

Horseshoe Lake, Barron/Polk County AIS Early Detection and Response Project

Description

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Lake Characteristics and Past Management Activities

Horseshoe Lake is a 377-acre, mesotrophic, stratified, seepage lake located on the Polk/Barron County Line just north of Turtle Lake, WI. The lake is approximately 57-ft deep at the deepest point and an average depth of 20-ft. The lakeshore is almost fully developed except on the northern shoreline where there is a large wetland complex. Most of the water here is considered critical habitat, with many state-owned islands. The lake is considered a EWR/OWR and a resource water of special interest. Much of the bottom is sand, gravel, and rock, with areas of muck in the northeastern and southwestern bays. The water clarity is generally good with Secchi readings in the 5-10ft range in the summer.

Horseshoe Lake is frequented by many fisherman, recreational boaters, and waterfowl hunters (in the fall). On any given summer weekend many transient boat trailers can be found at the public access, and shore land property owners are actively using the lake. Unit parking at this access exceeds the minimum public boating access requirements defined in NR 1.91. The entire north shore near the large wetland complex has been designated as critical habitat. There are several state-owned islands in this area as well.

In 2006 Barron County found and then the WDNR confirmed the presence of the Eurasian watermilfoil (EWM) hybrid in the lake. The EWM hybrid is a cross between native northern watermilfoil and the exotic invasive Eurasian watermilfoil and generally has fewer leaflet counts than true EWM, but otherwise maintains many of the same characteristics. It is highly invasive, spreads through fragmentation, out-competes native plants, forms dense patches near or at the surface, and cannot be completely eradicated once introduced. Management recommendations for the EWM hybrid are essentially the same as for EWM. All references made to the hybrid from here on will simply refer to it as EWM.

Once discovered, it was predicted that the hybrid would spread quickly throughout the system and begin causing severe problems to navigation and lake use. Fortunately only part of this prediction has come true. The hybrid has indeed spread throughout the system and now can be found in more than 60% of the shallow water area. However, almost all of the milfoil is in fairly small, less dense patches, or individual plants scattered over a wide area (ERS 2007). As of the end of the 2008 there was approximately seven acres of EWM in scattered beds throughout the lake. Few of these beds were considered dense enough and free enough from native plant species to continue chemical treatment, particularly in the late season.

Since the discovery of they hybrid EWM in the lake, the Horseshoe Lake Improvement Association (HLIA) has done everything right. They immediately established their eligibility for state planning grant funding and applied for and received an Aquatic Invasive Species (AIS) Rapid Response Grant in the spring of 2007 (Grant # AIRR-029-08). This grant was capped at a maximum state share of \$10,000.00 and is providing 50% of the associated EWM related costs through December 2009.

To date, HLIA has completed two years worth of EWM surveying and monitoring with Matt Berg of Endangered Resource Services, arranged and completed a large-scale diving operation to remove EWM, completed a full lake point intercept survey of all the aquatic vegetation in the

lake, and completed limited chemical application to control larger beds of EWM. The total area chemically treated by the Lake Association is 2.48 acres. Individual land owners may have also received permits and hired professional applicators to treat EWM. The HLIA has plans to complete a fairly large-scale “EWM removal by divers” project in early June 2009 and continues to keep limited chemical application on the table, but no plans are in the works to do it this spring. Current management and removal is being completed under the funding provided by the initial AIS Rapid Response grant. The Lake Association has also attempted to involve lake residents in the manual removal of EWM in shoreline areas easily accessible. Education has focused on identification of the offensive plant and the importance of properly removing it where possible. A small bed of curly-leaf pondweed (CLP) was also identified in the lake and Lake Association members have physically removed that as well.

The HLIA has also provided a certain amount of watercraft inspection at the one public access site on the lake. They realize that a more comprehensive watercraft inspection program needs to be set-up and maintained as a part of any present or future management plan. The hybrid form of EWM is not known to be in any other waters within at least 5 miles of Horseshoe Lake. There are at least 20 other bodies of water within that distance, a third of which have public access. Currently the only lake in that area that has EWM of any form is Echo Lake. The EWM in Echo Lake is the true EWM.

Aquatic Invasive Species Education, Prevention, and Planning Grant Application

The HLIA applied for an AIS Education, Prevention, and Planning grant from the WDNR in February 2009, and even though the project ranked quite well, it was not funded due to limited money in the AIS grant award pot. The purpose of this grant was to complete the writing of a formal, WDNR approved, Aquatic Plant Management (APM) Plan for the lake that encompasses the next five years of aquatic plant management. They realize that management and control of EWM hybrid is a long-term process, and wish to do it in the most effective and efficient way.

Their original and current AIS Rapid Response grant expires in December of 2009, and was capped at \$10,000. There is not enough money left in the original rapid response grant to cover the costs associated with the APM Plan and to continue with the management program currently underway. For this reason, the HLIA is seeking state funding support via a new **AIS Early Detection and Response Grant** to cover the cost of the APM Plan, continue with their current management program (until the new APM Plan is completed and approved by the WDNR), and to support their watercraft inspection, lake user education, and AIS in-lake monitoring programs.

Aquatic Invasive Species Early Detection and Rapid Response Grant Application

The HLIA is a qualified grant recipient, and under the current guidelines does meet the requirements set forth to be eligible for continued Early Detection and Response grant funding.

“For rooted aquatic plants like Eurasian Watermilfoil, a pioneer infestation is defined as a localized bed that has been present less than 5 years, and is less than 5 acres in size or less than 5% of lake area which ever is greater.”

Other advantages to seeking early detection and response funding includes immediate notification of grant award, available funding has less competition at least at this time, and funding would enable the existing schedule for completion of aquatic plant management planning to continue uninterrupted. Extending this second AIS Early Detection and Response project until December 30, 2011 provides greater time to develop and implement an effective APM Plan that controls the

EWM hybrid, manages other potentially problematic aquatic plants including curly-leaf pondweed, and protects a valuable and diverse native plant population. More information about the existing schedule for APM planning is included in the following pages.

Horseshoe Lake Aquatic Plant Management Planning and EWM Control Project

Horseshoe Lake currently has an FQI of 49.15, more than double the average for this part of the state (ERS 2007). Several plant species of special concern in Wisconsin including Farwell's watermilfoil, Filament-leaf & Vasey's pondweed, Robbins spikerush, and spiny coontail have been identified in Horseshoe Lake, making protection of native species extremely important. An aquatic plant management plan that fully evaluates the characteristics of the lake and watershed, takes into account past management activities, protects native plant species, evaluates the impacts to water quality, wildlife, and the fishery, establishes a rapid response plan for any new aquatic invasive species that may enter the lake, and evaluates all possible management alternatives including what has already been done is necessary if the HLIA is to move on to the next stage of plant management in Horseshoe Lake. The HLIA also wants all stakeholders to be able to voice their opinions one way or the other to help determine future management strategies.

Upon completion of an Aquatic Plant Management Plan, and final approval from the WDNR, if necessary the HLIA will pursue an AIS Control Grant to help fund their on-going battle against EWM and any other new problematic species that may enter the lake. Other sources of future funding will also be evaluated. Ultimately they wish to be self-sustaining and still be able to manage the lake successfully.

This project includes all of the following activities:

- ❖ Public participation and involvement through open meetings, an on-going educational campaign (including a 4 hour Educational Workshop), and a Lake User Survey
- ❖ Incorporation of a Clean Boats, Clean Waters watercraft inspection program at the public access point including partnering with the Turtle Lake School District to provide some of the volunteer time as community service for Honor Society students
- ❖ An evaluation of potential future funding sources for continued management including Barron and Polk Counties, voluntary or required launch fees, creation of a Lake District, fishing tournament, raffles, etc.
- ❖ Monitoring and mapping of CLP and purple loosestrife
- ❖ Continued monitoring and mapping of EWM
- ❖ Possible recommendations for marking the most problematic AIS locations, and boating restrictions to minimize spread from these areas
- ❖ Writing of a complete 5-yr. Aquatic Plant Management Plan to be submitted to the DNR for approval, to include:
 - Analysis of the physical characteristics of the lake and its watershed
 - Analysis of all EWM and plant surveys that have been completed
 - Compilation and analysis of all past and current management activities
 - Evaluation of critical habitat areas, the fishery, and wildlife
 - A complete analysis of the existing water quality information (primarily CLMN data)
 - Documentation of the aquatic plant problem and an analysis of all possible management alternatives
 - Aquatic plant management recommendations for the lake based on a 5-yr plan

- A rapid response plan of action for any new AIS that may be found in the lake
 - Inclusion of public comment via the Lake User Survey results and public meetings
- ❖ An outline of activities to include in a potential 5-yr AIS Control Grant application

Public Participation and Education

The HLIA will continue its campaign to educate lake users and owners about aquatic invasive species including but not limited to the EWM hybrid, EWM, curly-leaf pondweed, and purple loosestrife through its newsletter, web page, membership meetings, and at the boat landing. Currently approximately 145 of the 227 land owners on Horseshoe Lake are members. In addition, a free 4-hr Public AIS Workshop will be held (date to be determined yet) at the lake and open to any person or persons wishing to attend to educate lake users. Guest speakers/presenters will be asked to participate.

A Lake User Survey will be prepared and distributed to all lake residents and made available to anyone wishing to participate in it. Its purpose will be to determine public opinion about the lake including lake use, lake issues, AIS identification, control, and management, alternatives for management, and support for management. Survey results will be evaluated and presented to the Lake Association along with possible management recommendations.

AIS identification, monitoring, and control are just one part of protecting and enhancing a lake. Being a good lake steward is also important. Providing information about good lake stewardship and encouraging lake users to be good stewards is also part of the education plan being developed for this project. A formal “kick-off” session and a final presentation of the project deliverables will be presented to the Lake Association membership in meetings open to all who are interested.

The Horseshoe Lake Improvement Association has had a web page www.hlake.org accessible to any and all who are interested for two years. The website is used to post all manner of information about the lake and the activities going on there including all member and board meeting minutes. It also provides links to other pertinent information, updates both Polk and Barron County activities that may affect the lake, and encourages people to be a part of the decision making done on and about Horseshoe Lake. The web page will be used to aide distribution of the Lake User Survey, share feedback, and report the progress of this project to the constituents.

Watercraft Inspection

Certain individuals on Horseshoe Lake have already been trained following the Wisconsin Lakes Program Clean Boats, Clean Waters (CBCW) watercraft inspection program. If necessary, additional Lake Association representatives will attend another CBCW Training Workshop. Lake volunteers will be trained to inspect watercraft entering and exiting the lake throughout the two summer seasons included in the timeline of this project. All watercraft inspection time will be recorded according to Clean Boats, Clean Waters guidelines. A portion of the volunteer time at the landing will be covered by an agreement with the Turtle Lake High School where by Honor Society students and others can gain the community service hours required by the school district by participating in the watercraft inspection program.

Future Funding Sources

The HLIA realizes that control and management of aquatic invasive species is a long-term process. They also realize that state assistance is limited and wish to incorporate other financial support. Both Barron and Polk County may offer limited financial support. While currently there is no launch fee required at the landing it may be possible to set up a voluntary donation system, or work with the town or county to instigate launch fees. The Lake User Survey will seek input related to forming a Lake District and other sources of fundraising, including a lake association sponsored fishing tournament, raffles, etc. The HLIA does have a history of sponsoring fishing tournaments way back in the 1950's. Eventually, the HLIA wishes to be self-sustaining in its management efforts. With the receipt of the second early detection and rapid response grant it may be possible to forego any future AIS Control grant funding.

Invasive Species Mapping

Currently, the EWM hybrid, curly-leaf pondweed (CLP), and purple loosestrife are known to be present in Horseshoe Lake. The EWM has been surveyed every year since its discovery, by ERS Inc. and this will continue in 2009 and 2010. Additional mapping of CLP and purple loosestrife will be completed in part by volunteers involved in the Citizen Lake Monitoring Network (CLMN) "Aquatic Invasive Species Watch" program and by consultants. The lake will also be monitored for the presence or introduction of additional aquatic invasive species according to CLMN guidelines. In the event something new is found, the HLIA will follow the appropriate guidelines to get it verified and dealt with. An early response plan for other invasive species will be developed as a part of this project and be included in the final Aquatic Plant Management Plan.

Lake Use Restrictions for Minimizing the Spread of AIS in the Lake

It may be possible to minimize the spread of AIS in the lake by several means. Marking large beds of EWM or other AIS could be done to keep boaters out. There are also areas of the lake that may benefit from no wake designations. The potential for including lake use restrictions will be addressed in the Lake User Survey and implemented should they be warranted and supported by the majority of lake users.

Aquatic Plant Management (APM) Plan

All existing and new lake information will be collected and evaluated as a part of the APM Plan. All aquatic plant management alternatives will be evaluated. The aquatic plant survey, EWM surveys, water quality information, past management activities, and public input will be used to make aquatic plant management recommendations that best meet the needs of the lake and its users as well as being scientifically supported and approved by the DNR. Treatment specifics for EWM, CLP, and purple loosestrife and their related goals will be included as a part of the plan. Potential impacts to water quality, the fishery, and wildlife from the treatment plan will be assessed and a monitoring plan designed to keep track of them. Protecting the very healthy, diverse structure of native plants in Horseshoe Lake is essential. Recommendations for monitoring the effects of the management activities implemented will be made including pre and post treatment monitoring, and late season monitoring.

A component of the APM Plan will address the potential for other AIS to get into the lake. It will also set up an early response plan of attack in the event something new is discovered.

Upon completion of the APM Plan, a draft of it will be presented to the HLIA and the DNR for comment. A public meeting will be held to discuss the management plan with those interested. A final version will be submitted to the WDNR in both paper and digital form for approval. Should the plan get approved, funding to support implementation of the plan may be sought through the AIS Established Infestation Control Grant Program and other sources.

EWM Treatment

Currently the HLIA is combining limited small-scale herbicide application with large-scale diver removal of EWM and will continue with this approach until such time as the new APM Plan is completed and approved by the WDNR. Once approved, changes in the management activities will be modified to meet said plan. Estimated costs for limited EWM treatment, spring/pre-treatment plant monitoring, post-treatment plant monitoring, and fall bed mapping are included in this project. The HLIA hopes to be self-sufficient in their management and control program by the end date of this project

Complementing Efforts by Others

Both Barron and Polk County have water resource management plans that recommend monitoring and control work for aquatic invasive species. Echo Lake, Horseshoe Lake's nearest neighbor, has EWM in it. In 2009, Echo Lake will be in its second year of a five year EWM management plan. Conversation has been on-going as to how the two lake associations can help each other. EWM weevil monitoring is taking place on Echo Lake. At the time of the training, a Horseshoe Lake representative was also present. Both associations are concerned with preventing the spread of EWM from the lakes. Both are willing to work together where necessary to maintain and enhance each lake. Both are interested in the success of the other. While the two plans are not directly tied to one another, results from one may influence the other, so should be considered "overlapping".

A local entrepreneur, Steve Hanson of Premier Properties Real Estate Group, Inc., has contributed \$1,000.00 of the total costs associated with this project on behalf of his private development company. He realizes that the value of property could suffer if the aquatic invasive species in the lake are not managed properly. In addition, the Barron County Soil and Water Conservation Department will contribute \$500.00 every year beginning in 2009 to assist with management activities occurring on Horseshoe Lake.

Budget

The estimated total project cost for this project is \$20,822.00 based on the following breakdown: Lake User Survey (\$2,617.00), APM Planning (\$3,840.00), EWM treatment and plant monitoring (\$9,500.00), and Lake User Education (\$4,865.00). The HLIA wishes to access Early Detection and Response funding estimated at \$15,616.50 (75% of the total project cost). The last early detection grant they received was capped at \$10,000.00 and only reimbursed 50% of the total project cost. The HLIA anticipates no issues in coming up with the required 25% match for all activities in this new project.

Project End Date

The Horseshoe Lake Improvement Association wishes to extend this project through December 31, 2011.

Project Deliverables

This project includes two electronic and paper copies of this Aquatic Plant Management Plan to be distributed; one to the HLIA and one to the WDNR. All CBCW data will be entered into the state SWIMS database as required. Records of all project activities will be provided as necessary. End of year summaries will be provided to the HLIA and the WDNR.

Letter of Resolution and Letters of Support

A new AIS Early Detection and Response Grant application, a new letter of resolution from the HLIA, a past actions/history statement, and letters of support from Barron and Polk County Soil and Water Conservation Departments and from the Echo Lake Association from the previous AIS Education, Prevention, and Planning grant application have been included.

Please accept this **Aquatic Invasive Early Detection and Response Grant Application** on behalf of the Horseshoe Lake Improvement Association and rank it accordingly.