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## **12.0 Aquatic Plant Management Goals, Objectives, and Actions for Horseshoe Lake**

As previously established, management of EWM is necessary in Horseshoe Lake. A combination of management alternatives will be used to help minimize the negative impacts of EWM on native plants and water quality, and provide relief for navigation impairment and nuisance aquatic plant growth caused by EWM. EWM management options to be utilized include small-scale physical removal, diver removal, and targeted use of aquatic herbicides. Other AIS will continue to be monitored for, but no specific management is recommended at this time.

There are six broad goals for aquatic plant management in Horseshoe Lake, each with a number of objectives and actions to accomplish over the course of the next five years. Appendix D is an outline of the aquatic plant management goals and activities, and Appendix E is a five-year timeline for completion of the activities included in this APM Plan. Any major change in activities or management philosophy will be presented to the HLPa and the WDNR for approval. The six goals for this plan are as follows:

1. Native Plant Protection, Preservation, and Enhancement
2. EWM Management and Monitoring
3. AIS Education, Prevention, and Planning
4. Wildlife Appreciation and Awareness
5. Lake Community Understanding and Awareness
6. Aquatic Plant Management Plan Maintenance

This APM Plan will be implemented by the Horseshoe Lake Property Association, their consultants, and through partnerships formed with the WDNR, Washburn County, and other local clubs and organizations. Annual reports and end of project assessments will be completed throughout the duration of this 5-year plan.

### **12.1 Goal One – Native Plant Protection, Preservation, and Enhancement**

The objective of any aquatic plant management is to protect and enhance diversity and distribution of native aquatic plants in the lake. Over the course of this management plan, the current diversity and distribution of native plants will not be reduced. An additional objective is to increase native plant diversity within areas designated for EWM management. Success will be measured by comparing post treatment survey results annually. No loss of diversity will be measured when the full lake point intercept aquatic plant survey is completed in 2015.

#### **12.1.1 Risks Posed by Native Plant Removal**

The Horseshoe Lake Property Association will educate riparian owners of the risk posed by removing native vegetation from around their docks and swimming areas. The removal of natives opens up space for non-natives like EWM to establish. If a landowner has to remove native plants, the HLPa will help make sure that the landowner is familiar with EWM and ask that they continually monitor their area for EWM.

#### **12.1.2 Wild Rice Awareness**

Even though wild rice has not currently been identified in Horseshoe Lake, lake residents will be made aware of it and efforts undertaken to educate lake users about wild rice. The

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objective of this action is to increase awareness of lake users so as not to inadvertently negatively affect waters where wild rice could be present.

**12.1.2.1 Lake Community Education**

The HLPa will provide lake property owners with educational and informational materials related to the value of wild rice as a resource found in the lakes. Wild rice resources are available from the WDNR, GLIWC, and on the internet. An example of such promotions would be to invite a speaker on wild rice to one of the HLPa annual events.

**12.1.2.2 Wild Rice Monitoring**

At least once annually in the late summer, HLPa volunteers trained in identifying wild rice will monitor Horseshoe Lake for the presence of wild rice. If found, new locations will be mapped using a hand-held GPS unit.

**12.1.3 Critical Habitat Survey**

Should the WDNR ever reactivate its Critical Habitat Survey program and chose to do one on Horseshoe Lake, the HLPa will support its completion. During a Critical Habitat Survey, WDNR field staff, compile and review the most current scientific data about the water body. Data is also solicited from local units of government, conservation organizations, federal agencies, local businesses and anyone who may have resource knowledge and information. This information is used to assemble maps to identify targets of focus related to fish, wildlife, endangered resources, and their habitats. Public rights features including lake access and navigation are also identified and added to the data. The resulting maps and supporting data are compiled into a draft Critical Habitat Designation report, which is posted on the Department's website for public review. The WDNR must also give notice of the draft report to the local media, the county clerk, and legislators. If requested or if concerns are anticipated, the WDNR typically holds informational meetings to answer questions and receive comments. Once public comment is received and the report is complete, Critical Habitat Designations are posted on the DNR website.

Critical Habitat designation can be used to guide appropriate management actions that do not negatively impact the most sensitive areas in the lake. It does not necessarily prevent management in those areas, but does insure that adequate consideration is given as to the impacts that management would have.

**12.1.4 Aquatic Plant Management Impacts to the Fishery**

All lakes have habitat of critical importance to one of more parts of the overall lake ecosystem. The HLPa will manage non-native aquatic plants like EWM in a manner that will not suffer any of these ecosystems. To protect and maintain the current fishery, plant management other than physical removal, will not be implemented in water less than 3-ft deep or in water designated as critical habitat unless said management would improve that habitat.

**12.1.5 Woody Debris**

The HLPa will promote the protection of woody debris already in Horseshoe Lake, and evaluate the potential to increase woody debris through the use of tree drops or other acceptable fisheries management activities.

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## **12.2 Goal Two – Eurasian Watermilfoil Management and Monitoring**

The HLPAs and resource professionals retained by the HLPAs will continually monitor the littoral zone of Horseshoe Lake in an effort to identify any new EWM sites while they are still in a pioneering or manageable stage. Any new EWM identified will be immediately removed or managed in some way as a zero tolerance for new infestations is one of the main objectives of this goal. A second objective is to reduce the EWM in the existing EWM zone to annual levels below an acre in size by implementing an integrated approach to management.

### **12.2.1 Pre and Post Treatment Survey and Fall Bed Mapping**

Management of EWM will be based on information obtained annually by either trained HLPAs volunteers or resource professionals retained by the HLPAs. This information includes annual fall survey and bed mapping of EWM, pre treatment survey of annually proposed treatment areas, and post treatment aquatic plant survey in the areas treated.

Pre and post treatment surveying is not required by the WDNR unless the chemically treated area covers more than 10 acres or 10% of the littoral zone. However, completing these tasks is highly recommended in any treatment program as they provide a means to measure success.

### **12.2.2 Management Alternatives**

The HLPAs will undertake EWM management that includes physical removal, diver removal, and the targeted use of aquatic herbicides. Physical removal will be completed by educated landowners who monitor their own shorelines or by a trained EWM Management Team sponsored by the HLPAs. Diver removal will be completed by HLPAs volunteers and/or resource professionals retained by the HLPAs.

Herbicides will be used to manage existing EWM and any existing or new area deemed too large for physical removal. Specifics for what herbicide to use and when will be determined annually during the proposed treatment phase of planning. Granular or liquid herbicide could be used, as well as one or more different but approved herbicides in Wisconsin. Spring application of herbicides is preferred as this usually provides less impact to native plants and other lake concerns. However, mid-season application of herbicides will be implemented if new beds of EWM are discovered or as follow up to a spring application.

### **12.2.3 Residual Testing**

Once an herbicide is used, it is expected that that herbicide will have no unintended impact. One way to determine if this is true is to complete herbicide concentration testing after treatment occurs. Residual testing may be done every hour for the first 6-12 hours immediately following treatment, and may be extended over a period of several weeks at less frequent intervals. Water samples would be collected by HLPAs volunteers and then analyzed for the presence of the herbicide used. Though not currently required by the WDNR, it is a good management tool to use as it helps answer the question “What happens to the herbicide that is put in the lake?”

As long as EWM management remains below what is considered large-scale management, residual testing will only be completed if supported by grant funding or if Horseshoe Lake is a participant in a WDNR/Army Corp of Engineers concentration testing program.

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#### **12.2.4 EWM Weevil Survey**

If EWM becomes more prevalent in Horseshoe Lake, it is recommended that the HLPa begin a monitoring program for the Eurasian watermilfoil weevil. Weevil monitoring is a part of the CLMN AIS Monitoring Program, and if conditions warrant, weevils may be reared by volunteers using protocol established by Golden Sands RC&D.

#### **12.3 Goal Three – AIS Education, Prevention, and Planning**

The objective of AIS education, prevention, and planning in this plan is to create a lake community that is aware of the problems associated with AIS and has enough knowledge about certain species to aid in detection, planning, and implementation of management alternatives.

An AIS Rapid Response Plan has been developed for Horseshoe Lake as a part of this plan. The Rapid Response Plan contains information on what to do if a suspect AIS is found, who to contact, and what should be done if a positive ID is made. A copy of this plan is in Appendix F.

##### **12.3.1 Watercraft Inspection and Signage**

The HLPa will develop an active water craft inspection program modeled after WDNR/UW-Extension Clean Boats, Clean Waters guidelines. It is recommended that the HLPa participate in the annual WDNR 4<sup>th</sup> of July Landing Blitz. All watercraft inspection data collected annually will be submitted to the WDNR SWIMS database. The HLPa will maintain and update AIS signage located at the Horseshoe Lake public access. The goal of this action is to keep new AIS from being introduced to the lake, and to prevent EWM from being carried out of the lake by an unwary lake user.

##### **12.3.2 In-Lake AIS Monitoring**

No AIS other than EWM has been identified to date in Horseshoe Lake. The objective for AIS monitoring is to have trained HLPa volunteers and resource professionals retained by the HLPa look for and document when necessary, the presence of any other AIS in the lake. The Citizen Lake Monitoring Network sponsored by the WDNR and UW-Extension offers an AIS Monitoring Program that costs nothing to be a part of. This program provides volunteer training and supplies for EWM, purple loosestrife, Chinese Mystery Snails, Rusty Crayfish, zebra mussels, curly-leaf pondweed, and several other species. If new AIS are identified, procedures outlined in the AIS Rapid Response Plan for Horseshoe Lake will be implemented. The success of this objective will be measured by the level of lake volunteer participation, recording of AIS monitoring time, and tracking of results. All data will be recorded annually and submitted to the WDNR SWIMS database.

##### **12.3.3 Lake Community Education Events**

The objective of lake community education is to establish and maintain lake community participation in actions implemented to manage the lake. This gives the lake community voice in management decisions, and garners support and understanding for the management decisions made. Success will be measured by the level of satisfaction and involvement HLPa members have for the management efforts undertaken.

In each year of this APM Plan, the HLPa will host/sponsor at least one education event focused on some aspect of AIS. This event could be a lake fair, a workshop targeting a specific topic (watercraft inspection, shoreland restoration, aquatic plant identification, aquatic plant management, wild rice awareness and education, etc), or a special meeting or

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presentation. This event could be held by itself, or in combination with some other regularly scheduled event like the Town of Minong Lakes Fair or HLPAs annual meeting.

#### **12.3.4 Distribution of Information and Education Materials**

The HLPAs will keep its membership informed as to the events happening in and around the lake. A newsletter will be developed and distributed at least twice annually, the Lake Association webpage will be maintained and updated on a regular basis, and AIS materials will be distributed to lake residents. Lake related documents like this APM Plan and the results of aquatic plant surveys will be posted on the webpage, and a portion of every HLPAs annual meeting will be devoted to AIS and EWM management.

#### **12.4 Goal Four – Wildlife Appreciation**

The objective of wildlife appreciation planning and implementation is to improve the knowledge of the lake community of how management actions in and around the lake effects the wildlife living there. Success will be measured in the amount of interest and participation HLPAs members have in numerous monitoring programs.

##### **12.4.1 Monitoring Program Information and Participation**

The HLPAs will provide education and informational materials related to wildlife and wildlife monitoring programs during events, in newsletters, on the webpage, and during meetings. Wildlife monitoring information is available from the Sigurd Olson Institute (Loonwatch), the Citizen Based Monitoring Network of Wisconsin (Citizen Science), and other sources. Riparian owner participation will be encouraged and recognized by the HLPAs.

#### **12.5 Goal Five – Lake Community Understanding**

The objective of this goal is to educate the lake community about how what they do impacts the aquatic plants and water quality in the lakes. Success will be measured in the number of projects HLPAs members participate in and in the understanding the lake community gains in this endeavor. The completion of at least three or four shoreland or habitat improvements projects over five years and uninterrupted long-term trend monitoring via the CLMN water quality program would indicate that this objective is being successfully completed.

##### **12.5.1 Shoreland Restoration and Habitat Improvement**

It is recommended that the HLPAs encourage riparian owner participation in shoreland restoration and habitat improvement programs sponsored by Washburn County, WDNR, and other shoreland improvement programs. Information about these programs will be made available to HLPAs members through the newsletter, on the webpage, and/or during HLPAs or other sponsored events.

##### **12.5.2 Riparian Owner Best Management Practices**

It is recommended in this plan that the HLPAs encourage riparian owner participation in best management practices that may reduce shoreland runoff and nutrient loading into the lakes. Informational and educational materials will be made available to HLPAs members through the newsletter, on the webpage, and/or during HLPAs sponsored events. Best management practices could include but are not limited to the establishment of buffer strips, runoff diversions, rain gardens, septic system maintenance, non-impervious surfaces, and no mow areas.

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### **12.5.3 CLMN Water Quality Monitoring Program**

The HLPAs will participate in the CLMN Water Quality Monitoring Program. This APM Plan recommends completing all CLMN expanded monitoring parameters (Secchi, temperature, dissolved oxygen, total phosphorus, and chlorophyll a) at two sites, one in the west basin and one in the east basin. In addition to the normal spring, June, July, and August sampling dates this APM Plan recommends adding October sampling as well. October sampling will help to identify changes that maybe brought about late in the season by EWM management actions. October sampling would only be completed if supported by grant funding.

As the HLPAs implement aquatic plant management alternatives it is possible that the water quality in the lake could be impacted. Participating in basic, long-term trend water quality monitoring may help identify additional changes due to plant management activities.

To aid in the collection of dissolved oxygen and temperature data, this APM Plan recommends the purchase of an WDNR approved DO/Temp Meter be included in any grant application to support further management.

At some point in the next five years, the HLPAs should consider completing comprehensive water quality lake management planning for Horseshoe Lake and its watershed.

### **12.5.4 Lake Level and Precipitation Monitoring**

It is recommended in this APM Plan that water levels in Horseshoe Lake be monitored on a weekly basis. This can be accomplished by installing a staff gage at a property owned by a HLPAs volunteer who is a permanent resident on the lake. A staff gage is a measuring tool installed on a permanent structure in the lake or placed in reference to a permanent and unchanging structure on the shore whereby fluctuating water levels can be recorded.

It is recommended that the HLPAs install at least one rain gage on the lake and document precipitation as it occurs. Support for this management recommendation can be accessed by HLPAs participation in the Community Collaborative Rain, Hail and Snow (CoCoRaHS) Network. CoCoRaHS is a unique, non-profit, community-based network of volunteers of all ages and backgrounds working together to measure and map precipitation (rain, hail and snow). By using low-cost measurement tools, stressing training and education, and utilizing an interactive Web-site ([www.cocorahs.org](http://www.cocorahs.org)), their aim is to provide the highest quality data for natural resource, education and research applications.

## **12.6 Goal 6 - Aquatic Plant Management Plan Maintenance**

This APM Plan is a working document guiding management actions on Horseshoe Lake over the next five years. Complete annual and end of project activity and assessment reports are necessary to make annual adjustments. The following activities will support APM Plan maintenance.

### **12.6.1 Successful Reporting and Data Sharing**

The objective here is to complete project reporting that meets the needs of the WDNR and HLPAs, allows for timely reimbursement of expenses, and provides the appropriate data for continued management success. Success will be measured by the efficiency and ease in which these actions are completed.

### **12.6.2 End of Year and Annual Management Proposals**

The HLPAs and their retainers will compile, analyze, and summarize management operations, public education, and other pertinent data annually in report form and make it available to

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members of the HLPa, Washburn County, Town of Minong, and the WDNR. These reports will also serve as a vehicle to propose following year management recommendations. These reports will be completed by the HLPa and their retainers prior to implementing following year management actions (approximately March 31<sup>st</sup> annually).

#### **12.6.3 Five Year Redo of the Point Intercept Aquatic Plant Survey**

It is recommended that the HLPa complete another whole lake, point intercept aquatic plant survey of the lake in 2016. Results will be compared to 2011 survey results to determine long-term impacts on both target and non-target aquatic plants over the five years of management.

#### **12.6.4 End of Project Five-Year Project Evaluation and Assessment**

At the end of this five year project, all management efforts and related activities will be compiled, analyzed, and put in report form. This document will discuss the successes and failures of the existing APM Plan and be the basis for making revisions to a new APM Plan. The report will be compiled by the HLPa and their retainers and made available to HLPa membership, Washburn County, the Town of Minong, and the WDNR. The report will be completed by June 30<sup>th</sup> in the year after the final year of this APM Plan.

### **13.0 Works Cited**

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