



Zebra Mussel Control Research Project

Lake Minnetonka- St. Albans Bay and Robinson Bay
Summer 2019

Project Overview

Non-native zebra mussels are a high-impact nuisance aquatic invasive species that negatively impact the ecology of infested waterbodies. They can also have severe economic impacts related to mitigating their biofouling of water intakes, boats, docks, and other equipment. The purpose of this research project is to evaluate the use of low-dose EarthTec QZ[®] (copper) treatments to manage zebra mussel populations by suppressing their early life stages. Project support is provided through Minnesota's Environment and Natural Resources Trust Funds and it will be led by the United States Geological Survey (USGS). Project, funds, and reporting oversight will be provided by the Minnesota Aquatic Invasive Species Research Center (MAISRC). The project was developed after preliminary research conducted by researchers at the University of Minnesota and Minnehaha Creek Watershed District showed promising results for the use of low-dose copper treatments to suppress the early life stages of zebra mussels. The project is planned to be conducted in 2019 within St. Albans Bay (treated) and Robinson Bay (control) of Lake Minnetonka.

Time Frame

The project is anticipated to start in early May with the positioning of five buoys and submerged samplers in each bay. The 10-day treatment period is scheduled to commence in late July and all of the field components of the project will be completed in October.

Project Details

The USGS in partnership with MAISRC will lead the project and coordinate the contracting for the purchase of the EarthTec QZ[®] (copper) and contract laboratory support. Five every-other-day applications of EarthTec QZ[®] are scheduled to begin the week of July 22, 2019 and they are designed to maintain 60 parts per billion of copper in the water. The project will start in early to mid-May, when five buoys and zebra mussel plate samplers will be placed in both St. Albans Bay (treated) and Robinson Bay (control). This will allow evaluation of zebra mussel colonization throughout the entire growing season. The buoys will be placed in 12 to 15 feet of water and they will be removed in October 2019. During the treatment phase, submerged cages containing either adult zebra mussels, native mussels, or juvenile fish will be clustered around each buoy and used to assess treatment-related impacts.

The orange and white buoys are 5-inches in diameter and they are labeled "Hazard Area". There are no hazards associated with the application of EarthTec QZ[®], nor are there any water use or contact restrictions following the application of EarthTec QZ[®]. In fact, EarthTec QZ[®] is certified by NSF for use in drinking water. The buoys identify the locations for the submerged plate samplers, the mesh cages, and the locations where water and sediment samples will be collected.

Flashing solar lights will be attached to each buoy to minimize the chances of an unintended impact and the plate samplers will be below. Preliminary buoy and test site locations are indicated on the attached maps.

In addition to assessing treatment-related impacts to target (zebra mussels) and nontarget animals (fish and mussels) previously listed, the impacts to native zooplankton, benthic invertebrates, and algae will also be assessed. A contracting laboratory (RMB labs) will be used to quantify the abundance of zebra mussel larvae (veligers) and native zooplankton in plankton tows, and the abundance of benthic invertebrates in the sediment samples. A suite of water chemistry parameters will also be measured so that the results of the project can be readily transferred to other waterbodies that may have different water chemistry profiles.

This research project has support from the Lake Minnetonka Conservation District (LMCD), Lake Minnetonka Association, Hennepin County, the Minnehaha Creek Watershed District, the City of Greenwood, Minnesota Department of Natural Resources (MN DNR), and Tonka Bay Marina. The project has been reviewed for compliance with the National Environmental Policy Act (NEPA) and USGS policy. Project permits for the placement of buoys and equipment and the application of copper have been applied for from the Hennepin County Sheriff's office, LMCD, and the MN DNR.

How You Can Help

While measures are in place to ensure the success of the research project, your assistance in reporting unforeseen events would be appreciated. If you notice any movement in the buoys due to weather, traffic wakes, or other reasons, please contact the USGS. If you notice any suspicious activity, contact 9-1-1 for HCSO Water Patrol assistance.

Project Updates and Contact Information

It is anticipated that the results of the research project will be publicly available in early 2020. For more information about the project or to report an incident with equipment, contact:

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Informational Meeting

A public meeting will be held on April 23, 2019 at 6:00 pm to discuss the project and to answer questions.

Where: Deephaven City Hall
20225 Cottagewood Road
Deephaven, Minnesota

When: April 23rd at 6:00 p.m.

Frequently Asked Questions

1) Why was Lake Minnetonka selected for the study?

Lake Minnetonka provides ample shallow water habitat with good access to native invertebrates and zebra mussels. The study will also benefit from previous zebra mussel testing conducted with EarthTec QZ[®] by the UMN and MCWD. Additionally, groups such as the DNR, MCWD, LMCD, and Tonka Bay/St. Albans Bay Marinas have committed support, time, and/or resources to this project.

2) Has EarthTec QZ[®] been previously used in Minnesota?

Yes, EarthTec QZ[®] has been previously used in Minnesota during several zebra mussel eradication attempts at concentrations approximately 10 times greater than what will be used in this study. Other products with the same active ingredient (copper) are routinely used in lakes to control algae and snails at concentrations approximately 16 times greater than what will be used in the study.

3) Are there hazards associated with the application of EarthTec QZ[®] and will the study impact my use of the lake or consumption of fish?

No, there are no hazards associated with the application of EarthTec QZ[®] and there are no entry, use, or fish consumption restrictions after the application of EarthTec QZ[®]. EarthTec QZ[®] is certified by NSF for application to drinking water.

4) Will the study impact my lake access?

No, the buoys and cages will be positioned in 12-15' of water and boat passage through the study area will not be impeded.

5) When will the study take place?

The applications are scheduled for approximately July 22-30, 2019 and the assessments are scheduled for August-October 2019. The completion times are estimates and dependent upon study logistics and weather conditions.

6) What can I expect to see?

In early to mid-May there will be boats and study personnel preparing and installing buoys and submerged plate samplers in each bay. A few days prior to the applications study personnel will prepare and install submerged cages with test animals near each buoy. Study personnel will also collect water chemistry parameters, water samples, sediment samples, and plankton tows throughout the test period. On application days, EarthTec QZ[®] will be applied during the early morning hours from a

small barge using a venturi injection system. During the assessments, submerged samplers from each buoy location will be retrieved, and all test animals will be assessed for survival. All buoys and samplers will be removed from the bay at the conclusion of the assessment phase in October.

7) What benefit will the results of this research provide?

The research will help determine the suitability of low-dose EarthTec QZ[®] treatments for managing zebra mussel populations and the impact of copper-based products on aquatic environments. Our research goal is to provide data to inform the decisions of natural resource management agencies regarding the use of copper-based products for controlling zebra mussels and for other labelled uses.

8) Where can I find more information?

The public meeting on April 23rd will discuss the details of the EarthTec QZ[®] treatment on Lake Minnetonka and answer questions related to the project.

Proposed Buoy and Sampler Locations

St. Albans Bay



Robinson Bay

