CLEAN LAKES INC.
Aquatic Ecosystem Restoration & Maintenance

# LittLine® One

## 2010 United States Demonstration, Research and Development Tour

LittLine® Technology is considered one of the Best Available Technologies (BAT) to meet the 2011 NPDES Pesticides General Permit (NPDES PGP) requirements, through the support of aquatic pesticide reduction and efficacy enhancement. As such, Clean Lakes, Inc. and our LittLine® partner Clarke (www.clarke.com) decided to take LittLine® One on a field tour to further demonstrate the technologies capabilities. The 2010 tour began on January 5th in Florida (LittLine® One's winter base) doing research investigations under a Cooperative Research and Development Agreement (CRADA) between Clean Lakes, Inc. and the US Army Engineer Research and Development Center, Environmental Laboratory (ERDC-EL), that was entered into on October 28, 2009. The research site was located in Lake Tohopekaliga (Toho), on the Kissimmee Chain of Lakes (KCOL) just south of Orlando, Florida. The KCOL serves as a northern refuge for the endangered Everglades Snail Kite, and nearly 50 percent of the total Hydrilla standing crop reported in Florida public waters during 2009 was in the KCOL lakes.

The CRADA research investigations on Lake Toho were followed by Hydrilla control trials on March 17th to compare the LittLine® application technology to conventional control methods in Lake Underhill (City of Orlando), where the system was able to reduce the amount of aquatic herbicides used by 23 percent, while achieving nearly 100% control 6 weeks post treatment.

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The next stop was the University of Florida's 2010 Aquatic Weed Control Short Course (May 3-5, Coral Gables, FL), where CLI staff gave a presentation on "Precision Application Techniques for Aquatic Herbicides". Littline One then headed to northern Wisconsin to perform a 142 acre aquatic herbicide application for the control of Eurasian Watermilfoil (EWM) at Long Lake of Phelps Lake District on May 24th and 25th. Third party post treatment efficacy reports (Onterra) revealed the LittLine® was able to exceed both the Wisconsin Department of Natural Resources' (WI-DNR) quantitative (50% EWM reduction) as well as qualitative (75% EWM reduction) requirements by achieving 60% and 80% reductions, respectively.

LittLine® One then performed a demonstration in Minnesota for the Pelican River Watershed on May 27th prior to heading west to its summer base in Coeur d'Alene, Idaho. Upon arrival in Idaho, preparations began for participation in the "Selective Control of Eurasian Watermilfoil and Curlyleaf Pondweed on Noxon Rapids Reservoir, Montana: Demonstrations and Evaluations" Phase 2 (2010) project, on the Clarke Fork River, a run of the river system in eastern Montana.

On July 21st and 26th, two (2) Block Treatments were performed using LittLine® One, where one Block was treated with liquid triclopyr only, while the other Block was treated with a combination of liquid triclopyr and endothall. Rhodamine RWT dye was applied with the herbicides during these Block Treatments to evaluate water exchange in the plots. In addition, on July 23rd, three (3) Strip Treatment plots were treated with

Rhodamine RWT alone to evaluate water exchange prior to additional herbicide applications. Following the above activities, twelve (12) Strip Treatments (long narrow river infestations) were performed on July 28th, July 30th, and August 2nd to evaluate the efficacy of diquat alone, diquat and endothall combinations, and endothall alone in areas with high water exchange rates. Rhodamine RWT dye was applied with the herbicides for the Strip Treatments to evaluate water exchange in the plots. For both the Block and Strip Treatments, herbicide residue samples were collected and shipped to the University of Florida lab for analysis. The U. S. Army Engineer Research and Development Center (ERDC), Chemical Control and Physiological Processes Team, represented by Dr. Kurt Getsinger, led the Research Cooperators on the Strip Treatment Demonstration. Pre and Post Treatment Aquatic Vegetation surveys to document control efficacy are being performed by Dr. John Madsen's research team from Mississippi State University, Geosystems Research Institute (MSU-GRI).

On August 24, 2010 USCOE personnel from across the US visited Noxon Reservoir and were briefed on ERDC's EWM Research & Development efforts (3-year project), and on a separate Corps of Engineers American Recovery and Reinvest Act (ARRA) funded project, both of which were demonstrating and evaluating the selective use of herbicides to control the invasive aquatic vegetation Eurasian watermilfoil and curlyleaf pondweed. Following the briefing, the group boarded pontoon boats and toured the treatment sites.


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(CLI 2011 Winter/Spring Newsletter)

On September 22nd, LittLine Two mobilized for the equipment demonstration at the UC Davis Aquatic Weed School 2010.

On September 29th, LittLine® One headed east, with a stop off at Lake Minnetonka, Minnesota on October 1st, while in route to Long Lake Wisconsin to review post treatment efficacy from the May 2010 EWM applications. After leaving Long Lake, LittLine® One performed demonstrations at Deep Lake Illinois on October 5th, Lake Carroll Illinois on October 6th, Winona Lake in Indiana on October 12th, Hess Lake, Michigan on October 14th, Grand Valley State University, Annis Water Resources Institute on October 15th, and for the Wisconsin Department of Natural Resources Office in Madison, WI on October 28th.


After a bit of rest in Chicago, LittLine® One headed to the Minnesota-Wisconsin Invasive Species Conference (Working Together to Control Invasive Species), that was held on November 8-10th in St. Paul, Minnesota.

After returning to Chicago, and getting snowed in, LittLine® One headed south to perform a Hydrilla demonstration trial at Lake Seminole, GA, a run of the river system bordering Florida and Georgia. Working in cooperation with the US Army Corps of Engineers, Mobile District, a 9.5 acre site was treated with endothall on December 9th, in an area where conventional control techniques in the past had provided marginal control.


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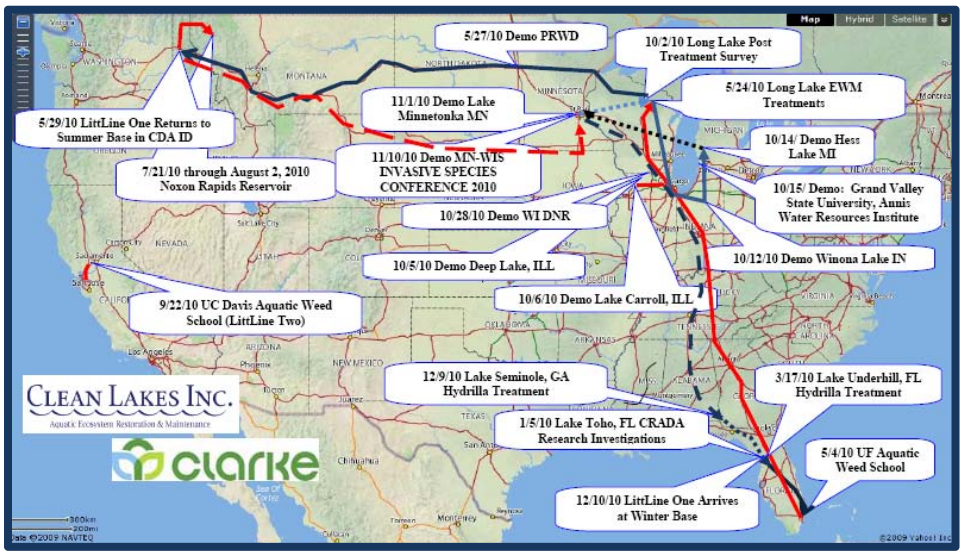
LittLine® One was then parked in Orlando, FL for the holidays. The LittLine 2010 Demonstration Tour Map is outlined below.

A video describing a portion of the project, the process and the LittLine® technology in action can be viewed at http://www.littline.com/littlinevideos.html.




Check the web site (www.littline.com) for updates regarding the 2011 LittLine® Demonstration Tour that will begin in Florida during the Spring of 2011. At the present time, LittLine® One is scheduled to return to Long Lake of Phelps Lake District in May of 2011 to perform additional applications for the control of EWM.