MINNEHAHA CREEK WATERSHED DISTRICT
QUALITY OF WATER QUALITY OF LIFE

MEMORANDUM

To: MCWD Board of Managers

From: Eric Fieldseth, AIS Program Manager

Date: March 24, 2016

Subject: AIS Updates

At the March 24, 2016 Board Meeting, staff will provide some brief updates on several activities ongoing within the AIS program.

Update on Starry Stonewort in Minnesota – Starry Stonewort is an invasive macro-algae, but looks similar to vascular aquatic plants and other native macro-algae such as Chara. It was found for the first time in Minnesota last fall in Lake Koronis, which is about 90 miles west of Minnetonka. It's a very aggressive spreader, and has had real ecological impacts on lakes in Michigan, where it's widespread. Eric Fieldseth, MCWD AIS Program Manager, recently attended the Midwest Aquatic Plant Management Society Conference in Michigan, where a special session on Starry Stonewort was held. Two staff from the MN DNR were also in attendance. Staff will present what was learned at that conference, and why the District should be concerned about this new AIS. Some of those concerns are as follows:

- Unpredictable and very adaptable
- Can take over a lake and outcompete all other aquatic plants, even Eurasian Watermilfoil
- Population can rapidly crash, killing all other aquatic plants with it – often resulting in blue-green algae blooms
- Difficult to manage
- Disrupts fish habitat and spawning areas
- Zebra mussels are very attracted to the plant and attach readily
- Has the ability to draw Phosphorus from the sediments – even though it's not a rooted plant
- Difficult to detect early

Applied Research Projects under Development

- Hybrid Milfoil Study – This project set out to understand the taxonomic composition of watermilfoils (Eurasian, Northern & Hybrids) in Lake Minnetonka and Christmas Lake; does this composition differ in herbicide-treated versus untreated lakes; and are hybrid watermilfoil populations genetically distinct in different waterbodies. This research has

clear implications on the management and spread of Eurasian Watermilfoil, and may identify certain genotypes that are more resilient to herbicide management than others, and thus may also be more prone to being spread from one waterbody to the next. This study is being done in partnership with Researchers from the University of Minnesota and Montana State University (expertise in genetic analysis of milfoil). It began in 2015 with an AIS grant from Hennepin County; however, not all samples collected were genetically analyzed due to limited budget, so these findings are only preliminary until the larger data set can be examined. A full report on the findings is near completion.

Hennepin County recently approved a $20,000 grant to the MCWD for 2016 that will allow Montana State University to analyze the remaining samples from 2015, and write a report on the complete data set and findings. Additional bays may be sampled in 2016 to help draw a clearer picture and answer more questions. MCWD acted as a local partner to apply for these grant funds, which requires no local match. Agreements for this work will be upcoming at a future Board meeting.

- Zebra Mussel Control Study – Identified in the 2016 AIS Workplan. This activity will be accomplished through two research studies described below. They both build upon knowledge and experience gained through the Christmas Lake zebra mussel rapid response, and would help guide future response decisions and management activities for zebra mussels.
    - Zebra Mussel Veliger Control Study – This proposal would evaluate prevention and population suppression of zebra mussels by targeting veliger larvae with very low doses of a copper-based pesticide, EarthTec QZ. Literature has shown that molluscicides are more toxic to veliger larval stages than to adults – particularly in the case of copper-based pesticides. The prevention benefits would be twofold: first would be control of adult population sizes, and second would be reduction in concentrations of live larvae in "residual waters" transported by recreational boats. Reducing larval survival would also reduce recruitment (i.e., larval settlement). Controlling recruitment (via bay wide or lake wide treatments in small lakes) could reduce ecological and economic harm with minimal non-target impacts. And given the short life span of adults and the fact that population persistence over the longer term depends on annual recruitment, this strategy might be used to control population growth rate. This study would be led by Dr. Mike McCartney from the MN AIS Research Center, with assistance from the MCWD. The MCWD acted as a local partner to apply for a Hennepin County AIS grant, which requires no local match. Hennepin County recently awarded the MCWD with a $24,000 grant to complete the project. Agreements for the work will be upcoming at a future Board meeting.

- USGS – Temperature-dependent toxicity of molluscicides to adult zebra mussels - Currently, water-temperature dependent treatment protocols to eradicate localized zebra mussel infestations in a rapid-response scenario are lacking. Recent rapid-response eradication attempts in Minnesota on Christmas Lake and Lake Independence were conducted in cool water temperatures, and were hindered by the lack of water-temperature dependent treatment protocols to identify the appropriate molluscicide and dosing regimens. Development of a temperature-dependent treatment protocol will provide a critical decision support tool for (1) selection of the correct molluscicide, (2) determination of the water-temperature dependent treatment parameters, (3) determination of the probability of success for a proposed rapid response action, and (4) estimating treatment related costs.

  This research proposal is being led by the USGS, with MCWD acting as a local partner. The USGS responded to an RFP from the MN AIS Research Center, and the proposal is currently under review for funding. The majority of the work would occur in the USGS lab in LaCrosse, WI, with zebra mussels collected from Lake Minnetonka at various times of the year. The project will evaluate 4 different molluscicides, including Zequanox, EarthTec QZ, Potassium Chloride and niclosamide. Studies will be conducted at water temperatures similar to environmental conditions at the time of test animal collection. The MCWD would be contributing $20,000 which is identified in the 2016 AIS Workplan as a local contribution, the USGS would be contributing $114,830 as well as another $26,500 of in-kind contributions. The proposed grant amount is $186,999.

MCWD AIS Spotlight Event – With an early ice out and spring just around the corner, the District's AIS program is gearing up for another season. There is a lot to share about the District's AIS prevention and management efforts, so we are planning an "AIS Spotlight" event on Thursday, April 21, from 8:30-10am at the Minnetonka Community Center. This will be an opportunity to inform our interested public about what we've learned and accomplished over the past few years, and what we see in the next few years ahead. It will highlight some of our notable work and include testimonials from key partners. Central themes will be prevention, research, and partnerships. More information from our Lake Minnetonka Zebra mussel study and the Hybrid Milfoil Study will shared. We also plan to produce a companion brochure that can be shared with our stakeholders after the event. You will be hearing more about the event as the date draws near. Please save the date and plan to attend!