

October 21, 2009



Tri-Lakes Association  
C/O Bill Iwen  
E5401 12<sup>th</sup> Road  
Algoma, Wisconsin 54201

Re: Aquatic Plant Management Report for Tri-Lakes  
Client: Tri-Lakes Association  
Client Project No.: 004020-09002-0

Dear Tri-Lakes Association members:

The Tri-Lakes Association (the Association) is a group responsible for the management of East and West Alaska Lakes' and Krohns Lake's aquatic invasive species (AIS), *Myriophyllum spicatum* (Eurasian watermilfoil – EWM) and *Potamogeton crispus* (curly-leaf pondweed - CLP). Bonestroo, Inc (formerly Northern Environmental) was contacted by the Association to provide a chemical herbicide treatment and survey of these AIS. Bonestroo furnished all labor, materials, tools and equipment necessary to perform all operations in connection with the chemical application of herbicides in select locations of the Tri-Lakes. This report provides a summary of observations, conclusions and recommendations for the chemical treatment of AIS growth for 2009 and upcoming 2010 season.

### PROJECT SUMMARY

This Aquatic Plant Management Report was produced as part of the aquatic plant management of East Alaska, West Alaska, and Krohns Lakes for 2009. The goal of the project was to control stands of EWM and CLP, encourage growth of native aquatic plants that are out competed by AIS, help improve the health of the lake ecosystem by restoring native habitat, and improve the recreational and aesthetic value of the three lakes. The report reviews existing and historical data for the lakes and activities that were conducted during 2009.

### BACKGROUND

The Tri-Lakes consists of three lakes, Krohns, East Alaska, and West Alaska, in the town of Pierce, Kewaunee County, Wisconsin. The characteristics of each lake are described below.

Lake	Type	Surface Area (acres)	Max Depth (ft)	Shoreline (mi)
East Alaska	Seepage	53	41	1.4
West Alaska	Seepage	20	50	1.03
Krohns	Spring	21	38	0.88

Eurasian water-milfoil (*Myriophyllum spicatum* – EWM) was confirmed in the Tri-Lakes in 1993 by the Wisconsin Department of Natural Resources (WDNR). Northern Environmental completed aquatic plant surveys on Krohns and West Alaska Lakes in 2003 and observed EWM. No management efforts were implemented for Aquatic Invasive Species (AIS) control until 2005 when approximately 1.93 acres of EWM and 0.2 acres of CLP were chemically treated across the Tri-Lakes. The WDNR completed an aquatic plant survey on Krohns Lake in 2006 and did not observe EWM

Northern Environmental completed an AIS evaluation plant survey in May 2007 and observed CLP in all three lakes but no EWM was observed. WDNR conducted an aquatic plant survey on Krohns Lake in 2007 and observed EWM at one sample location. Northern Environmental completed an Aquatic Invasive Species Prevention and Control Strategy (AISPCS) for the Association in 2007 using data from the aforementioned surveys. The 2007 AISPCS outlines actions for aquatic plant management and areas appropriate for chemical treatment.

Only CLP was managed and treated in 2008 with 1.00 acre treated across all three lakes. No EWM was not noticed during the pre-treatment survey, but was found on Krohns Lake and East Alaska Lake during the post-treatment surveys, prompting management actions of EWM for 2009.

## **2009 AQUATIC PLANT MANAGEMENT**

The Association contracted Bonestroo for the 2009 chemical treatment of EWM and/or CLP. Tri-Lakes Association was successfully issued a permit to chemically treat up to 5.5 cumulative acres of EWM and/or CLP for the 2009 season by the Wisconsin Department of Natural Resources (WDNR). Permitted acres per lake are as follows: Krohns Lake – 1.0 acre of EWM and 0.5 acres of CLP, West Alaska Lake – 1.0 acre of EWM and 0.5 acres of CLP, East Alaska Lake – 1.5 acres of EWM and 1.0 acres of CLP. Copies of the permits are included in Attachment A.

Before treatments began, a pre-treatment survey was necessary to verify the presence of EWM and/or CLP within the proposed treatment areas outlined in the permit. The survey was completed on May 11, 2009. On East Alaska Lake, no CLP was present with only 0.75 acres of EWM mapped, 0.25 acres of CLP was present on West Alaska Lake, and 0.5 acres of EWM was mapped on Krohns Lake.

Chemical treatment of all areas mapped during the pre-treatment survey was completed on June 1, 2009. All areas mapped during the pre-treatment survey were treated appropriately. For EWM growth, DMA 4<sup>®</sup> was applied at a rate of 1.0 ppm per acre foot (approximately four gallons per acre). Areas of CLP growth were treated with Aquathol K<sup>®</sup> at a rate of 1.0 – 1.5 (approximately four gallons per acre). The products were selected in order to ensure adequate contact and control of target vegetation. In compliance with regulations, treatment records were completed and are included in Attachment B. Treatment areas are shown in Figures 1-3.

In accordance with the treatment process, a post-treatment survey was conducted on July 23, 2009 to verify treatment success. During the post-treatment survey, remaining and new areas of EWM and CLP were mapped, as shown in Figures 1-3.

## RESULTS

The affect of the chemical treatment was determined by examining the relative abundance and distribution of remaining aquatic macrophytes following treatment. Treatment on West Alaska Lake showed a 100% success rate as no CLP was found during the post treatment survey. However, since turions (reproductive structures of CLP) can survive in lake sediment for five or more years, historical areas of CLP totaling 0.12 acres was mapped to be surveyed in 2010 prior to treatment to verify the presence of absence of CLP (Figure 1). East Alaska Lake was treated for 0.75 acres in 2009 with 0.36 acres remaining after treatment (a 52% success rate). All remaining areas of EWM are within shallow water (3 feet or less – Figure 2). Krohns Lake was treated for 0.5 acres of EWM. Though surveying of the treatment area found no remaining EWM (100% success), further exploration of historical AIS areas located a 0.9 acre area containing both EWM and CLP (Figure 3).

In total, areas treated for EWM across all three lakes totaled 1.25 acres while 0.36 acres remained within treatment areas (71% success). Curly-leaf pondweed was treated on West Alaska Lake only with no plants found during the post-treatment survey and a 0.12 acre area of historical CLP presence mapped for expected 2010 CLP growth. New AIS locations were found in Krohns Lake and totaled 0.9 acres.

## MANAGEMENT SUGGESTIONS

It is important that appropriate management actions continue on a yearly basis to ensure that nuisance invasive aquatic plant growth does not reach unmanageable levels. As seen in 2009, aquatic plant growth specifically EWM and CLP were reduced from levels seen prior to management activities within treated areas. Though CLP was not found during the post-treatment survey in treated areas, historical growth areas of CLP should be re-examined next spring. CLP turions can persist in lake bed sediments for upwards of five years and are not affected by treatment activities unless actively growing. Some re-growth of CLP is expected by next year. Currently, multiple-year treatments of the same area have reduced the plant. 1.02 acres of CLP were mapped for treatment in 2010. Of these areas, 0.12 acres are historical beds on West Alaska Lake and 0.90 acres are new beds on Krohns Lake.

1.26 acres of EWM were mapped during the fall survey across all lakes. This is less than what has historically been in the Lakes within the past five years. East Alaska Lake contains 0.36 acres and Krohns Lake has 0.90 acres of EWM. All areas of EWM are recommended to be treated in 2010.

In light of the past year's chemical treatment success, we recommend continued surveys, mapping, and chemical treatment of EWM and CLP in 2010 to ensure control. Though both AIS have been reduced from historical levels, complete extirpation of these AIS from the Tri-Lakes is unlikely. Current populations of AIS will fluctuate yearly and control actions should be altered accordingly. It is possible, if the Association is interested, as AIS populations come under control to a small and more manageable size, that Association members can monitor the lake for historic and new AIS infestations and contract with a qualified consultant on as needed basis, as a cost saving measure.

Because of the Association's proactive approach in dealing with AIS, the current populations of CLP and EWM within the Tri-Lakes are dwindling while native plants are reestablishing in numbers and diversity, improving the health and use opportunities of the lakes. However, the Tri-Lakes Association should continue to be involved in some type of aquatic plant management program to help manage nuisance aquatic plant growth of EWM and CLP posing recreational hazards to riparian property owners and visitors. EWM and CLP are extremely opportunistic plants and can grow to nuisance levels in a very short period of time. Continued management must occur to ensure the health, aesthetic and recreational value of the lake is not degraded.

The Tri-Lakes Association must remain proactive in their approach. With the Association's continued commitment to ensuring the health, aesthetic, and recreational values of East Alaska, West Alaska, and Krohns Lake are preserved with active aquatic plant management, the quantity of nuisance aquatic plant growth and exotic species such as EWM and CLP found on the lakes will be appropriately controlled.

Bonestroo appreciates working for the Association this past treatment season and we look forward to working with you on future projects. Please feel free to contact Bonestroo at (800) 498-3921 if you have any questions regarding the 2009 chemical treatment or with additional questions or concerns.

Sincerely,

BONESTROO



James T. Scharl  
Graduate Scientist/WI Licensed Applicator

Attachments

## FIGURES

2009 POST-TREATMENT RESULTS







## ATTACHMENT A

WDNR CHEMICAL AQUATIC PLANT CONTROL PERMITS

## ATTACHMENT B

AQUATIC PLANT MANAGEMENT HERBICIDE TREATMENT RECORDS