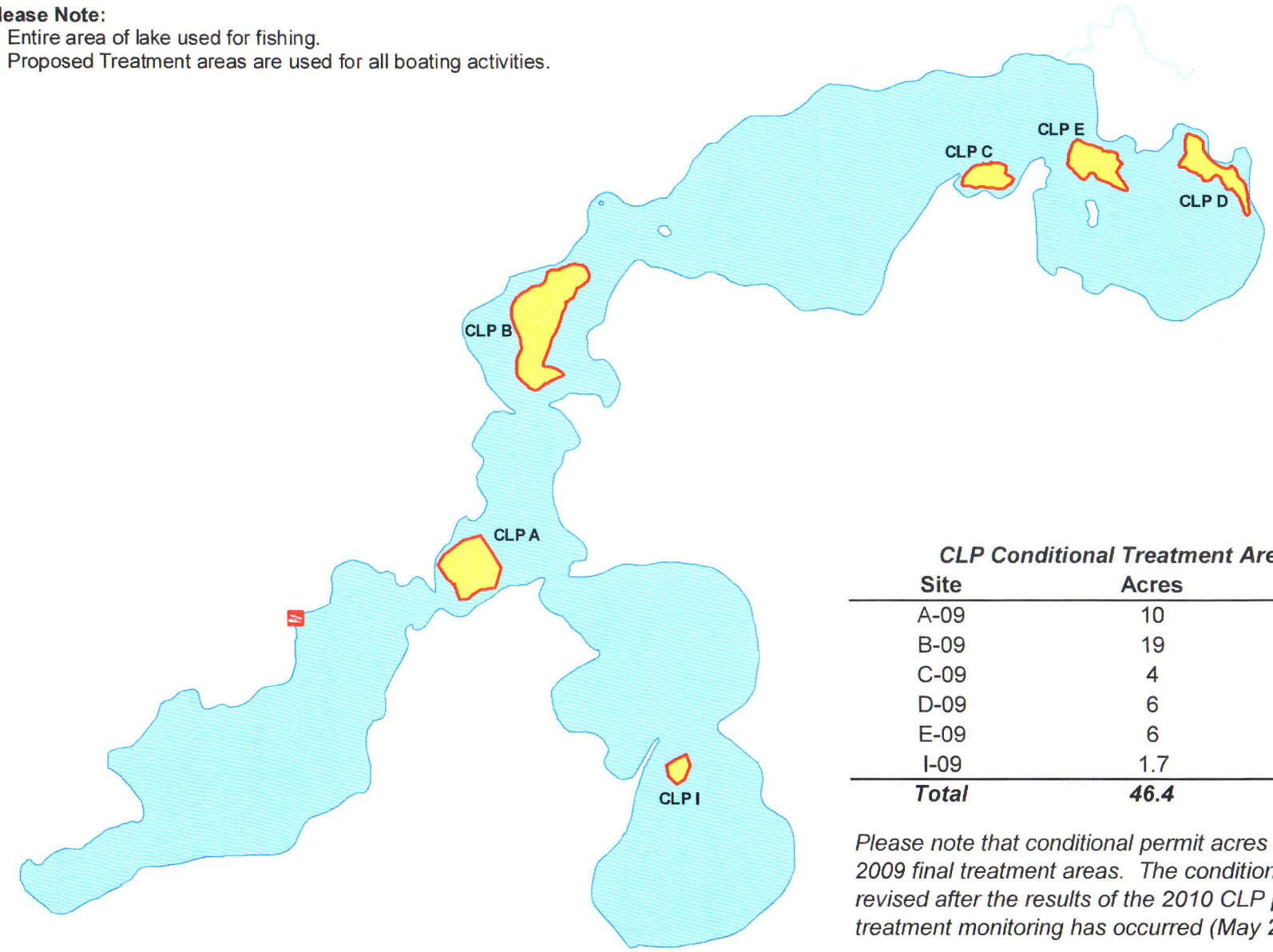
2010 Conditional EWM Treatment Areas

Public Boat Landing

Map 2
**Little Saint Germain Lake**
Vilas County, Wisconsin

**2010 Conditional EWM Treatment Areas**

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




*CLP Conditional Treatment Areas - 1.5 ppm*

| Site | Acres | Ave Depth |
|---|---|---|
| A-09 | 10 | 5 feet |
| B-09 | 19 | 6 feet |
| C-09 | 4 | 7 feet |
| D-09 | 6 | 6 feet |
| E-09 | 6 | 7 feet |
| I-09 | 1.7 | 5 feet |
| ***Total*** | ***46.4*** | |

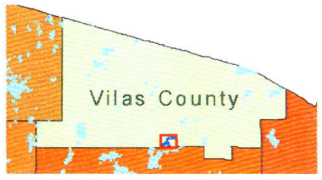
*Please note that conditional permit acres are the same as the 2009 final treatment areas. The conditional permit map will be revised after the results of the 2010 CLP pre- and post treatment monitoring has occurred (May 2010).*

N W E S

1,900
Feet

Onterra LLC
Lake Management Planning
135 South Broadway Suite C
De Pere, WI 54115
920.338.8860
www.onterra-eco.com

Sources:
Roads & Hydro: WDNR
Aquatic Plant Surveys: Onterra 2008-09
Map date: July 28, 2009



Extent of large map shown in red.

**Legend**

- 2010 Conditional CLP Treatment Areas
- Public Boat Landing

Map 3
**Little Saint Germain Lake**
Vilas County, Wisconsin
**2010 Conditional CLP Treatment Areas**

**LITTLE ST. GERMAIN LAKE PROTECTION AND REHABILITATION DISTRICT**
**SAINT GERMAIN, WI**

Elected Commissioners
Ted Ritter, Chairman
Erv Stiemke, Treasurer
Lou Mirek, Secretary

Appointed Commissioners
Todd Wiese, Town of Saint Germain
Mary Platner, County of Vilas

http://littlesaint.org

# RESOLUTION

WHEREAS Little St. Germain Lake is an important resource used by the public for recreation and enjoyment of natural beauty; and

WHEREAS a study and examination of the lake will lead to better understanding and will promote the public health, comfort, convenience, necessity and public welfare; and

WHEREAS we recognize the need for responsible and holistic long-range planning to better manage the lake, its watershed, and its use; and

WHEREAS we are qualified to carry out the responsibilities of aquatic invasive species projects,

IT IS, THEREFORE, RESOLVED THAT: The Little St. Germain Lake Protection & Rehabilitation District Board of Commissioners requests the funds and assistance available from the Wisconsin Department of Natural Resources under the "Aquatic Invasive Species Control Grant Program": and

HEREBY AUTHORIZES Lou Mirek to act on behalf of the Little St. Germain Lake Protection & Rehabilitation District Board of Commissioners to: submit an application to the State of Wisconsin for financial aid for aquatic invasive species grant purposes; sign documents; and take necessary action to undertake, direct, and complete an approved grant.

BE IT FURTHER RESOLVED THAT the Little St. Germain Lake Protection & Rehabilitation District Board of Commissioners 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 planning project costs.

We understand the importance of a continuing management program for Little St. Germain Lake and intend to proceed on that course.

Adopted this 16th day of July, 2009

By a vote of: __5__ in favor __0__ against __0__ abstain

By: Lou Mirek, Secretary, Board of Commissioners
Lou Mirek

# VILAS COUNTY
# LAND AND WATER
# CONSERVATION DEPARTMENT

330 COURT STREET
EAGLE RIVER, WI 54521
715/479-3682

Mr. Kevin Gauthier
Water Resources Management Specialist
Wisconsin Dept. of Natural Resources
107 Sutliff Avenue
Rhinelander WI 54501-3349

July 20, 2009

Dear Mr. Gauthier:

This letter is in regard to the AIS – Established Population Control grant application being submitted by the Little St. Germain Lake District in the August, 2009 grant cycle.

The project scope represents an ongoing commitment by the sponsor to work closely with the State in its efforts to control two non-native invasive plants. The district's willingness to resume 50% local cost sharing, as it did during the first five years of the project, is particularly noteworthy.

This project meshes well with the long-term Vilas County AIS Partnership strategic plan as well as with the Vilas County Land and Water Resource Management Plan for 2003-2008 (now being updated for 2009 – 2013). In particular, this project tiers to the goals to:

> "*Protect and enhance Vilas County's lakes, river, and other natural resources*"
>
> "*Prevent the further spread of exotic species and aid local groups in control efforts for known infestations*".

On behalf of the Vilas County Land & Water Conservation Department and the greater Vilas County Invasive Species Partnership, I strongly encourage State support of the Little St. Germain Lake District grant application.

Sincerely,

Carolyn Scholl

Carolyn Scholl
Vilas County Conservationist

# TOWN OF ST. GERMAIN

P.O. Box 7
St. Germain, Wisconsin 54558
www.townofstgermain.org



July 25, 2009

Mr. Kevin Gauthier
Water Resource Management Specialist
Wisconsin Department of Natural Resources
107 Sutliff Avenue
Rhinelander, Wisconsin 54501

Dear Kevin,

The Little Saint Germain Lake Protection and Rehabilitation District will be applying for a Department of Natural Resources grant to continue its efforts in the fight against A.I.S. As you are aware, this District has been very aggressive in its effort and ongoing Treatment of Little Saint Germain Lake. I'm confident the water quality of one of our Town's premier lakes would not be where it is today if it hadn't been for the Districts efforts.

The District has a renewed three year commitment to its already long term A.I.S. control effort and is willing to continue this effort by taking on an even bigger burden in its willingness to sponsor this project at a 50% local cost share. It is for this reason, the Town is willing to create a "partnership" with the District in helping to improve the lake.

As the Town Board Lakes Committee appointed representative, and District Commissioner for the Lakes Districts, I would request on be half of the Town Board that you seriously consider the grant application so that our citizens and visitors continue to enjoy one of our finest natural resources.

Thank you in advance for your consideration.

Sincerely,

cc: LTSG Lake Protection and Rehabilitation District
Town Board
Town Lakes Committee

# PROJECT COST BREAKDOWN

**Little Saint Germain Lakes AIS Control and Prevention Project Total Project Costs and Timetable - Remaining 3 Years of Project**

| | Cash Costs | Donated Value |
|---|---|---|
| **Monitoring and Stakeholder Participation** | | |
| General Project Setup & Administration (4 years) | $2,169.00 | |
| Treatment Area Setup & Transmittal (4 years) | $150.00 | |
| EWM T2009 Post Treatment Survey - Spring 2010 | $555.00 | |
| EWM T2009 Post Treatment Survey - Summer 2010 | $555.00 | |
| EWM T2009 Post Treatment Survey - Summer 2011 | $580.00 | |
| CLP T2009 Post Treatment Survey - Spring 2010 | $830.00 | |
| CLP T2009 Post Treatment Survey - Spring 2011 | $435.00 | |
| EWM T2010 Pretreatment Survey & Treatment Area Refinement - Spring 2010 | $1,580.00 | |
| EWM T2010 Post Treatment Survey - Summer 2010 | $830.00 | |
| EWM T2010 Post Treatment Survey - Spring 2011 | $580.00 | |
| EWM T2010 Post Treatment Survey - Summer 2011 | $580.00 | |
| EWM T2010 Post Treatment Survey - Summer 2012 | $610.00 | |
| CLP T2010 Pretreatment Survey & Treatment Area Refinement - Spring 2010 | $1,445.00 | |
| CLP T2010 Post Treatment Survey - Spring 2011 | $290.00 | |
| CLP T2010 Post Treatment Survey - Spring 2012 | $155.00 | |
| T2010 Annual Report | $1,200.00 | |
| T2010 Distilled Annual Report | $200.00 | |
| EWM T2011 Peak-biomass Survey - Summer 2010 | $1,560.00 | |
| EWM T2011 Pretreatment Survey - Summer 2010 | $415.00 | |
| EWM T2011 Pretreatment Survey & Treatment Area Refinement - Spring 2011 | $1,515.00 | |
| EWM T2011 Post Treatment Survey - Summer 2011 | $730.00 | |
| EWM T2011 Post Treatment Survey - Spring 2012 | $460.00 | |
| EWM T2011 Post Treatment Survey - Summer 2012 | $460.00 | |
| CLP T2011 Pretreatment Survey & Treatment Area Refinement - Spring 2011 | $1,515.00 | |
| CLP T2011 Post Treatment Survey - Spring 2012 | $305.00 | |
| T2011 Annual Report | $1,260.00 | |
| T2011 Distilled Annual Report | $210.00 | |
| EWM T2012 Peak-biomass Survey - Summer 2011 | $1,635.00 | |
| EWM T2012 Pretreatment Survey - Summer 2011 | $435.00 | |
| EWM T2012 Pretreatment Survey & Treatment Area Refinement - Spring 2012 | $1,590.00 | |
| EWM T2012 Post Treatment Survey - Summer 2012 | $765.00 | |
| CLP T2012 Pretreatment Survey & Treatment Area Refinement - Spring 2012 | $1,590.00 | |
| Final Report (Includes T2012 Annual Report) | $2,320.00 | |
| Distilled Final Report | $220.00 | |
| Point-intercept Survey - Summer 2012 | $3,590.00 | |
| Community Mapping Survey - Summer 2012 | $2,480.00 | |
| Peak Biomass EWM Survey - Summer 2012 | $1,425.00 | |
| GPS Basemap Creation and Upload (4 years) | $395.00 | |
| Voucher Materials | $100.00 | |
| Printing | $200.00 | |
| Travel (3 years) - Wages (½ Normal Billing Rates) | $4,876.00 | |
| Travel (3 years) - Mileage (0.58/mile), Lodging, Meals, and Incidentals - all reduced by 30% | $3,967.65 | |
| | | |
| ***Monitoring and Stakeholder Participation Subtotal*** | ***$46,762.65*** | |

**Table continued on following page**

**Table (continued)**

| | | |
|---|---|---|
| **Herbicide Application and Related Fees** | | |
| | | |
| T2010 20 Acre Treatment - 150 lbs/acre Navigate (May 2010) | $14,280.00 | |
| T2010 20 Acre Treatment - 200 lbs/acre Navigate (May 2010) | $18,480.00 | |
| T2010 40 Acre Treatment - 1.5 ppm Endothol (May 2010) | $31,500.00 | |
| T2010 Travel Expenses | $176.40 | |
| T2010 WDNR Permit Fees | $1,270.00 | |
| ***T2010 Subtotal*** | ***$65,706.40*** | |
| | | |
| T2011 20 Acre Treatment - 150 lbs/acre Navigate (May 2011) | $14,994.00 | |
| T2011 10 Acre Treatment - 200 lbs/acre Navigate (May 2011) | $9,702.00 | |
| T2011 20 Acre Treatment - 1.5 ppm Endothol (May 2011) | $16,537.50 | |
| T2011 Travel Expenses | $185.22 | |
| T2011 WDNR Permit Fees | $1,270.00 | |
| ***T2011Subtotal*** | ***$42,688.72*** | |
| | | |
| T2012 15 Acre Treatment - 150 lbs/acre Navigate (May 2012) | $11,807.78 | |
| T2012 5 Acre Treatment - 200 lbs/acre Navigate (May 2012) | $5,093.55 | |
| T2012 20 Acre Treatment - 1.5 ppm Endothol (May 2012) | $17,364.38 | |
| T2012 Travel Expenses | $194.48 | |
| T2012 WDNR Permit Fees | $1,020.00 | |
| ***T2012 Subtotal*** | ***$35,480.18*** | |
| | | |
| ***Herbicide Application and Related Fees Subtotal*** | ***$143,875.30*** | |
| **Miscellaneous Costs** | | |
| Paid CBCW Monitor (200 hours @ $12/hr including salary, insurance, & withholding) | $7,200.00 | |
| Reverse Signage at Public Boat Landing | $200.00 | |
| | | |
| **Volunteer Efforts** | | |
| **Annual Meeting** | | |
| Volunteers (40 participants @ 1 hour each x 3 years) | | $1,440.00 |
| **Summer EWM Surveys & Hand Removal** | | |
| Volunteers (20 volunteer hours x 3 years) | | $720.00 |
| Watercraft (1 boat for 1 day @ $70/day x 3 years) | | $210.00 |
| **Project Administration** | | |
| Volunteers (40 voulnteer hours x 3 years) | | $1,440.00 |
| **Reverse Signage Construction** | | |
| Volunteers (20 volunteer hours) | | $240.00 |
| | | |
| *Project Subtotals* | *$198,037.95* | *$4,050.00* |
| **Total Project** | **$202,087.95** | |
| **State Share Requested (50% Funding Level)** | **$101,043.98** | |

State of Wisconsin
Department of Natural Resources

# Aquatic Invasive Species (AIS) Control Grant Application

Form 8700-307 (R 1/08)



**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 Projects ☐ Early Detection & Rapid Response Projects ☒ Established Infestation Control Projects

| Legislative District Numbers | |
|---|---|
| Senate | Assembly |
| 12 | 34 |

To determine your legislative district, go to http//165.189.139.210/WAML//
Type in complete address, next screen shows information

## Section II: Applicant Information

Applicant: Little Saint Germain Lake Protection & Rehabilitation District

Waterbody Name: Little Saint Germain Lake
Size in Acres: 980

Project County/Township/Section/Range: Vilas/T40N//R08E/S35

Type of Eligible Applicant
☐ County ☐ Tribe ☐ Other Governmental Unit
☐ City ☐ Sanitary District ☐ Non Profit Conservation Organization
☐ Village ☒ District
☐ Town ☐ Lake Association ☐ School Districts (Planning)

| | | | | | |
|---|---|---|---|---|---|
| Authorized Representative Named by Resolution: Lou Mirek | | | Project Contact Name: Tim Hoyman | | |
| Authorized Representative Title: Secretary | | | Project Contact Title: Aquatic Ecologist, Onterra, LLC | | |
| Address: 1599 Shields Road | | | Address: 135 South Broadway, Suite C | | |
| City: St. Germain | State: WI | ZIP Code: 54558 | City: De Pere | State: WI | ZIP Code: 54115 |
| Daytime Phone (area code): (715) 477-2879 | Evening Phone (area code): (715) 477-2879 | | Daytime Phone (area code): 920.338.8860 | Evening Phone (area code): 920.336.8269 | |
| E-mail Address: ljmirek@verizon.net | | | 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 ☐ Yes ☐ No | Environmental Grants Specialist Approval / Date | |
| Eligible Project ☐ Yes ☐ No | Eligible Applicant ☐ Yes ☐ No | Project Priority Rank | |
| Prior Grant Award(s) ☐ Yes ☐ No | Fiscal Year(s) | Amount Received To Date $ | Project Awarded ☐ Yes ☐ No |

## Section III: Project Information

| Project Title | Proposed Ending Date |
|---|---|
| Little Saint Germain AIS Control Project | December 31, 2013 |

| Other Management Units | Letter of Support | Other Management Units | Letter of Support |
|---|---|---|---|
| 1. Town of Saint Germain | ☒ | 4. | ☐ |
| 2. Vilas County LWCD | ☒ | 5. | ☐ |
| 3. | ☐ | 6. | ☐ |

## Section IV: Public Access

| | |
|---|---|
| Number of Public Vehicle Trailer Parking Spaces Available at Public Access Sites: | 30 |
| Number of Public Access Sites on Lake Including Boat Launches and Walk-ins: | 2 |

## 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 | Project Costs: Column 2 Donated Value | DNR Use Only |
|---|---|---|---|
| 1. Salaries, wages and employee benefits (Paid CBCW Volunteers) | $7,200.00 | | |
| 2. Consulting services (includes shipping/voucher materials) | $46,762.65 | | |
| 3. Purchased services—Herbicide Applications | $140,315.30 | | |
| 4. Other purchased services (specify): WDNR Permit Fees | $3,560.00 | | |
| 5. Plant material | | | |
| 6. Supplies (specify) Reverse Signage Materials | $200.00 | | |
| 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 | | $4,050.00 | |
| 12. **Subtotals** (sum each column) | *$198,037.95* | *$4,050.00* | |
| 13. **Total Project Cost Estimate** (sum of **column 1 plus** sum of **column 2**) | **$202,087.95** | | |
| 14. **State Share Requested (50% Funding Level)** | **$101,043.98** | | |

Subject to the following maximum grant amounts:

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

## Section VI: Attachments (check all that are included)

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

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

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

- [ ] 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 NCOs 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 Rapid Response Projects:**

- [ ] 1. APM Permit

**E. Established Infestation Control Projects:**

- [x] 1. Management Plan
- [x] 2. APM Permit

## Section VII: Certification

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

| Print/Type Name of Authorized Representative | Title of Authorized Representative |
|---|---|
| Lou Mirek | Secretary |
| Signature of Authorized Representative: Lou Mirek | Date Signed: 07/30/2009 |