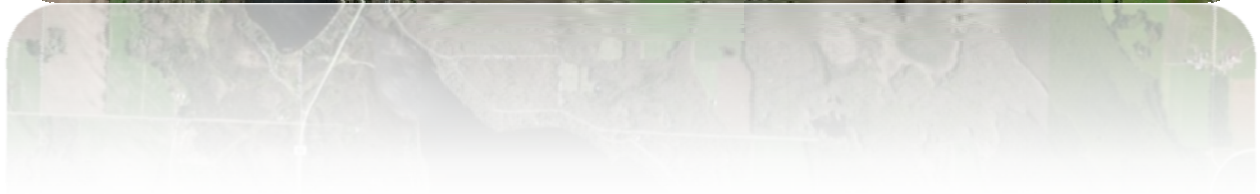




# Upper South Long Lake Vegetation Management Report 2012

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## **Background**

Curly Leaf Pondweed (CLPD) has been managed in Upper South Long Lake for several years. The association began cutting this invasive plant and in 2003 began seeking the use of aquatic herbicides to improve efficacy, reduce labor and costs. In 2003 PLM Lake & Land Management (PLM) began working with the Upper South Long Lake Association to apply herbicide to selectively control CLPD. PLM utilizes a best management practices cycle (BMP) in three phases, evaluation, prescription and implementation. Each spring after ice off, PLM conducts assessments of the areas known to contain CLPD and any sites which may be of concern indicated by the association. Each area is assessed and any CLPD present is recorded with a GPS waypoint. Using the evaluation as a guideline, PLM then prescribes specific areas to be treated. Finally PLM then implements the prescribed treatment in areas permitted. To monitor the success, PLM performs brief surveys of the areas treated to determine efficacy and document any non-target impacts.

## **Historical Treatment of Upper South Long Lake**

Over the years PLM has maintained several types of maps, and GPS information tracking the progression of management in the lake. In 2012 PLM cumulated all the information into one GPS based format. The following images and graphs show the historical progression of management in the lake as the technology evolved.



Legend	
	2004 CLPD Treatment Areas


### Upper South Long Lake



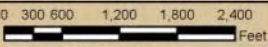
Albers Projection  
 Central Meridian: -86  
 1st Standard Parallel: 20  
 2nd Standard Parallel: 40  
 Latitude of Origin: 40





Legend	
	2005 CLPD Treatment areas


### Upper South Long Lake



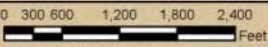
Albers Projection  
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 19 5th Parallel: 26  
 200 500 Parallel: 60  
 Latitude of Origin: 40





Legend	
	2006 CLPD Treatment areas

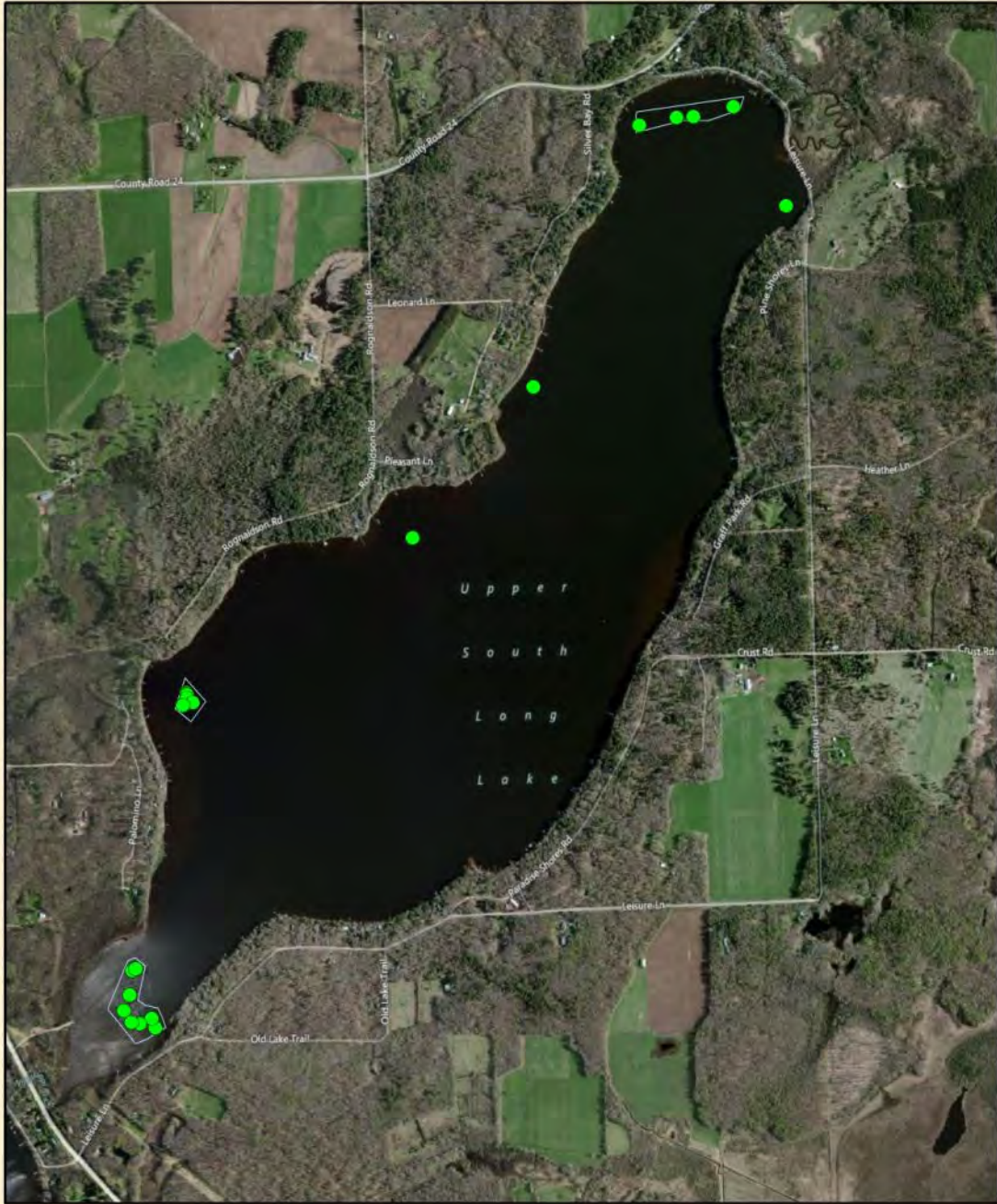
### Upper South Long Lake



Albers Projection  
 Central Meridian: -86  
 19: 563 Parallel: 20  
 200: 552 Parallel: 40  
 Latitude of Origin: 40







**Legend**

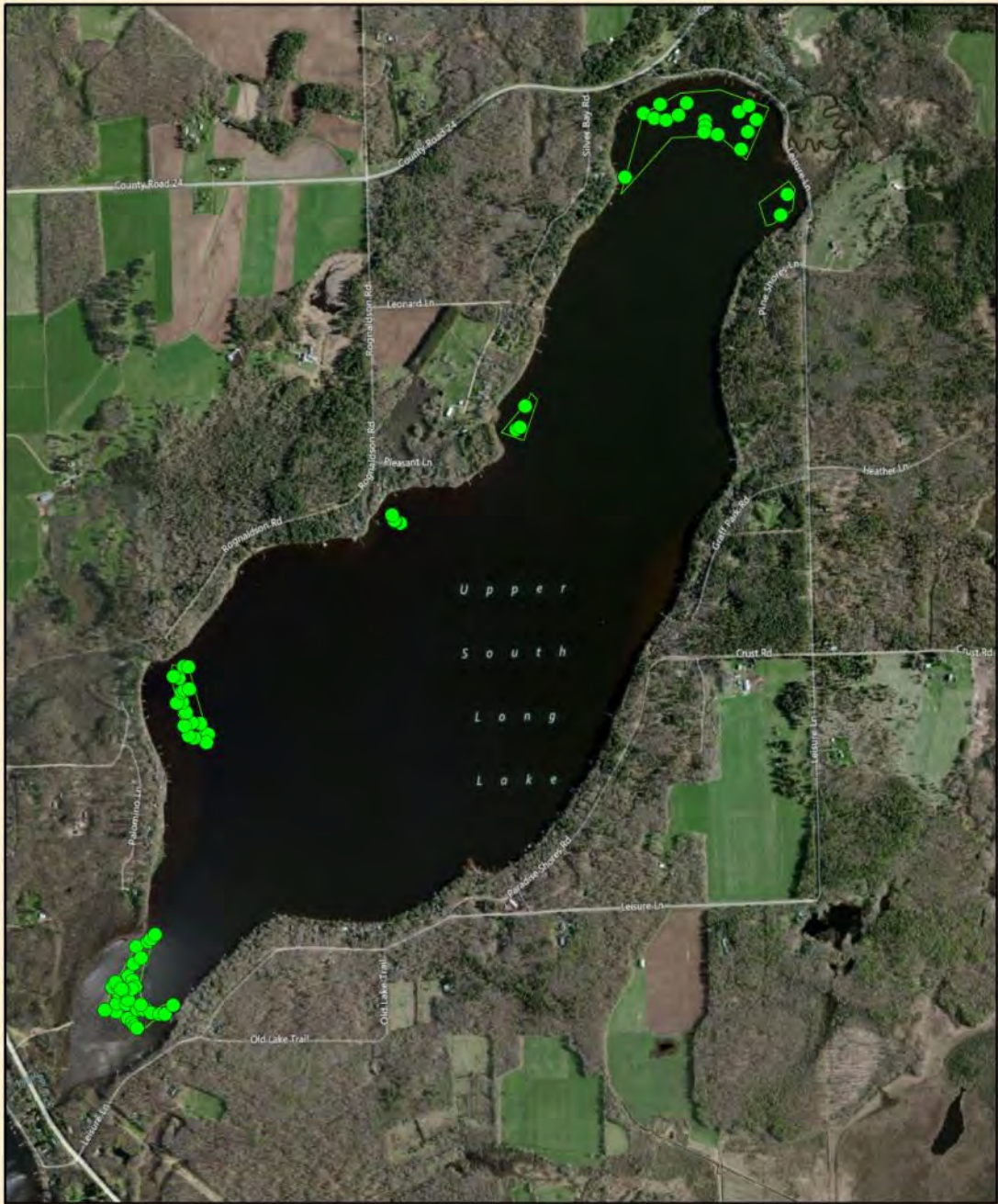
- 2010 delineation CLPD Points
- 2010 CLPD Treatment areas

### Upper South Long Lake



**Albers Projection**  
 Central Meridian: -86  
 1st Standard Parallel: 26  
 2nd Standard Parallel: 40  
 Latitude of Origin: 40

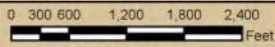




**Legend**

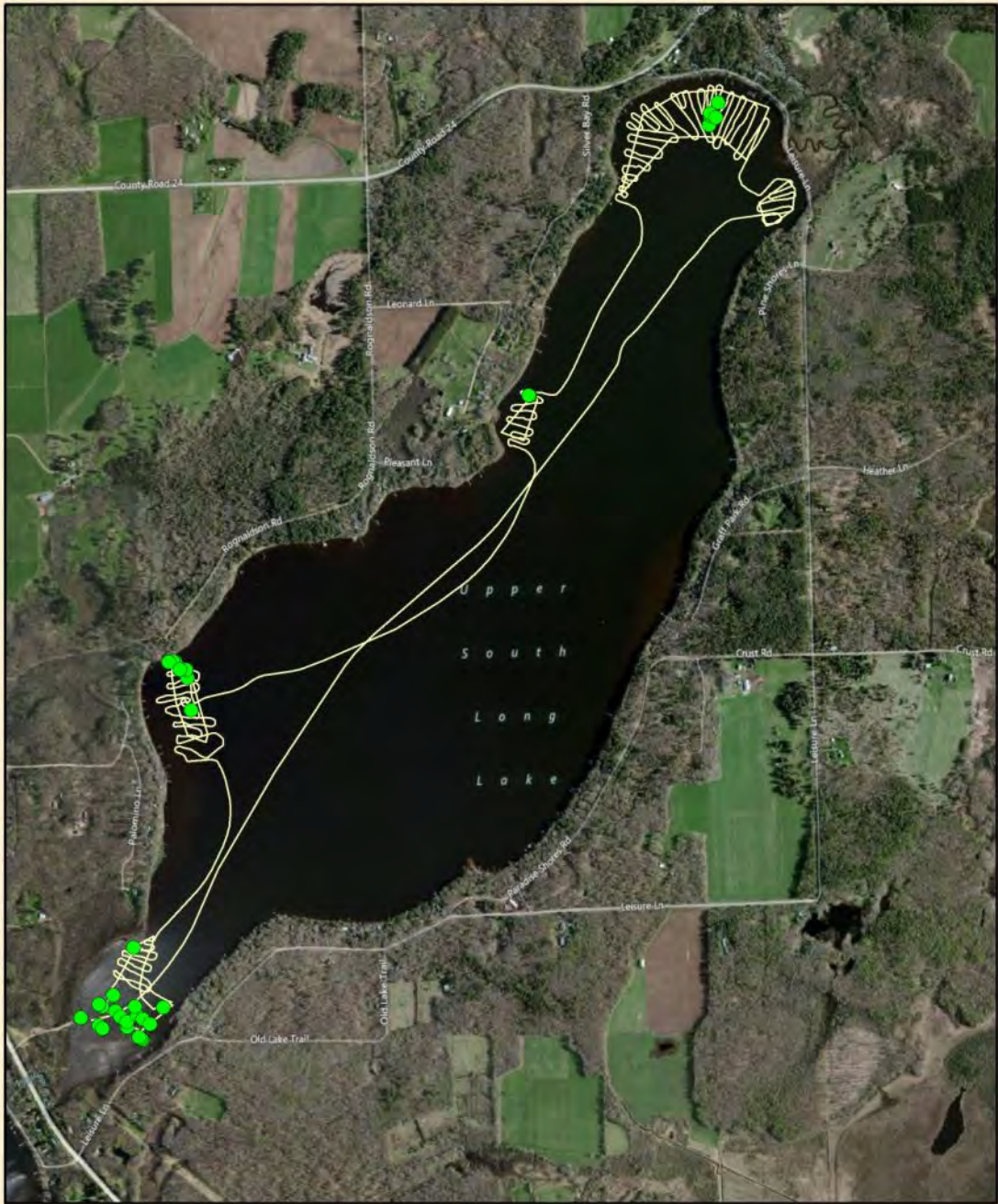
- 2011 delineation CLPD points
- 2011 CLPD Treatment

### Upper South Long Lake



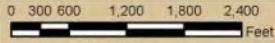
**Albers Projection**  
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 200: 500 Parallel: 40  
 Latitude of Origin: 40





**Legend**  
 ● 2012 delineation CLPD Points  
 — 2012 trklog delineation



### Upper South Long Lake 2012 Pre Treatment Mapping



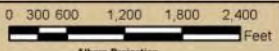
**Albers Projection**  
 Central Meridian: -86  
 1st Standard Parallel: 26  
 2nd Standard Parallel: 40  
 Latitude of Origin: 40





Legend	
	2005 CLPD Treatment areas
	Upper South Long 2012

### Upper South Long Lake



Albers Projection  
 Central Meridian: -86  
 19: 948 Parallel: 26  
 200: 552 Parallel: 40  
 Latitude of Origin: 49



## 2012 Management

In 2012 PLM mapped significantly less CLPD than any other previous assessment. On June 18<sup>th</sup> PLM performed a brief survey of the areas treated earlier in the year while conducting treatments for individual homeowners with nuisance native plant growth. The CLPD sites contained some curly leaf plants; however they were very sparse, and may have been from plants that sprouted after the treatment. In 2012, ice off and warmer than usual conditions caused the assessment and treatment to be performed earlier than usual. Typically PLM likes to treat northern lakes for CLPD in mid to late May allowing for sufficient plant growth and full seed (turion) sprouting, In 2012 the lake was treated the first week of May which was the earliest treatment on the lake. As the pictures indicate above, CLPD density and sprouting is very unpredictable changing constantly throughout the years.

## Changes in the CLPD community.

At its peak in 2006 and 2007, CLPD was present in nearly 38 acres throughout the lake. In the earlier years most of the CLPD was found on the north end of the lake and in 2012 most of it is found in the south end. It is important to continue utilizing the best management practices model to ensure long term control of CLPD. It is likely that CLPD will always remain in the lake and in some years may present problems. The overall levels of Curlyleaf pondweed density continue to be reduced along side management.

## Recommendations

It appears that most of the high density CLPD in the lake has been successfully removed, seed production has been minimized. Many lakes have been managing CLPD for over 7 years as is the case in Upper South Long Lake (with 2 years break in between). Since Aquathol K is a contact herbicide then there is likely re-growth coming from the root and rhizome structures of the plants. In 2011 PLM began researching a systemic herbicide called Clearcast for control of CLPD. We have found that the use of this product may increase efficacy and provide long term control therefore we would like to mention it as a possibility for the Upper South Long Lake Association and will provide pricing for it in our 2013 proposal as an option.