

## **MEMORANDUM**

**To:** MCWD Board of Managers  
**From:** Eric Fieldseth, AIS Program Manager  
**Date:** October 22, 2015  
**Subject:** Lake Minnetonka Zebra Mussel Study Presentation

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The District's zebra mussel study on Lake Minnetonka has been selected for a presentation at the North American Lake Management Society's International Symposium in Saratoga Springs, New York, on November 17 – 20, 2015. The District has been consulting with Steve McComas from Blue Water Science on the study since 2011, and is working with Mr. McComas on writing up a paper for publication on the data. Mr. McComas will be giving the presentation at the conference, with assistance from District AIS Program Manager Eric Fieldseth. The presentation will be given first to the District's Board of Managers at its October 22<sup>nd</sup> meeting.

### **Background of Study**

After zebra mussels were found in Lake Minnetonka in 2010, the District consulted with Steve McComas from Blue Water Science to develop a study that would track the population of zebra mussels throughout the lake, as well as assess any changes in water quality conditions and algal communities in the lake from pre-zebra mussel conditions. This was designed to be a three-year study running from 2011 to 2013, but 2011 ended up being a "learning year" working through the protocol, so it was extended into 2014.

### **Key Findings from the Study**

- Algal composition will greatly influence zebra mussel populations
- Zebra Mussels have the greatest impact in moderately fertile bays or lakes
- Water clarity has increased in most areas of the lake
- Some bays may be becoming food limited and could impact the zebra mussel population in the coming years.
- Chlorophyll-a is decreasing in bays with higher densities of zebra mussels
- Highly eutrophic bays have low zebra mussel populations and limited impact
- Zebra mussel infestation levels in Lake Minnetonka follow closely the criteria described in Mackie and Claudi 2010, which shows suitability requirements for high, medium and low levels of zebra mussel growth and survival
- Findings from this study can be applied to other lakes in the District and state-wide

## **Future Steps**

Seeing the value of the data being collected, and the valuable information that can be learned from it, District staff intends to collect zebra mussel population data annually on Lake Minnetonka, and every other year collect the larger set of parameters. From an extended data set, the zebra mussel population and the impacts to the lake can be tracked over a longer time period, and more information could be learned that could inform lake managers across the state, as well as our own decisions in the District. 2016 would be the next year to collect the larger set of parameters, and it is shown in the 2016 AIS work plan. The suite of parameters that are being collected are listed below:

### Collected Anually

- Monthly zebra mussel production estimates
- Annual zebra mussel production estimates
- Total Phosphorus, Chlorophyll-a and Secchi (taken from annual monitoring performed by District water quality staff)

### Collected every-other-year

- Periphyton samples for Chl-a and species identification (taken from algae attached to sampler plates)
- Zooplankton
- Phytoplankton
- Zebra Mussel Veliger Densities