WISCONSIN DEPARTMENT OF NATURAL RESOURCES AQUATIC INVASIVE SPECIES GRANT PROGRAM

Application Materials

Silver Lake Management Planning Project

Prepared for the

Forest County Silver Lake Association, Inc.

February 1, 2014



INTRODUCTION

Silver Lake, Forest County (Map 1), is a 320-acre drainage lake with a maximum depth of 20 feet. The lake supports a single boat landing with minimal parking available; however a public beach, with facilities is also located on the lake.

Eurasian water milfoil (EWM) was located in Silver Lake in 2010. During 2010, meander surveys were conducted by Forest County Silver Lake Association (FCSLA) volunteers as well as by the AIS Coordinator for Forest County at that time, Chris Hamerla. The WDNR also conducted a whole-lake point-intercept survey in 2010. In July 2011, Onterra field crews visited the lake and mapped additional EWM beyond that found the previous summer. That fall, Onterra staff member, Tim Hoyman met with the association and began crafting the first of two AIS-Early Detection and Response Grant applications.

The FCSLA used the state grant funds, along with funds provided by the Potawatomi Tribe and US Forest Service, to facilitate volunteer monitoring, additional surveys by Onterra, the development of continued control strategies, and to treat the 10.4 acres of the lake with 2,4-D in May 2012 and to conduct over 50 hours of volunteer hand-harvesting in 2013. Surveys completed by Onterra in late summer 2013 indicate expanded growth of EWM over that found in 2012 (Figure 1).

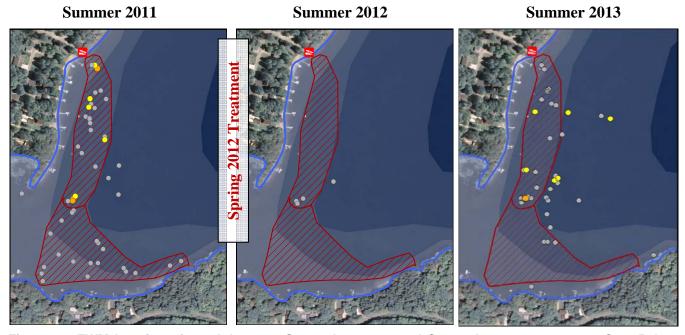


Figure 1. EWM locations from July 2011, September 2012, and September 2013 surveys. *Gray Point = Single or Few Plants; Yellow Point = Clumps of Plants; Orange Point = Small Plant Colony (approx.. 40-ft diameter). Red Hashed Area = May 2012 Treatment Area*

Based upon the results of the 2013 surveys, a 6.6-acre treatment is preliminarily proposed to occur on Silver Lake in early spring 2014 (Map 2). Volunteer hand-harvesting will also occur on the lake during 2014.

Now that the EWM monitoring and control project is underway, the FCSLA will be shifting a portion of its attention on the development of a comprehensive management plan for Silver Lake. This proposed project, as detailed below, elevates the Silver Lake planning to a level well above strategy development for EWM control.

PROJECT GOALS

The scope of work described below outlines a project and study design that approaches the lake from more of an ecosystem perspective than managing its plants, fisheries, or water quality alone. The scope outlines assessments of the lake's plants, watershed, shoreline condition, and water quality. It also describes the integration of available fisheries information, past aquatic plant and water quality assessments, an intensive stakeholder participation component, and the continued monitoring of EWM. The study components would provide the baseline data required to assess the lake ecosystem's condition, while the stakeholder participation portion would shed light on the expectations and needs of the lake users. The combination of these components and communications with WDNR specialists would allow a long-term and implementable plan to be created for Silver Lake.

The work required to develop the plan would rely on partnerships between the WDNR, the FCSLA, and local municipalities as applicable.

Overall, the scope of work detailed in this proposal would provide the FCSLA with the information bulleted below.

- The drainage area definition (watershed) for the lake.
- The potential point-sources of pollution that may be affecting the lake.
- The areas of the lake's watershed that may be supplying excessive amounts of sediment and nutrients.
- A determination of plant community diversity for the lake and how the lake's diversity compares with other lakes in the region.
- An identification and location of important plant communities (emergent, submergent, floating-leaf) within the lake and a listing of the dominant species within those communities.
- The identification and location of any rare or threatened plant species within the lake.
- A determination of where exotic plant species (e.g., Eurasian water milfoil, curly-leaf pondweed, purple loosestrife) occur in and around the lake.
- Of the plant species found in the lake, their abundances relative to each other.
- A summary and analysis of specific chemicals found in the lake, how these concentrations compare with other lakes in the region, and what these concentrations indicate concerning the health of the lake.
- An analysis of the limiting plant nutrient (phosphorus or nitrogen) in the lake.

- The trophic state (e.g., oligotrophic, mesotrophic, eutrophic) of the lake.
- An analysis of nutrient conditions within the lake prior to settlement.
- Analysis of aquatic plant management alternatives.
- A summary of recent historic fisheries data, biological information relating to specific fish species, and how it applies to the management plan.
- A listing of management options that may be utilized to protect and enhance the important and sensitive areas of the lake.
- The steps that could be taken to help improve the lake, such as work in the watershed (e.g., agricultural best management practices), shoreland restoration opportunities, in-lake native plant introductions, etc.
- An assessment of the shoreline condition and occurrence of course woody habitat.
- Continued monitoring of Eurasian water milfoil within the lake.
- Development of appropriate Eurasian water milfoil strategies.
- The funding sources FCSLA to assist in the implementation of the pertinent management and protection options that are outlined in the lake management plan.
- An outline of how Onterra would assist the FCSLA in implementing and funding the management plan.

PROJECT SCOPE

Stakeholder Participation

Stakeholder participation is a very important element in any environmental planning exercise. It is important not only from the perspective of informing participants and stakeholders about the project, but also from the standpoint of enhancing their understanding of natural ecosystems and their value to a healthy environment. If participants do not understand the value of the natural ecosystem, they will not strive to protect or enhance it.

This component of the management planning effort is intended to create an exchange of information between Onterra and the lake stakeholders, including those that own property on the lake and those that enjoy the lake through its public access. The exchange of information would flow bidirectionally between the lake stakeholders and the ecologists/planners. The ecologists/planners would provide information and guidance to help stakeholders understand the ecosystem more fully and to prepare them for the development of realistic goals and objectives concerning the management of their lake. The stakeholders would provide information pertaining to their use of the lake and their management expectations. In the end, this information would be combined to create a long-term and implementable lake management plan.

This component, as described below, would also help the ecologists/planners develop a better understanding of specific sociological needs within the association. For instance, if communication were lacking between the association board and its general membership a goal would be included within the management plan with specific actions addressing the deficiency.

The need for specific or general educational initiatives would also be brought to light during this process so they too could be addressed within the management plan.

Further, during the planning process, current lake-related ordinances (at the county and town level) would be researched and discussed with the FCSLA, county, and town. It is the experience of Onterra planners that lake residents often do not have a good understanding of ordinance specifics for their waterbody; therefore, the current ordinances would be discussed with the FCSLA, as well as possible modifications to those ordinances or totally new ordinances that could be proposed to the town and/or county.

Planning Committee

Communication between Onterra staff and the lake group is essential in creating an effective and realistic management plan. To facilitate this interaction, Onterra would work with the FCSLA to create a "Planning Committee" to act as the primary conduit of interaction between the lake group and Onterra.

The Planning Committee fills several roles within the management planning process, including:

- Development and distribution of the written stakeholder survey and tallying of its results.
- Meeting with Onterra staff, likely twice, to learn about the study results and assist in creating the framework of the implementation plan. As discussed below, the Planning Committee meetings are held during the week and can last 2-3 hours long.
- Reviewing and providing comments on the draft of the management plan.

The lake association is responsible for recruiting the committee members. Typically, the committee should include 5-10 members. Having a diverse group of people as the Planning Committee membership is important to transparency in the process and the development of a realistic and representative management plan; therefore the committee should be made up of a cross-section of people from the lake. Limiting the recruitment of couples, more than one or two board members, and people of similar ages and area of the lake will assure the diverse group of people that would fulfill the committee. More information regarding the Planning Meetings can be found below.

Kick-off Meeting

Near the start of the project, a *Kick-off* meeting would be held to inform stakeholders about the project and its goals. This meeting would also provide an excellent educational opportunity that would grant an introduction to important concepts in lake ecology, such as the value and importance of a diverse aquatic plant community and the benefits of maintaining natural buffer areas around a lake. The Kick-off meeting would also provide an important forum allowing stakeholders to express their concerns and provide information about Silver Lake and its watershed to Onterra ecologists.

Stakeholder Survey

Comments and opinions would be solicited from Silver Lake stakeholders to gain important information regarding their understanding of the lake and thoughts on how it should be managed. The information would be collected through a written survey/comment form supplied to each

member household by mail. This information would be critical to the development of a realistic plan by supplying an indication of the needs of the stakeholders and their perspective on the management of the lake. It would be the responsibility of the Planning Committee to prepare the survey mailing and collect and summarize the results. Onterra would create the survey content and lead the interpretation of the results. Below is an outline of these activities:

- 1. Onterra distributes standard survey to planning committee
- 2. Planning committee develops additional questions and options to be included within the survey
- 3. Onterra updates survey and submits to WDNR for approval
- 4. WDNR approved survey is provided to planning committee
- 5. Planning committee prints survey, stuffs surveys in envelopes, and mails out surveys to distribution list they develop
- 6. Onterra provides customized Excel spreadsheet to the planning committee
- 7. Completed surveys are returned to planning committee and they tally results in provided electronic format
- 8. Excel spreadsheet of entered data is emailed to Onterra for analysis

Planning Meetings

Following the completion of data analysis, up to two meetings between the ecologists/planners and a sub-committee (Planning Committee) of the FCSLA would be conducted to facilitate the following:

- An in-depth knowledge of the conditions and ecological process within Silver Lake among the Planning Committee members.
- An understanding of suitable management alternatives for the lake and their possible outcomes.
- The development of realistic goals for the management of the lake.
- The creation of an *Implementation Plan* containing specific management actions that would guide the FCSLA in meeting their management goals.

The first meeting would include a detailed presentation of the study results followed by the creation of a working-set of goals to base the implementation plan upon. The second meeting would be used to finalize the goals and formulate specific management actions that would allow the association to meet the management goals. The end-product of these meetings would be the Implementation Plan which would be included in the management plan for the lake. The final task of the Planning Committee would be to review the draft management plan/report and provide comments before it is finalized and presented to the association board of directors and general membership.

Wrap-up Meeting

At the conclusion of the project, Onterra would facilitate a *Wrap-up* meeting to present the findings and recommendations of the study and corresponding management plan to the FCSLA. The presentation would be in an easy-to-follow format that would explain the study results and

the reasons as to why certain alternatives were selected for inclusion within the plan. It would also allow stakeholders to express concerns and ask specific questions about the Silver Lake ecosystem that could not be answered by Onterra ecologists before they were familiarized with the system.

Additional Public Information Forums

In addition to the meetings described above, public awareness of the project would be promoted by an association-submitted news release to local newspapers, by an informative article provided to the association members through a special mailing, and by providing a progress report approximately halfway through the study. The latter two documents would be provided to the association by Onterra. The initial news release would be used to inform stakeholders outside of the association membership that a management project is being conducted at the lake and that the association and WDNR are sponsoring and spearheading the project.

The special mailing is often used to notify the association members that a lake management project will be occurring on the lake and to inform them of the Kick-off meeting. In some cases, the article contains an educational topic aimed at increasing the membership's general knowledge of lake stewardship or in some instances, for dispelling a specific myth or misunderstanding among the association members.

The project update would be in the form of a newsletter article or a special mailing and would contain information pertaining to what tasks had been completed in association with the lake management project. Study results may be included in the update, but they would be limited to those that would not be counter-productive to the planning process. Study results that could be included may refer to the fact that no exotic species were located in the lake or that measured water quality parameters are similar to those found in the past. Inappropriate results would include information that may raise undue concern among the association membership. For example, the discovery of a new exotic species would likely not be discussed unless a logical solution to the problem could be included.

Special Note on Meeting Schedule

As described above, stakeholder participation is an important aspect of a management planning project. Two types of meetings are outlined in the paragraphs above: those involving the general public (Kick-off and Wrap-up Meetings) and those involving a subcommittee of the association (planning meetings). In an effort to maximize attendance at the meetings involving the general public, Onterra suggests that those meetings be held on a Saturday. Onterra staff members enjoy spending their holiday weekends with their families just as our clients enjoy spending those same weekends with their families at the lake; therefore, Onterra cannot schedule meetings for holiday weekends. Further, not all meetings can be facilitated by Onterra's founder, Tim Hoyman, some meetings and other project aspects would be handled by Onterra's other well-trained and experienced staff members

Because the planning meetings involve 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.

Volunteer Monitoring & Hand-Harvesting

Since 2010, when EWM was first discovered in Silver Lake, volunteers have worked to monitor existing EWM areas and search the lake for new locations. Over the past two years, the group has spent a great deal of time performing these activities, which would continue in this project as well. The most important aspect of this component is the transfer of spatial data of newly infested areas between the volunteer monitors and Onterra staff. Association volunteers have already proved their abilities in passing these data along in a useful and timely manner.

During the summer of 2013, FCSLA volunteers spent just over 50 hours removing EWM with snorkeling and scuba methods at the locations provided to them from Onterra's spring survey (Table 1). These activities would continue during this project as well.

Table 1. FCSLA 2013 EWM hand-harvesting efforts.

	Snorkling	Scuba Diver	Total
	Effort (hrs)	Effort (hrs)	Effort (hrs)
7/21/2013	20	5.5	25.5
8/20/2014	18.5	4	22.5
9/14/2014	2.5		2.5
			50.5

Clean Boats Clean Waters Inspector Training

Currently, the FCSLA does not conduct watercraft inspections under the Clean Boats Clean Waters Program. The FCSLA understands that this is an important program for any lake whether they are currently managing AIS or not. The association also recognizes that the plan produced from this proposed project would definitely include Clean Boats Clean Waters inspections as a part of the group's overall AIS prevention and control goal. In preparation, members of the FCSLA would participate in an inspector training course during 2014. The trained volunteers would the recruit other volunteers to receive training and conduct inspections to begin in 2015.

Shoreline Condition and Course Woody Habitat Assessment

Using a GPS data collector with sub-meter accuracy, the immediate shoreline of Silver Lake would be surveyed and classified based upon its potential to negatively impact the system due to shoreline development and other anthropogenic impacts. Examples of these negative impacts include shoreland areas that are maintained in an unnatural manner and impervious surfaces. Further, incidences of course woody habitat, an important component of a healthy fishery, would be assessed and.

The resulting map would delineate the lake's shoreline, from the water's edge to approximately 35-feet shoreward, into one of five categories ranging from "Urbanized" to "Natural/Undeveloped". Ultimately, the information would be used to prioritize areas for restoration and protection that would likely have a benefit to the Silver Lake ecosystem.

During the shoreline assessment survey, all incidences of course woody debris extending at least 5 feet into the lake, in water depths exceeding 1 foot, and with trunk diameters exceeding 2 inches would be mapped and described based upon size and complexity. This type of structure is important habitat for fish and other aquatic organisms; therefore, this information would be useful in determining whether the lake management plan should include the enhancement of woody structure in the lake.

Watershed Definition and Phosphorus Load Modeling

The first step in this component would be an accurate delineation of the lake's watershed. GIS software would be used to generate a map of existing land cover types located within the watershed. The acreage of land currently attributed to each cover type would then be input into the Wisconsin Lake Model Suite (WiLMS) and a partitioning of watershed phosphorus loading, based on land cover type would be calculated. The sources of phosphorus loading for the watershed would also be graphically displayed using GIS software. During the watershed definition process, site visits would be conducted and information collected from shoreland landowners, if needed to identify potential problem point-sources (e.g., agricultural drain tile inlets) and nonpoint sources of pollution and identify land use trends, as applicable.

Using WiLMS, a response model would be created by altering the land cover types found within the Silver Lake watershed to indicate different scenarios (e.g. agriculture lands converted to forests). This exercise would be useful in prioritizing conservation work conducted in the watershed and would lead to realistic goals for water quality preservation and possible improvement. These goals would be expressed using Wisconsin Trophic State Index values.

This component is useful in accomplishing three goals; 1) to help target specific areas for improvement within the lake's watershed, 2) to bring a better understanding to the lake stakeholders concerning how the lake's watershed plays a key role in its water quality regardless if problems exist or not within its watershed, and 3) to determine the need for more detailed study of the watershed and the lake's nutrient budget. Particular to point 3, if the watershed analysis and in-lake phosphorus levels do not compare reasonably well, this may be an indication that other sources of phosphorus are impacting the lake, such as internal loading, point-sources, and/or private septic systems, and that further study (outside the scope of this project) would be required to fully understand the nutrient dynamics within the lake.

Lake Water Quality

Water quality conditions would be studied to assist in identifying potential water quality problems in Silver Lake (e.g., elevated phosphorus levels, anaerobic conditions, etc.). In addition, the water quality monitoring effort would continue the process of creating a water quality database that could be used to track long-term trends within the lake.

Members of the FCSLA currently collect data as a part of the Citizen's Lake Monitoring Network (CLMN). The trained volunteers would continue to collect samples using WDNR Citizen Lake Monitoring Network protocols, occurring once in spring and three times during the summer. These volunteers would also collect nitrogen samples (outside of CLMN) to be used in the planning process. In addition to the samples collected by FCSLA members, professional water quality samples would be collected at subsurface (S) and near bottom (B) depths and would occur once in spring, summer, winter and fall. This would allow determinations of

limiting nutrients and internal nutrient dynamics to be made. Although FCSLA members would collect a spring and July total phosphorus samples, and July chlorophyll-a samples, professionals would also collect this sample to coincide with the bottom total phosphorus samples collected in those same months. The parameters to be measured, sample collection timing, designated collector, and cost coverage are contained in Table 2.

All samples requiring laboratory analysis would be processed through the Wisconsin State Laboratory of Hygiene (SLOH). The parameters to be measured, sample collection timing, designated collector, and cost coverage are contained in Table 2. Secchi disk transparency would also be included during each visit. During professionally collected samples temperature and dissolved oxygen profiles would be completed.

Spring June July August Fall Winter Parameter \mathbf{S} B S S В \mathbf{S} S B \mathbf{S} В **Dissolved Phosphorus** lacktrianglelacktriangleTotal Phosphorus • • lacktrianglelacktrianglelacktriangleTotal Kjeldahl Nitrogen Nitrate-Nitrite Nitrogen lacktriangle• Ammonia Nitrogen • lacktriangle• Chlorophyll-a • lacktriangleTrue Color Hardness Total Suspended Solids • lacktrianglelacktrianglelacktriangleLaboratory Conductivity Laboratory pH Total Alkalinity Calcium

Table 2. Water Quality Sample Parameters and Timing

Aquatic Plant Surveys

Aquatic plants are very important because they are the foundation of the lake ecosystem; therefore a complete and accurate assessment of the aquatic plant community is vital in every lake management project. In order to fully assess the aquatic plants, two types of surveys would be performed: a point-intercept survey and an aquatic plant community mapping survey. The point-intercept survey is a plot-based inventory intending to characterize the relative frequency of all plants, native and exotic, and is performed at the height of the growing season. The aquatic plant community mapping provides a *snapshot* of the lake's emergent and floating-leaf communities.

Overall, this task, along with the EWM-specific surveys would serve to provide an accurate characterization of the lake's macrophyte community while continuing to closely monitor the EWM. It would indicate what species were present and where they were located, and allow for

[•] indicates samples collected as a part of the Citizen Lake Monitoring Network.

[■] indicates samples collected by volunteers under proposed project.

[•] indicates samples collected by consultant under proposed project.

comparisons with past and future surveys. It would also help to determine where and what types of aquatic plant control, protection, and enhancement methods would be appropriate for the lake.

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 EWM 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 FCSLA 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 FCSLA.

Point-Intercept Survey

A comprehensive survey of aquatic macrophytes is used to characterize the existing communities within the lake and includes inventories of emergent, submergent, and floating-leaved aquatic plants within the lake. The point-intercept method as 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) would be used to complete this study. Based on guidance from the WDNR, a point spacing of 52 meters would be used resulting in approximately 479 sample locations.

These data, along with those collected during surveys completed earlier, would be analyzed by Onterra and used in the management plan. To characterize spatial distribution, *relative frequency of occurrence* would be calculated for each species found within the lake. In addition, the plant communities of the lake would be compared to those of other lakes in the ecoregion and the state using the Floristic Quality Assessment (FQA) procedures described in Nichols (1998). In general, the FQA evaluates the species found in a lake with those found in a natural, undisturbed system; indicating the health of the current plant community in the lake.

Native Plant Community Mapping

The aquatic vegetation community types within the lake (e.g., emergent, submergent, and floating-leaved vegetation) would be mapped using the GPS technology described above, and would be based on dominant species (e.g., soft-stem bulrush, common arrowhead, large-leaf pondweed, etc.). In other words, the primary mapping unit would be the community type, but a secondary classification based on dominant species would be included on the vegetation maps. The final map would show the location of each vegetation type in the lake in relation to the lake's bathymetry. It is these communities that respond the quickest to ecological changes in the lake and the survey would provide a baseline understanding of the relative locations of these communities.

Furthermore, additional maps would indicate the areas of the lake inhabited by exotic/invasive species such as pale-yellow iris, giant reed grass, and purple loosestrife if these species are located.

Eurasian Water Milfoil Peak-Biomass Survey

As the name implies, the EWM peak-biomass survey is completed when the plant is at its peak growth, allowing for a true assessment of the amount of this exotic within the lake. For Silver Lake, this survey will likely take place between mid-August and mid-September. This survey would include a complete meander survey of the lake's littoral zone by professional ecologists and mapping using sub-meter GPS. This survey would serve two main roles: 1) assess that spring's herbicide treatment sites, if a treatment was completed, and 2) be used to develop the following spring's treatment strategy, if applicable.

Fisheries Data Integration

Summary of Baseline Data

Available historic fisheries data within the past decade from the WDNR would be compiled from Silver Lake. This would include information relating to fish stocking, creel surveys, and comprehensive fish surveys. A list of the known fish species present in the lake along with general biological information pertaining to important fish species would be provided considering spawning habitat requirements, nursery areas, and food sources.

Integration within Management Plan

Although current fish data would not be collected, the compiled historic data along with the natural history information would be considered as it pertains to the management plan. As applicable, individual management actions within the implementation plan would be analyzed as they pertain to the health of the fish populations (e.g. timing of Eurasian water milfoil control practices, if discovered, to limit interference with spawning activities).

Professional *Dreissena* Mussel Monitoring

The WDNR samples over 100 waterbodies annually in search of larval and adult zebra and quagga mussels (both *Dreissena* sp.). Following discussions with the WDNR during the spring of 2006, Onterra purchased the necessary equipment and was trained by WDNR staff to sample lakes in search of these mussels. During each lake visit, the water column would be sampled at three sites using a 64-micron mesh plankton net in search of larval mussels (veligers). Mussel Monitoring would be completed once in June during the CLP survey and again in July or August during the community mapping survey. Samples would be preserved and packaged according to the methodology outlined in the 2005 WDNR publication, "*Dreissena* Mussel Monitoring Protocol." Because ethyl alcohol is used in the preservation process, specific rules apply for shipment and arrangements have been made to hand-deliver samples to WDNR staff at the Northeast Region Headquarters in Green Bay where they would be responsible for shipment to the location of analysis. During these and other visits to the lake, Onterra would periodically search docks, piers, and other structures for adult forms of the mussels.

PROJECT DELIVERABLES

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 Silver 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. Furthermore, recommendations for remedial actions and further study options (if needed) would be included expressly for Silver Lake and its drainage basin; including possible funding sources and an indication as to how Onterra could assist the FCSLA in obtaining the funding required for future projects.

Upon finalization of the report and acceptance by the WDNR, 5 hard copies of the management plan would be provided to the FCSLA. In addition, the FCSLA, WDNR, and county would receive two copies of the report, data, and maps on CD-ROM in Adobe's Portable Document Format (PDF).

TENTATIVE PROJECT SCHEDULE

Table 3 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 meeting times would be very flexible.

Table 3. Approximate Project Schedule for 2014 – 2015.

	2014								2015											
Task	F	М	Α	М	J	J	Α	S	0	Ν	D	J	F	М	Α	М	J	J	Α	S
Water Quality Sample																				
Spring Pretreatment Survey																				
Kick-off Meeting																				
EWM Peak-Biomass Survey																				
Comprehensive Plant Survey																				
Project Update																				
Shoreland Assessment Survey																				
Data Analysis																				
Planning Comm. Meeting																				
Report – First Draft																				
Report – Final Draft																				
Wrap-up Meeting																				

VOLUNTEER AND IN-KIND OPPORTUNITIES

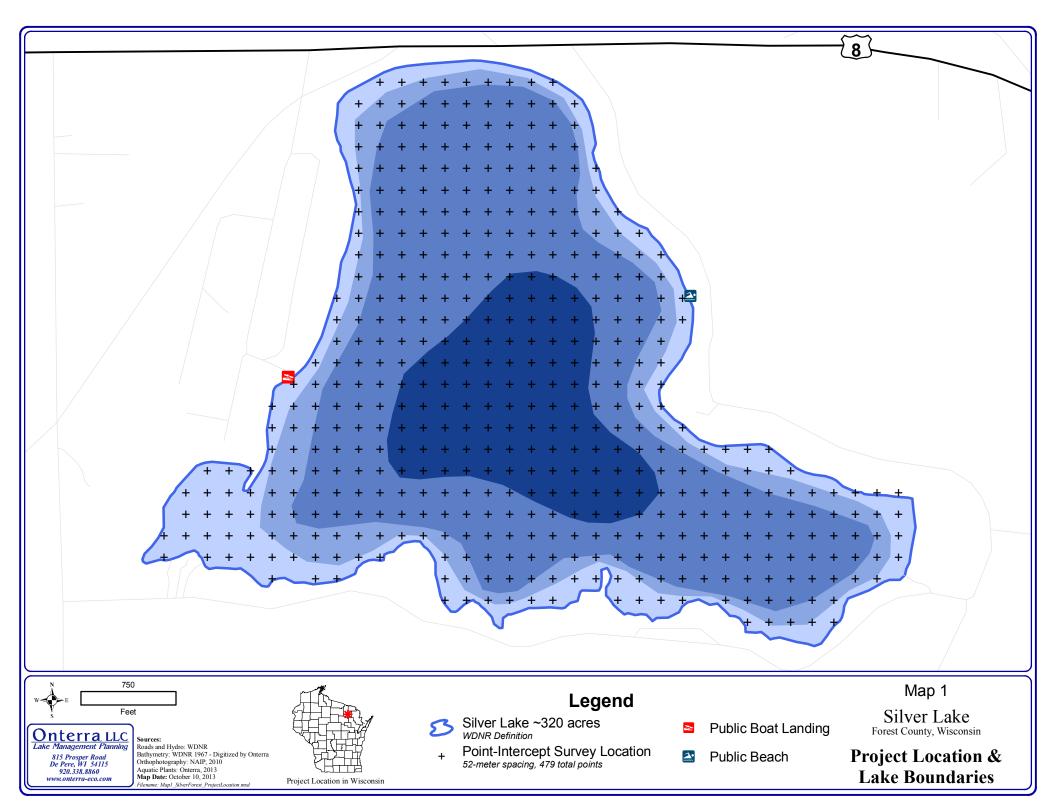
	Cost/	In-kind
Quantity	Unit	Match
5 peop. x 6 hours = 30 hrs	\$12.00	\$360.00
5 peop. x 6 hours = 30 hrs	\$12.00	\$360.00
25 peop. x $1.5 \text{ hours} = 37.5 \text{ hrs}$	\$12.00	\$450.00
25 peop. $x 2 hours = 50 hrs$	\$12.00	\$600.00
10 peop. x 10 hours = 100 hrs	\$12.00	\$1,200.00
7 days	\$150.00	\$1,050.00
2 peop. $x 4 hours = 8 hrs$	\$12.00	\$96.00
2 peop. x 20 hours = 40 hrs	\$12.00	\$480.00
	5 peop. x 6 hours = 30 hrs 5 peop. x 6 hours = 30 hrs 25 peop. x 1.5 hours = 37.5 hrs 25 peop. x 2 hours = 50 hrs 10 peop. x 10 hours = 100 hrs 7 days 2 peop. x 4 hours = 8 hrs	QuantityUnit5 peop. x 6 hours = 30 hrs\$12.005 peop. x 6 hours = 30 hrs\$12.0025 peop. x 1.5 hours = 37.5 hrs\$12.0025 peop. x 2 hours = 50 hrs\$12.0010 peop. x 10 hours = 100 hrs\$12.007 days\$150.002 peop. x 4 hours = 8 hrs\$12.00

Total Estimated In-kind Match

\$4,596.00

PROJECT COST ESTIMATE

	Cash Cost	Donated Value				
Onterra Fees						
Project Setup & Administration	\$925.00					
Stakeholder Participation	\$2,990.00					
Watershed Assessment	\$895.00					
Water Quality Assessment	\$1,440.00					
Fishery Data Compilation & Integration	\$845.00					
Shoreline & Course Woody Habitat Assessment	\$930.00					
Point-Intercept Survey	\$2,720.00					
Aquatic Plant Community Mapping	\$1,050.00					
2014 Spring EWM Check	\$705.00					
2014 EWM Peak-Biomass Survey	\$815.00					
Data Analysis and Report/Plan Creation	\$4,225.00					
Onterra Printing & Shipping	\$250.00					
Travel (Lodging, Incidentals, & Mileage @ 0.58/mi)	\$955.00					
Professional Dreissena Mussel Monitoring		\$800.00				
Other Fees						
State Laboratory of Hygiene Fees	\$1,234.07					
Stakeholder Survey Printing and Mailing Costs	\$400.00					
SLA Project-Related Printing Costs	\$250.00					
Volunteer & In-kind Match Opportunities						
Planning Comm. – Stakeholder Survey		\$360.00				
Planning Comm. – Plan Development		\$360.00				
Kick-off Mtg Attendance		\$450.00				
Wrap-up Mtg Attendance		\$600.00				
Volunteer AIS Survalience Monitoring & Hand-Removal		\$1,200.00				
Volunteer Watercraft Use		\$1,050.00				
CBCW Training		\$96.00				
SLA Grant Project Administration		\$480.00				
Subtotal	\$20,629.07	\$5,396.00				
Project Total	\$26,0	025.07				
Grant Specifics - AIS Education, Prevention, and Planning						
WDNR Portion (75%)	•					
Local Match (25%)	\$6,	506.27				



Wisconsin Department of Natural Resources Grant Project Resolution

RESOLUTION OF Forest County Silver Lake Association, Inc. Forest County, Wisconsin

WHEREAS The Silver Lake, Forest 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 wellbeing of the lake; and

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

IT IS, THEREFORE, RESOLVED THAT:

The Forest County Silver Lake Association, Inc. (FCSLA) requests the funds and assistance available from the Wisconsin Department of Natural Resources under and

HEREBY AUTHORIZES **Daniel J. Verbanac** to act on behalf of the **FCSLA** 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 **FCSLA** will meet the obligations of the project including timely publication of the results and meet the financial obligations under this grant including the prompt payment of our 25% commitment to project costs.

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

Adopted this 11th day of November, 2013

By a vote of the Board of Directors: 5 in favor, 0 against, 0 abstain

- Bignatur

Greg Hilbert, Chairman of the FCSLA Board of Directors

State of Wisconsin Department of Natural Resources

Aquatic Invasive Species (AIS) Control Grant Application

Form 8700-307 (12/11)

Page 1 of 3

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	Ear	ly Dete	ction & Resp	onse	Established	d Population Cont	rol							
			_											
Legislative Distric	t Numbers			To det	ermine your legislat	ive district, go to								
Senate	Assembly		http://165.189.139.210/WAML//											
12	36			Type in compl	ete address, next so	creen shows infor	mation							
Section II: Applicant Information	1		T (5)											
Applicant			Type of Eligible Lake or River Applicants											
Forest County Silver Lake Associa	ation		County	Tribe	Othe	er Gov't Unit	Federal							
Waterbody Name			City	Sanita	ary Dist. Nonp	orofit Org.	State							
Silver Lake			Village	e Dist.	Colle	ege,	٦ ۵							
Project County/Township/Section/Ran	ge		I		Scho	ool, etc.	_ Other							
Forest/T36N/R14E/S35			Town	X Asso	c.									
Authorized Representative Named by	Resolution			Project Con	tact Name									
Daniel J. Verbanac				Tim Hoyma	an									
Authorized Representative Title				Project Contact Title										
Chair of Lake Committee			Aquatic Fo	cologist; Onterra, I	LC									
Address				Address	great, erroerrea,									
3363 Maryknoll Court				01E Droop	or Dood									
City	State	ZIP C	Code	815 Prosp	ei Roau	State	ZIP Code							
Green Bay	WI	5431		,										
Destine Dhara (area anda)	Francisco Dhana (ana			De Pere	(WI	54115							
Daytime Phone (area code) 920-680-7611	Evening Phone (area 920-680-7611	a code)	1	920.338.88	one (area code) 360	Evening Phone (area code)								
E-Mail Address				E-Mail Address										
DJVerbanac@integrysenergy.com	1			thoyman@onterra-eco.com										
Mail Check to: (if different from applic	ant)			·										
Name and Title	<u>, </u>			Address										
Organization				City		State	ZIP Code							
S				'										
		F	DND H (<u> </u>										
Application Type Da	te Received		DNR Use (e Reviewed (AIS/Lake/River Co	ordinator Approv	al/Data							
	ie Neceived	Dati	e Nevieweu (AIS/LC/NC)	AIS/Lake/Niver Co	ordinator Approv	al/Date							
Waterbody ID #	Adequate Public Acce		Er	nvironmental G	Frants Specialist App	oroval / Date								
		lo												
Eligible Project	Eligible Applicant		Pr	oject Priority R	Rank	Research / Der								
☐ Yes ☐ No	Yes No)				Yes	No							
Prior Grant Award(s)	Fiscal Year(s)		Ar	mount Receive	d to Date	Project Awarde								
Yes No		Yes No												

State of Wisconsin Department of Natural Resources

Aquatic Invasive Species (AIS) Control Grant Application

		Form 8700-307 (12/11)		Page 2 of 3
Section III: Project Information				
Project Title			Proposed End	ing Date
Silver Lake Management Planning Project			June 30, 201	6
Other Management Units	Letter of Support	Other Management Un	its	Letter of Support
Lumberjack (will be sent in separately)		4.		
2. Town of Laona (will be sent in separately)		5.		
3. Potawatomi Tribe (will be sent in separately)		6.		
Section IV: Public Access				
Number of Public Vehicle Trailer Parking Spaces Available at	Public Access S	ites: ~5 on adjacent roadway	,	

Number of Public Access Sites Including Boat Launches and Walk-ins:

Section V: Cost Estimate and Grant Request

Section V must be completed or application will be returned.		Project Costs	
Details in support of Section V are welcome.	Column 1 Cash Costs	Column 2 Donated Value	DNR Use Only
Salaries, wages and employee benefits			
2. Consulting services	\$18,745.00	\$800.00	
3. Purchased services: Herbicide Applications	\$400.00		
4. Other purchased services (specify): WDNR Permit Fees	\$250.00		
5. Plant material: Includes installation –			
6. Supplies (specify):			
7. Depreciation on equipment			
8. Hourly equipment use charges			
9. State Lab of Hygiene (SLOH) Costs	\$1,234.07		
10. Non-SLOH Lab Costs			
11. Other (specify): Volunteer In-kind Labor		\$4,596.00	
12. Subtotals (Sum each column)	\$20,629.07	\$5,396.00	
13. Total Project Cost Estimate (sum of column 1 plus sum of column 2)	\$26,0	25.07	
14. State Share Requested (up to 75% of total costs may be requested)	\$19,5	18.80	

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 Fed	deral funding as match: (d	check box below if applicable)
W	e are using or planning to	apply for Federal funds to be used as match
If known	, indicate source of fundin	g:

Aquatic Invasive Species (AIS) Control Grant Application Form 8700-307 (12/11)

Page 3 of 3

Sect	tion VI: Attachments (check all that are included)	
Α.	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)	
	S. 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 no described above	
В.	For applicants that are Lake Management Organizations (LMOs), River Management Organizations (RMOs) or Qualified Non-profit Organizations:	k
	For first time applicant LMOs/RMOs only: A completed Form 8700-226 (Lake Association Organizational Application) or 8700-287 (River Management Organization Application) 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	
	tion VII: Certification	
ı cen	ify 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 Title of Authorized Representative	
Dani	iel J. Verbanac Chair of Lake Committee	
Signa	ature of Authorized Representative Date Signed	
	1	

LAKE/RIVER PLANNING GRANTS PROJECTED LAB COSTS

First Year FY 2014

Lake Name: Silver Lake

Waterbody ID#:

Review Period: Application Period:

County: Forest

Applicant Name: Forest County Silver Lake Association

Will the Lab be doing filtation for dissolved parameters? (Y/N)

Will field tests be recorded on the Lab Slip?

2013

555700

					Samp	les/Mo	nth							Analyses/	Price/	Annual Co
Test ID	Parameter	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Fiscal Year	Analysis	For Paramete
	NUTRIENTS															
530CLD	DISSOLVED REACTIVE P (ORTHO)											2		2	\$16.67	\$33.3
520PLT	TOTAL PHOSPHORUS										- :	2		2	\$23.60	\$47.2
520PLD	TOTAL DISS PHOSPHORUS (AS P), (EPA 365.1)													0	\$23.60	\$0.0
470DLT	TOTAL KJELDAHL NITROGEN										- :	2	1	3	\$32.99	\$98.9
460MLD	NITRATE+NITRITE (AS N), DISS (EPA 353.2)										- :	2	1	3	\$27.00	\$81.0
440NLD	AMMONIA-N, DISSOLVED										- :	2	1	3	\$25.89	\$77.6
	OTHER WET CHEMISTRY															
305ALT	AUTOMATED CONDUCTIVITY, PH & ALKALINITY											2		2	\$22.00	\$44.0
120ALT	ALKALINITY, GRAN TECHNIQUE													0	\$54.00	\$0.0
240FLT	CHLORIDE													0	\$20.00	\$0.0
251UNF	CHLOROPHYLL A, FLUORESCENCE, FIELD FILTERED													0	\$23.28	\$0.0
251UNL	CHLOROPHYLL A, FLUORESCENCE LAB FILTERED											ı		1	\$24.52	\$24.5
290ALT	COLOR, TRUE, PT-CO										1			1	\$25.00	\$25.0
340IR1	HARDNESS, CALCULATION METHOD (When Metals Done)											ı		1	\$5.37	\$5.3
	HARDNESS, CALCULATION METHOD (When Metals not Done)													0	\$52.82	\$0.0
600ELT	SULFATE (EPA 375.2)													0	\$26.00	\$0.0
650JLT	SUSPENDED SOLIDS											2		2	\$18.80	\$37.6
640ILD	TOTAL DISSOLVED SOLIDS, 180 C													0	\$17.13	\$0.0
650JLV	TOTAL VOLATILE SOLIDS													0	\$10.03	\$0.0
660NLT	TURBIDITY													0	\$10.00	\$0.0
720BLT	FIELD TESTS (For each labslip with Field Testing Recorded)	0	C) () () 0	0	() (0 () :	2 0		3	\$3.00	\$9.0
	TOTAL METALS															
230IR1	CALCIUM, TOTAL RECOVERABLE, ICP	0	C) () (0	0	() (0 () .	0	C	1	\$13.00	\$13.0
370IR1	IRON, TOTAL RECOVERABLE, ICP													0	\$13.00	\$0.0
390IR1	MAGNESIUM, TOTAL RECOVERABLE, ICP													0	\$13.00	\$0.0
400IR1	MANGANESE, TOTAL RECOVERABLE, ICP													0	\$13.00	\$0.0
540IR1	POTASSIUM, TOTAL RECOVERABLE, ICP													0	\$13.00	\$0.0
580IR1	SODIUM, TOTAL RECOVERABLE, ICP													0	\$13.00	\$0.0
322IR1	DIGESTION, TOT, RECOV, LOW LEVEL, ICP + ICP SETUP	0	C) () (0 0	0	() () ()	0	C	1	\$21.45	\$21.4
	WATER BACTI															
B152ALT	E COLI ENZYMATIC SUBTRATE QUANTITRAY MPN													0	\$37.00	\$0.0
3200ALT	Fecal Coliform (MFFCC)	0	C) () (0	0	() (0 () (0 0	C		\$37.00	\$0.0
							Ū							<u> </u>		

Number of Inorganic Lab Slips (Machine Determined) Number of Bacti Lab Slips (Machine Determined) Number of Inorganic Lab Slips (from workplans)

3 =Total Inorganic Lab Slips for Fiscal Year 0 0 0 =Total Bacti Lab Slips for Fiscal Year

2014

LAKE/RIVER PLANNING GRANTS PROJECTED LAB COSTS

Second Year FY 2015

Lake Name: Silver Lake Review Period: Waterbody ID#: 555700 Application Period:

Forest County:

Applicant Name: Forest County Silver Lake Association Will the Lab be doing filtation for dissolved parameters? (Y/N) Will field tests be recorded on the Lab Slip?

2014

2015

Will field tests be recorded on the Lab Slip?	Υ			Samn	les/Mor	nth							Analyses/	Price/	Annual Cost
Parameter	July	Aug	Sont		Nov		lan	Eah	Mar	Anr	May	lun	Fiscal Year	Analysis	For Parameter
NUTRIENTS	July	Aug	оері	OCI	NOV	Dec	Jan	I CD	IVIAI	Αþi	iviay	Jun	i iscai i cai	Allalysis	1 Of 1 afainteter
DISSOLVED REACTIVE P (ORTHO)													2	\$17.17	\$34.34
FOTAL PHOSPHORUS	-	2	+	2	,				2		1		6	\$24.31	\$145.85
TOTAL TROOF HOROS FOTAL DISS PHOSPHORUS (AS P), (EPA 365.1)	-	-	+	-	-			-	-				0	\$24.31	\$0.00
TOTAL KJELDAHL NITROGEN		1	1						2		1		4	\$33.98	\$135.92
NITRATE+NITRITE (AS N), DISS (EPA 353.2)			1						2		1		4	\$27.81	\$111.24
AMMONIA-N, DISSOLVED			1	1					2		1		4	\$26.67	\$106.67
OTHER WET CHEMISTRY									-				• •	Ψ20.07	Ψ100.01
AUTOMATED CONDUCTIVITY, PH & ALKALINITY)											2	\$22.66	\$45.32
LKALINITY, GRAN TECHNIQUE		1											0	\$55.62	\$0.00
CHLORIDE													0	\$20.60	\$0.00
CHLOROPHYLL A, FLUORESCENCE, FIELD FILTERED													0	\$23.98	\$0.00
CHLOROPHYLL A, FLUORESCENCE LAB FILTERED	-	1		1									2	\$25.26	\$50.51
COLOR. TRUE. PT-CO		1		· ·									1	\$25.75	\$25.75
HARDNESS, CALCULATION METHOD (When Metals Done)													0	\$5.53	\$0.00
IARDNESS, CALCULATION METHOD (When Metals not Done)													0	\$54.40	\$0.00
ULFATE (EPA 375.2)													0	\$26.78	\$0.00
USPENDED SOLIDS				2	2								2	\$19.36	\$38.73
OTAL DISSOLVED SOLIDS, 180 C													0	\$17.64	\$0.00
OTAL VOLATILE SOLIDS													0	\$10.33	\$0.00
URBIDITY													0	\$10.30	\$0.00
TELD TESTS (For each labslip with Field Testing Recorded)		2	1 0) 2	2 0	0	C)	2 3) () 0	0	7	\$3.09	\$21.63
TOTAL METALS	100000000000000000000000000000000000000					100000000000000000000000000000000000000	100000000000000000000000000000000000000				1 (111111111111111111111111111111111111	7		*	*
CALCIUM, TOTAL RECOVERABLE, ICP	() (0 0) (0	0	0) ()	0 0	0	0	0	\$13.39	\$0.00
RON, TOTAL RECOVERABLE, ICP													0	\$13.39	\$0.00
MAGNESIUM, TOTAL RECOVERABLE, ICP													0	\$13.39	\$0.00
MANGANESE, TOTAL RECOVERABLE, ICP													0	\$13.39	\$0.00
OTASSIUM, TOTAL RECOVERABLE, ICP													0	\$13.39	\$0.00
SODIUM, TOTAL RECOVERABLE, ICP													0	\$13.39	\$0.00
IGESTION, TOT. RECOV. LOW LEVEL, ICP + ICP SETUP)	o 0) (0 0	0	0) ()	o c	0 0	0	0	\$22.09	\$0.00
VATER BACTI	100000000000000000000000000000000000000		TO 1010101010101017			100000000000000000000000000000000000000	1			71 (1000) (1000) (1000)	1 (11111111111111111111111111111111111	7	7 I	Mindael (Maria	******
COLI ENZYMATIC SUBTRATE QUANTITRAY MPN													0	\$38.11	\$0.00
ecal Coliform (MFFCC)	() () () (0	0	0) ()	0 0	0	0	0	\$38.11	\$0.00
	9) ;	3	5	5			10)				Grand Total =		\$715.95
Number of Inorganic Lab Slips (Machine Determined) Number of Bacti Lab Slips (Machine Determined) Number of Inorganic Lab Slips (from workplans)		2) () () 2	2 0) 0	0				o (anic Lab Slips for Fi Lab Slips for Fiscal

LAKE/RIVER PLANNING GRANTS PROJECTED LAB COSTS

Grand Total

Lake Name: Silver Lake Review Period: Waterbody ID#: 555700 Application Period:

County: Forest

Applicant Name: Forest County Silver Lake Association

Parameter		Analyses For Grant	Grant Cost For Parameter
NUTRIENTS		For Grant	For Parameter
DISSOLVED REACTIVE P (ORTHO)		4	\$67.68
TOTAL PHOSPHORUS		8	
		0	\$193.05
TOTAL DISS PHOSPHORUS (AS P), (EPA 365.1)		7	\$0.00
TOTAL KJELDAHL NITROGEN			\$234.89
NITRATE+NITRITE (AS N), DISS (EPA 353.2)		7	\$192.24
AMMONIA-N, DISSOLVED		7	\$184.34
OTHER WET CHEMISTRY			
AUTOMATED CONDUCTIVITY, PH & ALKALINITY		4	\$89.32
ALKALINITY, GRAN TECHNIQUE		0	\$0.00
CHLORIDE		0	\$0.00
CHLOROPHYLL A, FLUORESCENCE, FIELD FILTERED		0	\$0.00
CHLOROPHYLL A, FLUORESCENCE LAB FILTERED		3	\$75.03
COLOR, TRUE, PT-CO		2	\$50.75
HARDNESS, CALCULATION METHOD (When Metals Done)		1	\$5.37
HARDNESS, CALCULATION METHOD (When Metals not Done)		0	\$0.00
SULFATE (EPA 375.2)		0	\$0.00
SUSPENDED SOLIDS		4	\$76.33
TOTAL DISSOLVED SOLIDS, 180 C		0	\$0.00
TOTAL VOLATILE SOLIDS		0	\$0.00
TURBIDITY		0	\$0.00
FIELD TESTS (For each labslip with Field Testing Recorded)		10	\$30.63
TOTAL METALS			
CALCIUM, TOTAL RECOVERABLE, ICP		1	\$13.00
IRON, TOTAL RECOVERABLE, ICP		0	\$0.00
MAGNESIUM, TOTAL RECOVERABLE, ICP		0	\$0.00
MANGANESE, TOTAL RECOVERABLE, ICP		0	\$0.00
POTASSIUM, TOTAL RECOVERABLE, ICP		0	\$0.00
SODIUM, TOTAL RECOVERABLE, ICP		0	\$0.00
DIGESTION, TOT. RECOV. LOW LEVEL, ICP + ICP SETUP		1	\$21.45
WATER BACTI		NOODOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO	000100010000000000000000000000000000000
E COLI ENZYMATIC SUBTRATE QUANTITRAY MPN		0	\$0.00
Fecal Coliform (MFFCC)		0	\$0.00
L /	•	7.1	20000000000000000000000000000 0 00 0 00