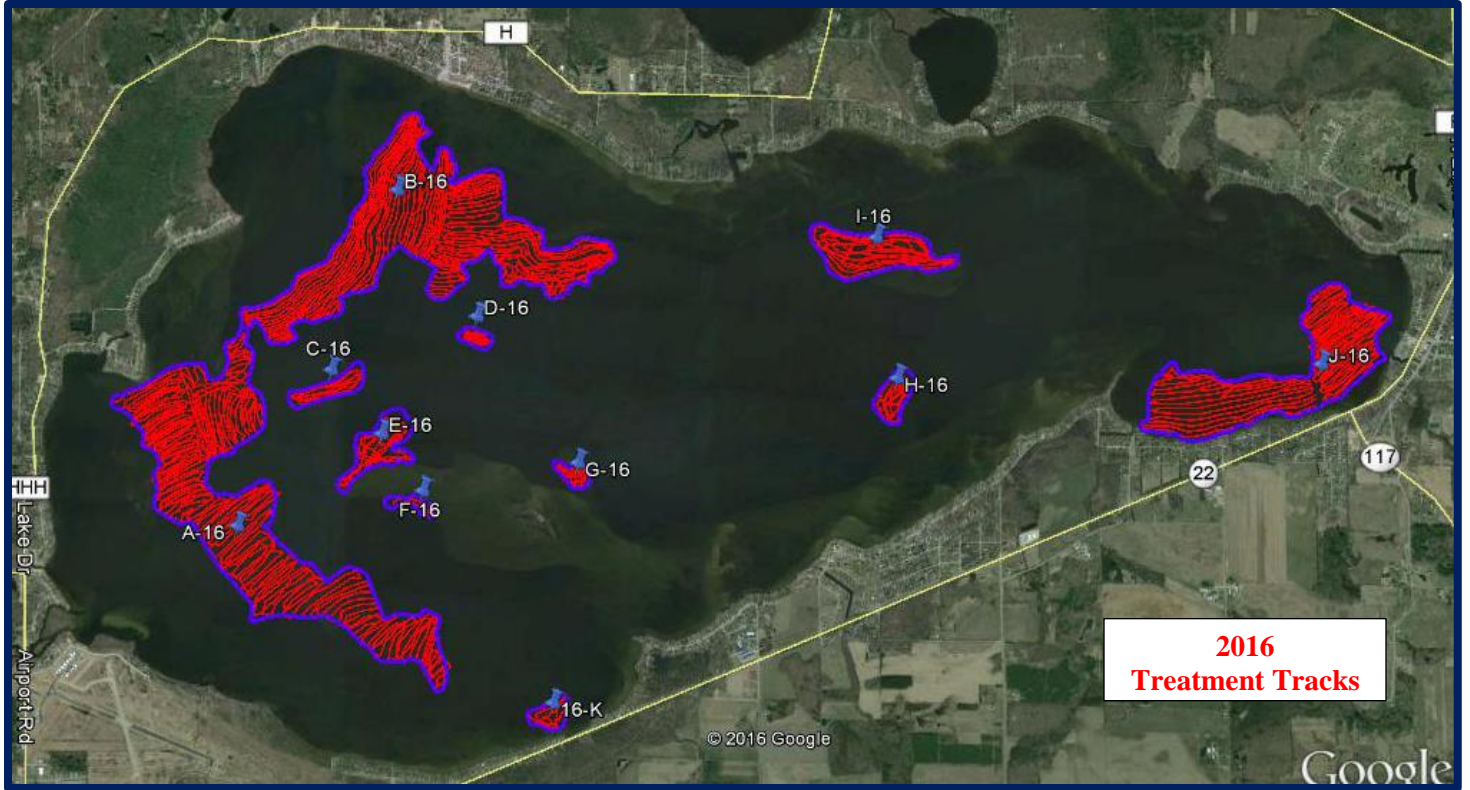


**Shawano Lake
Shawano County, Wisconsin
2016 AIS Aquatic Pesticide Application Report**



Prepared By:
CLEAN LAKES
www.cleanlakesmidwest.com

Prepared For:
Shawano Area Waterways Management
P.O. Box 204
Shawano, WI 54166

October 2016

AQUATIC PESTICIDE APPLICATIONS: Clean Lakes, Inc. (CLI) was contracted by the Shawano Area Waterways Management (SAWM) (the Association) to perform aquatic pesticide (herbicide) applications to infestations of Eurasian Watermilfoil (EWM) and its hybrid (HWM) in the project areas outlined below, in compliance with the published Wisconsin Department of Natural Resources (WDNR) Aquatic Invasive Species (AIS) Treatment Protocols, the March 13, 2012 coverage under the Wisconsin Pollutant Discharge Elimination System (WPDES) General Permit for Aquatic Plant, Algae and Bacteria authorizing coverage for CLI, and the April 18, 2016 Wisconsin DNR Permit Approval issued to the District (included as part of the attached Aquatic Pesticide Application Plan (APAP)).

The appropriate logs of the work performed, and map of the locations of AIS colonies treated are both included in this report.

AQUATIC HERBICIDES USED: The Aquatic Herbicide used was Dow AgroSciences DMA 4 IVM (liquid 2, 4-D), EPA Registration Number 62719-3. (Label and MSDS included as part of the attached Aquatic Pesticide Application Plan (APAP)).

TREATMENT SCHEDULE: The aquatic pesticide applications were performed on Monday, May 23, 2016 and Tuesday, May 24, 2016.

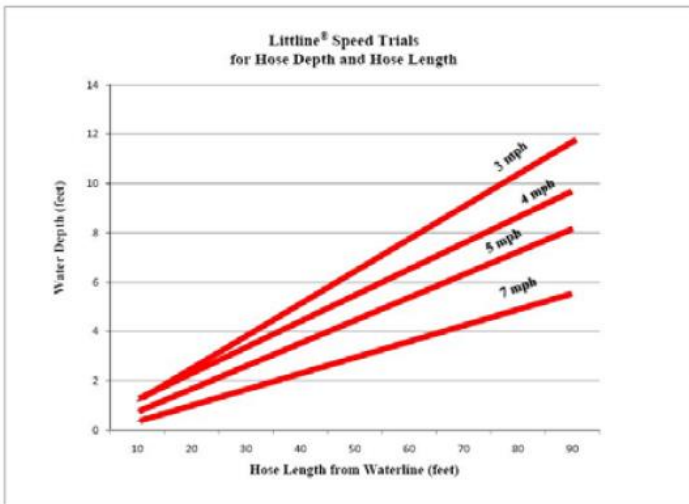
EQUIPMENT USED:

Three LittLine®, CLI's state-of-the-art Littoral Zone Treatment vessels were used to perform the aquatic herbicide applications. The herbicide applications were made to the lower half of the water column to increase herbicide concentration and



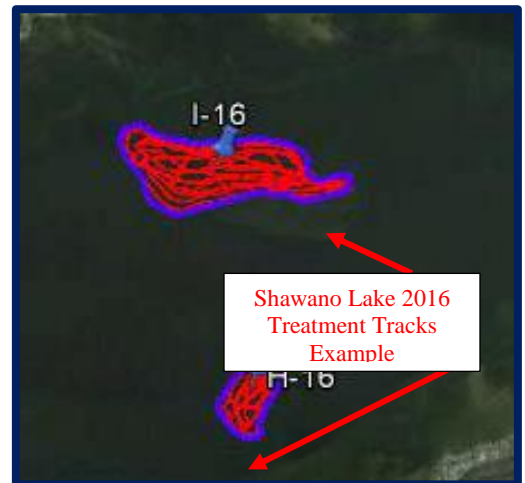
exposure time (CET) relationships for the control of EWM/HWM.

The LittLine vessels speed and water depth in the treatment areas regulates the length of aquatic herbicide discharge hose required per the depth and hose length chart shown below.



The aquatic vegetation treatment area shapefiles created following Onterra's 2016 pre-treatment survey, approval by WDNR and the Association, were loaded into the LittLine computer systems for vessel guidance and herbicide application data recording.

The treatment tracks were automatically recorded via the LittLine vessel's GPS guidance system supported by web based GIS software for the production of the final treatment area maps to document the treatment areas. Treatment area maps as well as the digital data files are included in this report.



The LittLine system's computerized rate controllers regulate the aquatic herbicide applications through preset treatment rates. When the vessel sped up and or slowed down, the rate controllers adjusted the herbicide application rate to match the preset rate in gallons of product per acre.

AQUATIC HERBICIDES: CLI provided the required support equipment for material handling (unloading trucks, loading boats) as well as support trucks for the vessels assigned to the project.

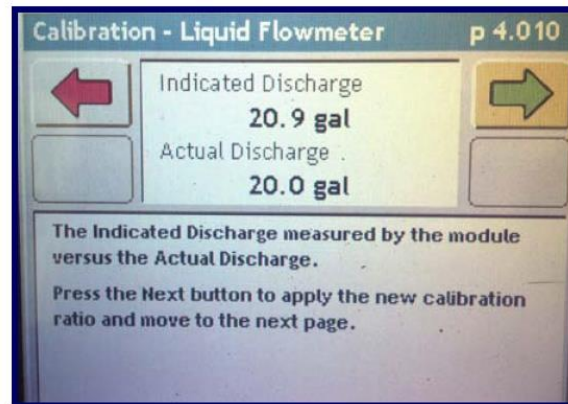
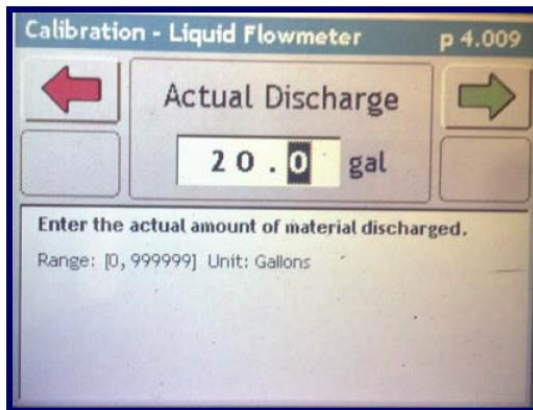


The aquatic herbicides were distributed by Crop Production Services (CPS) and delivered by Northwoods Distribution Services, Inc. of Rhinelander, WI in 9000 gallon (capacity) tankers and a 250 gallon tote container. The aquatic herbicide containers remained on Northwoods Distribution Services trucks and trailers, and were transferred via closed system to CLI's application vessels.

PERMIT COMPLIANCE: The Association provided the required Permits and approvals for the herbicide treatments from the WDNR as outlined and included in the attached APAP. CLI obtained coverage for aquatic plant control activities under the Statewide Wisconsin Pollutant Discharge Elimination System (WPDES) General Permit (#WI-0064556-1 Clean Lakes, Inc. Statewide Treatments/FIN 46219) that provided authorization for the herbicide applications.

- **Visual Check Record:** Compliance with the WPDES permit requires a visual check be performed at a representative location during or soon after plant control activities to check for adverse incidents. Adverse Incidents are defined as death or distress of non-target organisms, disruption of wildlife habitat, risk to recreational activities, risk to human health, etc. Visual checks were carried out by Tom McNabb, Tom Moorhouse, Amy Kay, Drew McNabb and Juraj Juricevic (Wisconsin Commercial Pesticide Applicators) at multiple representative locations within the treatment area during the applications. Prior to, during and immediately following the herbicide applications dead fish were identified in and around treatment areas (mostly shoreline). The fish appeared to be decaying and likely had been dead for 5+ days based on visual inspection. There were a variety of species and sizes however, did not appear to be an unlikely situation for this time of year on Shawano Lake. WDNR was notified and involved. Fish samples were collected by WDNR to be tested for columnaris, the likely cause of death.

- Pesticide Application Control:** To ensure that CLI did not exceed the pesticide label maximum rate, licensed and certified applicators performed aquatic herbicide applications. Application equipment was maintained and calibrated prior to the application through on board computer based application equipment (see examples below) and discharge monitored during application to ensure effective pesticide application. Maintenance of herbicide transfer and application equipment ensured that no unintended discharges occurred.



PUBLIC NOTIFICATION/POSTING PESTICIDE

TREATMENT AREA

WARNING SIGNS: The Association posted properties within and adjacent to treatment areas (all), and public launching sites were posted with the approved Wisconsin Department of Agriculture, Trade and Consumer Protection (WDATCP) and WDNR “Warning” signs prior to treatment. There are no swimming, or fishing use

restrictions, there is a 21 day irrigation use restriction which expires on June 16, 2016. The

<h1>WARNING</h1> <h2>PESTICIDE TREATMENT AREA</h2>		
THIS WATERBODY HAS BEEN CHEMICALLY TREATED FOR:		
<input checked="" type="checkbox"/> INVASIVE PLANTS ALGAE	<input type="checkbox"/> NAVIGATION/ACCESS FISH REMOVAL	<input type="checkbox"/> MOSQUITO/BLACK FLY OTHER
PESTICIDE APPLIED DMA 4 IVM	ACTIVE INGREDIENT 2,4-D	DATE TREATED 5/23/16-5/24/16
WATER USE RESTRICTIONS APPLY AS FOLLOWS:		
TO <input checked="" type="checkbox"/> THE ENTIRE WATERBODY TO <input type="checkbox"/> WATER WITHIN _____ FT OF THIS NOTICE AND _____ FT FROM SHORE		
DO NOT USE TREATED WATER FOR THE FOLLOWING PURPOSES UNTIL:		
SWIMMING N/A	HOUSEHOLD USE (dishes, laundry, etc.) N/A	
CONSUMING FISH N/A	IRRIGATION (CROP) 6/15/16	
DRINKING WATER N/A	IRRIGATION (OTHER) 6/15/16	
PET/LIVESTOCK WATER		
	Wisconsin Dept. of Natural Resources 101 S. Webster St., P.O. Box 7921 Madison, WI 53707-7921 www.dnr.state.wi.us/lakes/plants/factsheets	SPONSOR Shawano Area Waterways Management, Inc. CONTACT Ray Zuelke PHONE 920-450-0054
		PUB-FH-443 2511

“Warning” signs need to be posted until the water use restriction has expired and the Association will be responsible for removing and disposing of/recycling as appropriate. The Association published all other notices per the treatment requirements.

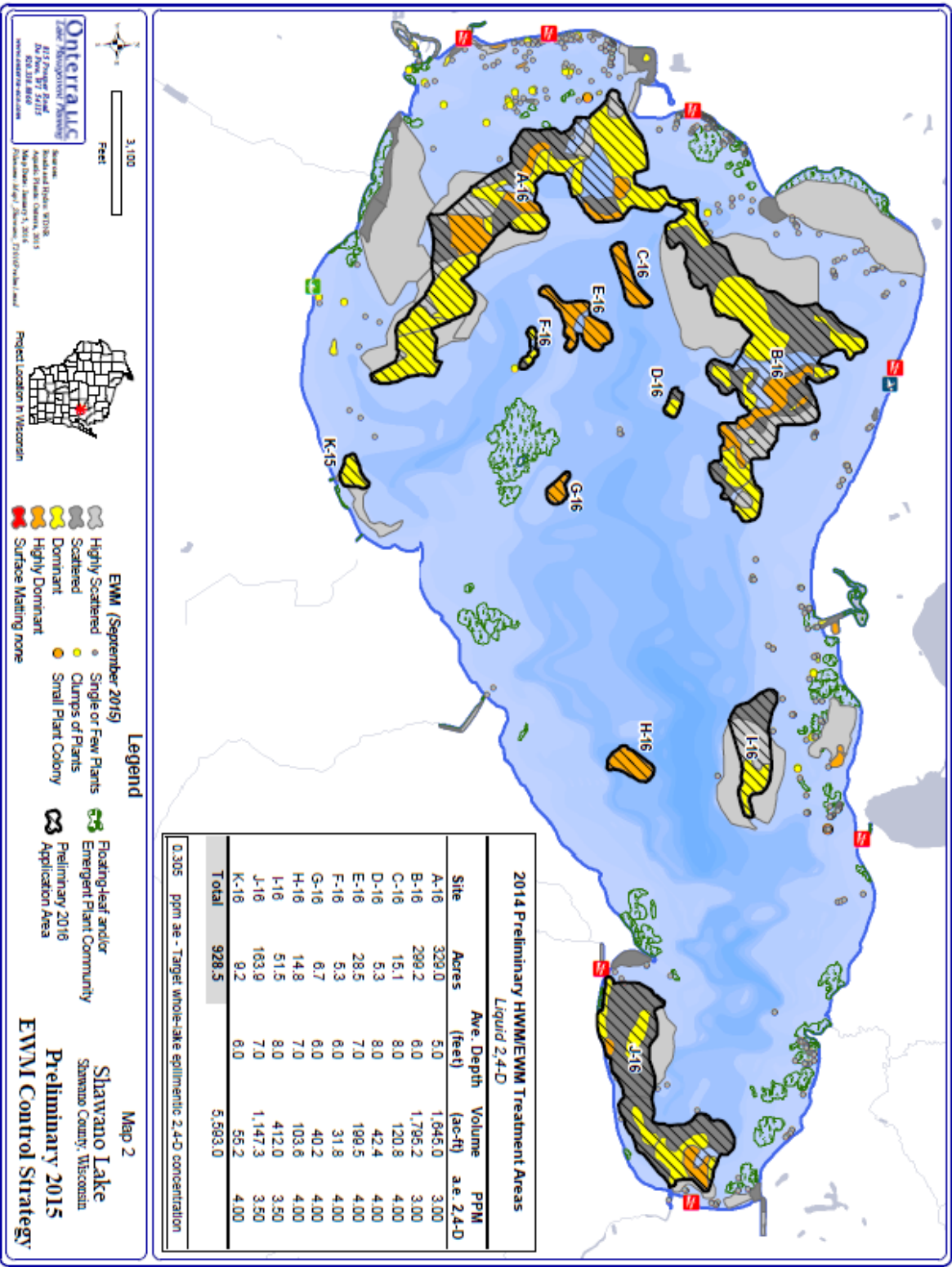
EQUIPMENT

DECONTAMINATION

PROCEDURES: Equipment decontamination measures were performed prior to entering Shawano Lake and prior to exiting the boat launching sites and moving CLI’s vessels to another waterbody per the current decontamination procedures (Reference NR40).



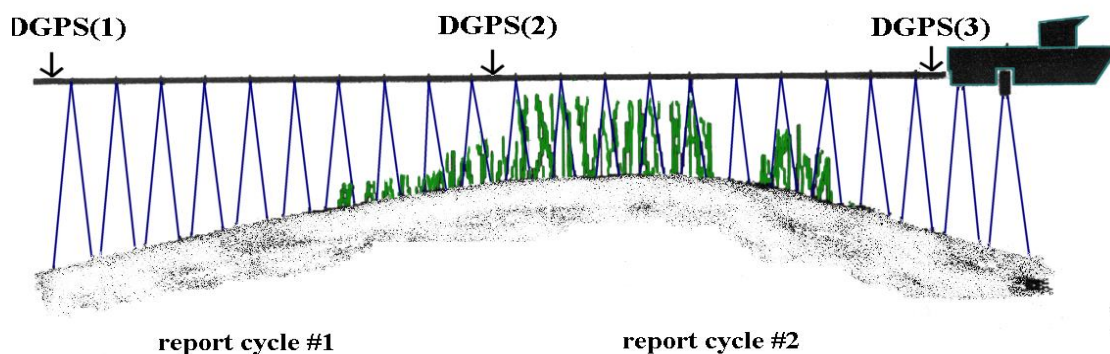
Treatment Site Layout (Onterra, LLC.)



Treatment Area & Herbicide Rate Data

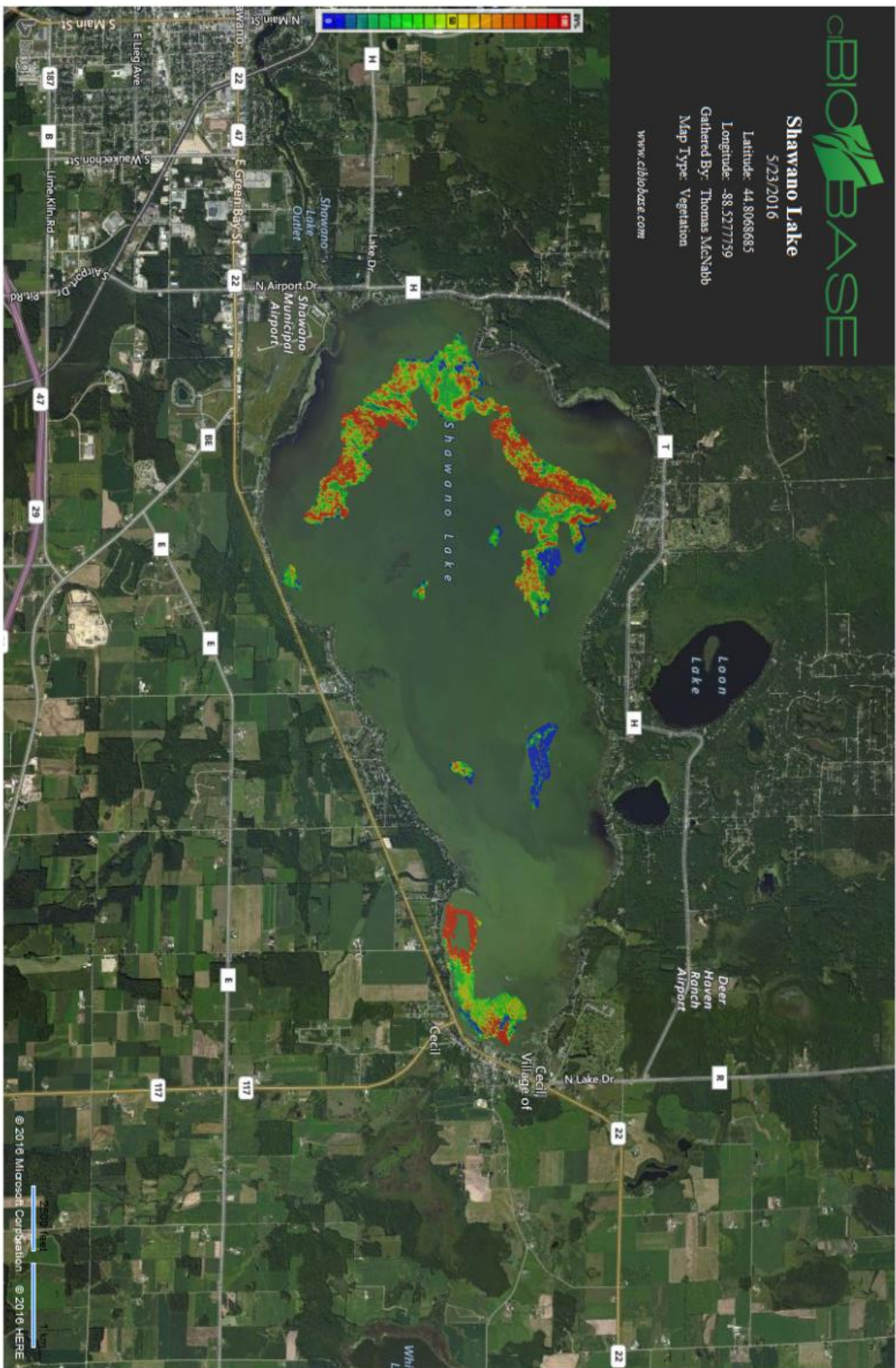
Shawano Lake 2016 Treatment Area and Herbicide Rate Data				DMA 4 IVM (Liquid 2,4-D)		
ID	Acreage	Mean Depth Estimate	Volume	Rate	Qty/Acre	Total
A-16	329.0	5.00	1645	3.0	10.7	3532.4
B-16	299.2	6.00	1795	3.0	12.9	3854.9
C-16	15.1	8.00	121	4.0	22.9	345.9
D-16	5.3	8.00	42	4.0	22.9	121.4
E-16	28.5	7.00	200	4.0	20.0	571.2
F-16	5.3	6.00	32	4.0	17.2	91.0
G-16	6.7	6.00	40	4.0	17.2	115.1
H-16	14.8	7.00	104	4.0	20.0	296.6
I-16	51.5	8.00	412	3.5	20.0	1032.2
J-16	163.9	7.00	1147	3.5	17.5	2874.3
K-16	9.2	6.00	55	4.0	17.2	158.0
TOTALS	928.5		5593			12992.9

SUBMERGED AQUATIC VEGETATION (SAV) MAPPING: A Lowrance HDS Digital Echosounder System with a Structure Scan Module was used to record data of the EWM/HWM profile in the control plots during treatments on May 23-24, 2016. Data was collected in both the .SLG (traditional sonar on HDS line) and the .SL2 (multi-channel structure scan) formats.



The data collected was then uploaded to a data processing website for time of treatment processing of SAV data in the treatment plots. The SAV data collected (coverage, height in the water column, and bio-volume) was performed in order to support CLI's best management practices and the use of best available technologies as well as post-treatment efficacy evaluations. The map image generated from the May 23-24, 2016 treatments can be seen below.

Shawano Lake SAV Map Image



PROJECT COST DATA: The bullet points and table below outlines the quantities of herbicide used, herbicide costs, application costs, total costs, and cost per acre.

- The DMA 4 IVM costs were \$20.08 per gallon including delivery to the project site for a total of \$260,898.35.
- The herbicide application costs were \$125.00 per acre for a total herbicide application cost of \$116,062.50.
- The total 2016 herbicide treatment project costs as outlined above and detailed below come to a total of \$376,960.85.

Treatment Area, Rates & Project Cost Data

Shawano Lake 2016 Herbicide Rate/Cost Data			Volume	DMA 4 IVM (Liquid 2,4-D)			Application Costs/Acre	Application Costs/Site	Herbicides Costs/Acre	Herbicides Costs/Site	Total Cost
ID	Acreage	Mean Depth Estimate		Rate	Qty/Acre	Total	Application	Application	Herbicides	Herbicides	Application + Herbicides
A-16	329.0	5.00	1645	3.0	10.7	3532.4	\$125.00	\$41,125.00	\$215.59	\$70,930.08	\$112,055.08
B-16	299.2	6.00	1795	3.0	12.9	3854.9	\$125.00	\$37,400.00	\$258.71	\$77,406.49	\$114,806.49
C-16	15.1	8.00	121	4.0	22.9	345.9	\$125.00	\$1,887.50	\$459.93	\$6,944.97	\$8,832.47
D-16	5.3	8.00	42	4.0	22.9	121.4	\$125.00	\$662.50	\$459.93	\$2,437.64	\$3,100.14
E-16	28.5	7.00	200	4.0	20.0	571.2	\$125.00	\$3,562.50	\$402.44	\$11,469.54	\$15,032.04
F-16	5.3	6.00	32	4.0	17.2	91.0	\$125.00	\$662.50	\$344.95	\$1,828.23	\$2,490.73
G-16	6.7	6.00	40	4.0	17.2	115.1	\$125.00	\$837.50	\$344.95	\$2,311.16	\$3,148.66
H-16	14.8	7.00	104	4.0	20.0	296.6	\$125.00	\$1,850.00	\$402.44	\$5,956.11	\$7,806.11
I-16	51.5	8.00	412	3.5	20.0	1032.2	\$125.00	\$6,437.50	\$402.44	\$20,725.67	\$27,163.17
J-16	163.9	7.00	1147	3.5	17.5	2874.3	\$125.00	\$20,487.50	\$352.14	\$57,714.95	\$78,202.45
K-16	9.2	6.00	55	4.0	17.2	158.0	\$125.00	\$1,150.00	\$344.95	\$3,173.53	\$4,323.53
TOTALS	928.5		5593			12992.9		\$116,062.50		\$260,898.35	\$ 376,960.85

LIST OF PROJECT PERSONNEL

PROJECT MANAGER:

Amy Kay
WI Commercial Pesticide Applicator
Cell Phone: 715-891-6798
Email: akay@cleanlakesmidwest.com

SITE SAFETY AND HEALTH OFFICER:

Tom McNabb
WI Commercial Pesticide Applicator
Cell Phone: 925-766-8862
Email: tmcnabb@cleanlake.com

ALTERNATE SITE SAFETY OFFICER:

Tom Moorhouse
WI Commercial Pesticide Applicator
Cell Phone: 818-201-5982
Email: tmoorhouse@cleanlake.com

EMERGENCY RESPONSE COORDINATOR:

Drew McNabb
WI Commercial Pesticide Applicator
Cell Phone: 925-482-7177
Email: dmcnabb@cleanlake.com

ALTERNATE EMERGENCY COORDINATOR:

Juraj Juricevic
WI Commercial Pesticide Applicator
Cell Phone: 510-734-5416
Email: jjuricevic@cleanlake.com

FIELD SUPPORT PERSONNEL:

Roger (Steve) Dahlquist
WI Certified Mixer/Loader
Northwoods Distribution Services
Cell Phone: 715-493-9901
Email: steve@dahlquistonline.com

Amy Ferriter
Crop Production Services
Cell Phone: 509-993-7490
Email: amy.ferriter@cpsagu.com

SHAWANO LAKE CONTACT:

Ray Zuelke
Cell Phone: 920-450-0054
Email: rayjoyzuelke@new.rr.com

PROJECT PICTURES:









Attachments:

- **Wisconsin DNR Aquatic Plant Management Herbicide Treatment Record for May 23-24, 2016.**
- **Shawano Lake, 2016 Aquatic Pesticide Application Plan (APAP) that includes:**
 - Wisconsin DNR Approval Letter & Permit Application
 - Product Label and MSDS for DMA 4 IVM
 - Site Specific Safety Plan for the project, May 2016

END OF PESTICIDE APPLICATION REPORT (See Attachments)