Pike Chain of Lakes 2016-2018 Eurasian Water Milfoil Control Project Summary

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INTRODUCTION

First documented in 2004 within the Twin Bear – Hart Lake channel, Eurasian water milfoil (EWM) has since spread to all six of the Pike Chain Lakes. Since 2005, the IRPCLA and partners have engaged in an aggressive battle against EWM, through direct control (herbicide treatments and hand-removal) as well as educational initiatives (newsletter articles, speakers at annual meetings, Clean Boats Clean Waters inspections, boat wash coupons and more). The program has largely been considered successful in that EWM has been contained to a relatively low level within the chain lakes. A 2014 report concluding the end of a 2009-2014 grant-funded study, identified that over the course of nine years, numerous areas had been treated repeatedly. This would indicate that although annual (seasonal) success may have been obtained, the herbicide treatments have not been effective at reducing EWM on a longer-term basis.

While the Pike Chain EWM colonies have fluctuated in density and extent over the years, many residents are aware that in 2015 the colonies grew very well during the summer. Figure 1 outlines the mapped colonies in the chain from 2007 to 2015. Please note that Figure 1 represents the acreage of mapped EWM polygons and excludes EWM mapped with point-based methodologies (*Single or Few Plants, Clumps of Plants,* or *Small Plant Colonies*). Taken out of context, this figure can be misleading as large-increases in EWM colonial acreage may be the results of low-density point-based data increasing to levels that now are best delineated with EWM colonies. While this was the case with the large acreage increases in 2015, Figure 1 is a good indicator of overall EWM trends in the chain.

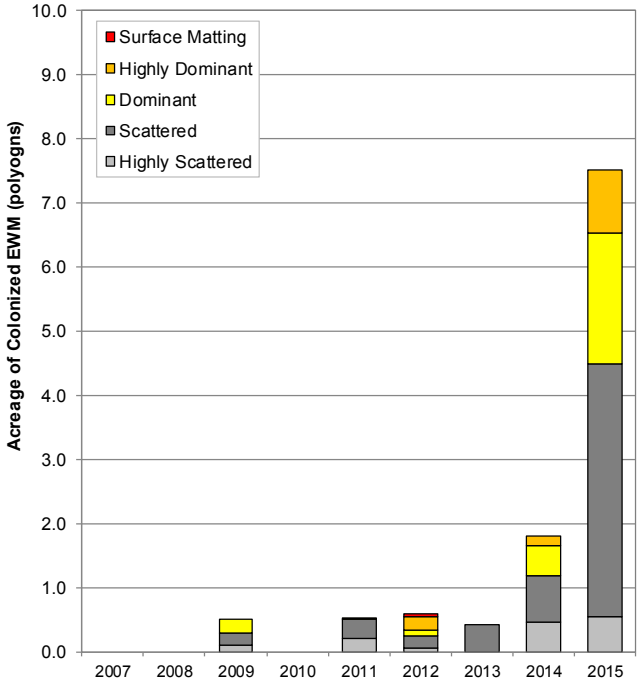

Figure 1. Pike Chain of Lakes late season Eurasian water milfoil colony acreage, 2007-2015. Graph does not include point-based mapping results.

MODIFIED EWM CONTROL STRATEGY

On October 15, 2015, several Iron River Pike Chain of Lakes Association (IRPCLA) board members and Onterra ecologist Dan Cibulka met with Wisconsin Department of Natural Resources (WDNR) staff Pamela Toshner at the WDNR Spooner office. WDNR staff Scott Provost and Scott Van Egeren joined the meeting through teleconference. The purpose of the meeting was to discuss management strategies and funding opportunities for the IRPCLA in the upcoming year. During this time, the concepts of whole lake vs spot treatments were examined. While the data indicate that the IRPCLA have had mixed short- and long-term results utilizing spot treatments, the current establishment of EWM within several of the Pike Chain Lakes has resulted in a much greater size of the proposed spot treatments. The additive impact of more numerous and larger spot treatments would potentially have whole lake impacts; that is, a measurable concentration of herbicide would be found lake-wide.

As a result of this meeting, Onterra ecologists developed a three-year project for the IRPCLA to reach their control goals. The commencing three-year project outlines a new technique for herbicide application (i.e. whole-lake herbicide treatments) as well as including Integrated Pest Management (IPM) actions to control EWM through overlapping and follow-up non-herbicide control methods. An IPM strategy utilizes follow-up control measures to ensure longevity of control. Specifically, Buskey Bay, Lake Millicent, Twin Bear, and Hart Lake are tentatively scheduled to be targeted for control with low-concentration 2,4-D herbicide applications in 2017. Hand-removal of EWM in smaller density locations and utilization of Diver Assisted Suction Harvest (DASH) in moderately dense areas will round out the integrated approach. These efforts will primarily be focused in Eagle Lake during 2016 and expand to all areas of the chain following the herbicide treatment strategy.

Herbicide Control Strategy

While great strides in EWM management have occurred while conducting strategic spot treatments over the past years, the scale of the current EWM population is beyond the effectiveness of this strategy. Conducting whole-lake herbicide treatments are likely the only management actions that may be able to reduce the EWM population on a system-wide basin within the Pike Chain of Lakes. In general, whole-lake treatments have become more favorable by lake managers (and public sector partners) as they impact the entire EWM population all at once. This minimizes the repeated need for exposing the lake annually to herbicides. Predicting success (EWM control) and native plant impacts from whole-lake treatments is also better understood than for spot treatments.

Whole-lake treatments are typically conducted when the target plant is spread throughout much of the lake or basin, as is the case of the Pike Chain of Lakes. Whole-lake treatments are a type of strategy where the herbicide may be applied to specific sites, but the goal of the strategy is for the herbicide to reach a target concentration when it equally distributes throughout the entire mixing volume of the lake. Within the Pike Chain of Lakes, the herbicide mixing volume would be the top water layer (epilimnion) within each of the lakes being targeted. In spot treatment

scenarios, the herbicide moves off site and dilutes rapidly, typically within a few hours. In order to compensate for a short exposure time, a high concentration of herbicide is required to control the EWM. But within whole-lake treatment scenarios, the exposure time is dictated by the degradation (breakdown) of the herbicide and is typically 21-35 days. Because exposure time is so much greater, effective herbicide concentrations for whole-lake treatments are significantly less (10 fold less) than required for spot treatments.

Hand-removal

The use of divers and snorkelers to remove EWM from the Pike Chain of Lakes is a technique that has been in use since EWM was first discovered here. In 2015, paid professional divers spent 81 hours removing 2,550 pounds of EWM. It is estimated that volunteers contributed another 200 hours and an estimated 4,000 pounds of removed EWM. These are incredible efforts that will need to continue if the IRPCLA is to remain on top of small EWM colonies, before they expand greatly. In 2016-2018, volunteers can log time surveying and removing EWM on the chain lakes and these efforts will be eligible for donated time towards the grant funded project. As previously mentioned, Bayfield County AIS Coordinator Andrew Teal will be available to train volunteers on EWM identification, surveying, and removal. Tracking time spent and the amount of EWM removed is critical in order to understand the level of effort expended and providing in-kind hours towards the grant funded project.

Diver Assisted Suction Harvest (DASH)

DASH is a method that is several years in existence and has been utilized in numerous waterbodies across the state. Through this technique, a diver takes a suction hose that is connected to a pump mounted to a watercraft. The diver locates the target plant, removes it with his hands, and places the plant and root crown into the suction hose. The hose transports the plant up to the surface, where the contents are dispersed over a mesh bag and the water returned to the lake. The removal of the plant by the diver is crucial – to place the suction hose directly on the lake bottom would constitute a form of dredging and with this, many permits would be required. DASH use requires a mechanical harvesting permit, a simple and short permit form that essentially outlines where the work is being completed on the lake. The utilization of DASH is thought to be most effective on a consolidated colony of high density, as the diver can remove plants at a rate higher than that of a diver / snorkeler using hand-removal methods alone. Use of DASH on highly scattered or non-contiguous plant colonies is not advised by Onterra as much time is spent picking up and moving the DASH vessel and diver from location to location. These areas are best served by traditional hand-removal.

THREE YEAR CONTROL PROJECT

In February of 2016, the IRCLA submitted an Aquatic Invasive Species Established Population Control (AIS-EPC) grant to the WDNR's surface water grant program, outlining a three-year monitoring and control project. This project was ranked highly due to its comprehensive nature and support by program partners; thus was funded by the WDNR in April of 2016 and the project is now underway.

Partnerships and Educational Components

As previously mentioned, the WDNR approved project consists of three years of monitoring and control of EWM on all six of the Pike Chain of Lakes. The project involves collaborations between numerous partners which increases its valuable educational component as well. The Town of Iron River has donated support in several ways to this project. First, a cash contribution has been provided by the town. Secondly, to augment enforcement of State of Wisconsin AIS transport laws, the Town of Iron River Police Department has agreed to station watercraft landings with police staff for several hours a week. Police staff will greet watercraft visitors and discuss AIS transport laws in an effort to spread awareness of the importance of cleaning watercraft and reducing the spread of AIS via watercraft.

Meetings facilitated by Onterra staff will outline the project components and study results to IRPCLA members as well as the general public. IRPCLA volunteers will provide a key role in their participation during these meetings, as well as monitoring and hand-removing EWM on the chain lakes. These volunteers will be trained in aquatic invasive species identification, surveillance techniques and hand-removal by Bayfield AIS Coordinator Andrew Teal during 2016, the first year of the project.

In addition to work on the water, IRPCLA volunteers will be continuing work at the Pike Chain's public access locations. The Clean Boats Clean Waters program will be continued in 2016. However, this year the IRPCLA will be complimenting these efforts with two public access programs aimed to assist in containing AIS and cleaning watercraft. The Bucket Brigade Program will include a station of highly visible 5-gallon buckets, available for watercraft operators who visit the chain. Any AIS that is encountered may be placed into the bucket and properly disposed of once the watercraft returns to the access location. Upon removing the watercraft from the lake, the second new initiative will come into play – cleaning the watercraft with tools provided at a Cleaning Tool Kiosk. The cleaning tools will include a diluted bleach solution, scrub brush and other items that can be used to clean watercraft in a safe manner consistent with WDNR watercraft cleaning procedures.

Control Strategy Planning and Monitoring Strategy

The overall goal of the three-year project is to control EWM populations on a system-wide basis, with attention paid to multi-year control and minimizing native plant impacts. The control efforts will be evaluated through native plant and EWM population monitoring during the year before treatment (2016), year of treatment (2017), and year following treatment (2018). Late-Summer EWM Mapping Surveys would be conducted each year to produce the mapping data to document a census of the EWM population within the chain. Point-intercept plant surveys would also occur during the summer of each year to quantitatively compare the populations of target (EWM) and non-target (native plant) over this time period.

The IRPCLA understand that EWM population rebound is inevitable following the whole-lake herbicide control strategy. The IRPCLA would initiate volunteer- and/or professional-based hand-harvesting activities targeting small remnant EWM populations within the lakes following herbicide control if applicable. The IRPCLA would also focus hand-harvesting methods on Eagle Lake and Flynn Lake during all years of the project. To properly coordinate hand-harvesting activities, an Early-Season AIS (ESAIS) Survey would be conducted in June of each year on the applicable waterbodies. With the spatial data from the ESAIS Survey and delineated harvest areas loaded onto a GPS unit, harvesters would remove EWM following a previously outlined strategy by Onterra and the IRPCLA. Hand-harvesting would take place between the ESAIS (pre) and the Late-Summer EWM Mapping Survey (post), comparing the two surveys for evaluation of the management activity.

CONCLUSION / SUMMARY

With a new strategy in place for Pike Chain of Lakes EWM control as well as a highly collaborative educational initiative, optimism is high for a successful project in 2016-2018. As mentioned earlier in this article, stakeholder and volunteer participation will be a critical part of the project's success. All IRPCLA members and the general public are encouraged to participate in the project's components including work on the water, at the boat landings and at the project meetings. Your first opportunity to participate and hear firsthand of the project components will be at the project's Kickoff Meeting, which is scheduled to take place at Iron River Community Center on Saturday, August 6, 2016 at the PCLA Annual Meeting from 9 a.m.-11 a.m. Please plan on attending and do not hesitate to ask questions. We look forward to working with all of you on the upcoming project!