

**Wisconsin Department of Natural Resources**

**Aquatic Invasive Species Grant Program**

**Early Detection and Response**

**Eurasian Watermilfoil Rapid Response Project**

Smoky Lake - Vilas County, WI & Iron County, MI

Submitted To:

Wisconsin Department of Natural Resources  
Attention: Kevin Gauthier, Sr. – Lake Coordinator  
8770 Hwy J, Woodruff, WI 54568  
Phone: 715.356.5211; Fax: 715.358.2352

Submitted By (Pending Resolution):

The Town of Phelps

Address:

Contact:

And

Many Waters, LLC  
2527 Lake Ottawa Road  
Iron River, MI 49935  
Contact: Barb Gajewski

Phone: 906.284.2198 Email: barb@manywatersconsulting.com

## **Introduction**

This proposal seeks a Wisconsin Department of Natural Resources (WDNR) Aquatic Invasive Species Control Grant - Early Detection and Response for Eurasian watermilfoil. The Town of Phelps is the sponsor and submits this proposal. At this time, the Smoky Lake Property Owners Association does not qualify under Wisconsin Statute to be an eligible sponsor to receive WDNR grant funding. The Association is currently evaluating the process to become eligible in the future. Once this transition is complete, the Smoky Lake Property Owners Association will become the primary sponsor for any sought subsequent WDNR grant funding. In the mean time, the Town of Phelps will act as the sponsor for the duration of the Early Detection and Response Project.

This proposal outlines a Eurasian watermilfoil (EWM) control project that includes: (1) annual lake wide monitoring, (2) annual treatment/control of EWM, (3) annual pre/post treatment assessments, (4) volunteer based surveillance/monitoring and (5) volunteer based hand removal efforts for EWM. Aquatic invasive species known to occur in Smoky Lake include Eurasian watermilfoil and rusty crayfish (Great Lakes Indian Fish and Wildlife Commission-GLIFWC).

## **Project Area**

Smoky Lake is 590-acre lake located in Vilas County, WI and Iron County, MI (MDNR). A boat launch owned by the Town of Phelps is located at the southern end of the lake. This boat launch can accommodate 10 vehicles with trailers and has a toilet facility. Riparian ownership includes: Town of Phelps, Vilas County Department of Transportation and Wisconsin and Michigan riparians.

## **Problem Statement**

In 2013, EWM was confirmed on Smoky Lake. This confirmation came from the results of USFS Ottawa National Forest efforts to monitor lakes adjacent and within the Ottawa National Forest for aquatic invasive species. On August 15<sup>th</sup> 2013, the USFS contracted surveyor documented EWM along the southern end of the lake west of the boat launch. The survey did not find Eurasian watermilfoil elsewhere on the lake. This confirmation initiated efforts by the WDNR and Vilas County Land and Water Conservation Department to complete an aquatic plant survey using the WDNR point intercept methodology (WDNR, 2010). Results of this survey, again, did not find EWM elsewhere on the lake. At this time, EWM the only known occurrences of EWM are in Wisconsin waters.

That fall, the Smoky Lake Property Owners Association solicited the services of Many Waters, LLC as their lake consultants to oversee and lead efforts to manage EWM. Using the known areas of invasion, Many Waters, LLC visited Smoky Lake on October 14<sup>th</sup> 2013 to assess the density and extent of EWM. The purpose of this survey was not to resurvey the entire lake, but rather gather information on the known focus area.

At time, using the information collected in October, the distribution, and density of Eurasian watermilfoil (EWM) in Smoky Lake is consistent with an early colonization. An effective management strategy at this scale is to initiate a hand removal program in 2014. This management strategy will use divers alone to hand removal plants and use Diver Assisted Suction Harvesting (DASH).

Hand removal alone, will not require a permit from the Wisconsin Department of Natural Resources (WDNR). However, if EWM is found in Michigan waters, a joint permit from the Michigan Department of Environmental Quality (MDEQ) and the U.S. Army Corps of Engineers (USACE) will be required for hand removal. The use of DASH will require a Mechanical Harvesting Permit from the WDNR and also a joint MDEQ/USACE permit. Furthermore, any management in Michigan will require written permission from the adjacent riparian owners.

Using hand removal techniques to manage known areas of EWM may minimize the potential for more intensive herbicide management in the future. This is not to say that hand removal is the only management option, it is the best-fit option at this time and the chosen option for 2014. In the event that Eurasian watermilfoil expands to where hand removal becomes costly, alternative management strategies including the use of aquatic herbicides shall be considered.

### **Project Goals and Objectives**

- (A) Minimize the ecological and recreational impacts that EWM can potentially have on Smoky Lake.

Objective (1): Monitor Smoky Lake for EWM.

Objective (2): Manage current populations of EWM with control techniques that support the best use of resources, are best fit and adaptive to address the expansion/reduction of EWM at that time, and are most likely to result in long-term control.

Objective (3): Evaluate monitoring and management efforts.

- (B) Promote lake-wide stewardship and aquatic invasive prevention awareness.

Objective (4): Develop a volunteer based AIS surveillance/monitoring program.

Objective (5): Develop a volunteer hand removal program for EWM.

Objective (6): Work towards implementing a volunteer/ or paid Clean Boats Clean Waters watercraft inspection program.

(C) Promote outreach and support from additional management units, interest groups and organizations.

Objective (7): Seek partnerships and community support to facilitate project objectives. Such as WDNR, Michigan Department of Natural Resources (MDNR), Vilas County Land and Water Conservation Department, Iron County Conservation Department, University of Wisconsin (UW) Extension, Michigan State University (MSU) Extension, lake associations and Western Peninsula Invasives Coalition (WePIC).

### Monitoring and Evaluation

Two lake wide surveys targeting EWM will be completed annually on Smoky Lake. These surveys will systematically traverse regions of Smoky lake that support aquatic vegetation including EWM. These surveys are conducted under ideal weather conditions-precipitation free and low wind days. For both surveys, the location, extent, and estimated density of each EWM site is documented. Smaller sites will be geo-referenced with a GPS point. These sites are typically less than 40 foot in diameter. Larger sites identified, are circumvented and extent in acres is calculated. Many Waters will initially complete these surveys; however, as a volunteer based surveillance/monitoring program develops, some to all aspects of these surveys can be completed by volunteers. In this event, Many Waters will use all the information collected by the volunteer program and solely focus on surveying the identified sites, rather than completing a lake wide survey.

Results of both surveys and volunteer monitoring will guide any additional hand removal efforts beyond the initial efforts scheduled to address areas known to have EWM. At the end of the season, once all hand removal activities are completed, each managed site (hand removal and DASH) will be assessed to determine effectiveness of the control technique.

### Management-Control

In 2014, the primary control strategy for Smoky Lake is to hand remove EWM using dive/snorkel gear alone and also utilizing Diver Assisted Suction Harvesting (DASH). To determine whether a site is controlled using hand removal alone versus DASH, several factors are considered. DASH improves the efficiency of hand removal at locations when multiple large to very large EWM plants exist (especially later in the season) and when continuous areas of EWM exist. Hand removal is preferred when locations consist of individual to low density EWM, are very shallow and when the set up, break down and relocation time is more effort than the actual time using DASH.

Hand removal and DASH efforts will commence once the pre “treatment” mapping required by the State of Wisconsin is submitted and approved. Initial efforts will target the area of known concentration of EWM located at the south end of the lake. Once initial efforts are complete, periodic visits to this area will occur throughout the summer months, to determine if additional hand removal efforts are necessary. Using the early season, the mid-late season survey and information from volunteer monitoring efforts, as (or if) more locations of EWM arise hand removal and DASH efforts will include these targeted areas in the event that volunteer divers are not able to do so.

## **Project Tasks (2014)**

### **Objective 1: Monitor Smoky Lake for EWM.**

**Task 1A:** Complete an early season whole lake survey for EWM. (Information is incorporated into a GIS database system.)

**Task 1B:** Complete a mid-late season whole lake survey for EWM. (Information is incorporated into a GIS database system.)

### **Objective 2: Manage EWM with hand removal techniques.**

**Task 2A:** Obtain written permission from Michigan riparian property owners to allow hand removal and DASH on their bottomlands.

**Task 2B:** Submit a Mechanical Harvesting permit application to the WDNR to use DASH.

**Task 2C:** Complete a pre-treatment survey of proposed DASH areas and submit update to WDNR.

**Task 2D:** Manage EWM with snorkel/diver hand pulling (Lumberjack and Golden Sands RC & D Councils, 2012). Daily logs of all snorkel/diver will include time/efforts spent, location information, and wet weights of material harvested.

**Task 2E:** Per specific permit requirements, implement a Diver Assisted Suction Harvesting program. Daily logs of all DASH will include location and time/efforts spent and non-target impacts, including daily wet weights of invasive species versus native species. A species list of non-target native species is also recorded.

### **Objective 3: Evaluate monitoring and management efforts.**

**Task 3A:** Conduct a qualitative post management assessment of all hand removal and DASH sites. All documented areas on the lake that have been actively management for EWM will be revisited. At each location, the size, distribution and density of any

remaining EWM will be recorded. (Information is incorporated into a GIS database system.)

**Task 3B:** Using findings under Task 3A, determine the level of resources and management techniques necessary to continue management in 2015.

**Objective (4): Develop a volunteer based AIS surveillance/monitoring program.**

**Task 4A:** Train lake volunteers on how to identify EWM and develop a volunteer based monitoring program. The goal of the first year is to initiate the program, gain support and determine the level of volunteer need to adequately continuing monitoring efforts. (Information collected will follow WDNR protocol and be submitted into the WDNR Surface Water Integrated Monitoring System (SWIMS).)

**Objective 5: Develop a volunteer hand removal program.**

**Task 5A:** Train volunteers on how to manually remove EWM.

**Objective (6): Work towards implementing a volunteer/ or paid Clean Boats Clean Waters watercraft inspection program.**

**Task 6A:** Initiate dialog with the WDNR and the Vilas County Land and Water Conservation Department invasive species coordinate about the Clean Boats Clean Waters watercraft inspection program. The intent is to commence a Clean Boats Clean Waters inspection program by 2016.

**Objective 7: Facilitate information and resource sharing amongst current stakeholders and seek continued partnerships and community support.**

**Task 7A:** Use State and County resources to facilitate a EWM identification workshop and develop volunteer based monitoring strategies including how to enter volunteer data into SWIMS.

**Task 7B:** Reach out to local managing unit, conservation organization and other interest groups to provide resources that assist in facilitating project objectives including, but not limited to: WDNR, MDNR, Vilas County Land and Water Conservation Department, Iron County Conservation Department, UW Extension, MSU Extension, lake associations and WePIC.

**Task 7C:** Appoint Smoky Lake Property Owners members to serve as liaisons between the Association and identified partnerships.

**Task 7D:** Conduct annual wrap up meeting to inform the Association of project results, review and gauge success of volunteer efforts, develop strategies to either continue or improve volunteer efforts and inform the association of the management strategies for the following year.

### Time Table and Responsibilities 2014

	F	M	A	M	J	J	A	S	O	N	D	J (2015)	F	SLPO	Many Waters
<b>Task 1A</b>															
<b>Task 1B</b>															
<b>Task 2A</b>															
<b>Task 2B</b>															
<b>Task 2C</b>															
<b>Task 2D</b>															
<b>Task 2E</b>															
<b>Task 3A</b>															
<b>Task 3B</b>															
<b>Task 4A</b>															
<b>Task 5A</b>															
<b>Task 6A</b>															
<b>Task 7A</b>															
<b>Task 7B</b>															
<b>Task 7C</b>															
<b>Task 7D</b>															

Please note that on water activities may shift due to weather



## **Project Tasks (2015-2016)**

### **Objective 1: Monitor Smoky Lake annually for EWM.**

**Task 1A:** Complete an early season whole lake survey for EWM. (Information is incorporated into a GIS database system.) Extend of efforts required by Many Water, LLC to complete this survey will be determined by the level of participation by volunteer monitors.

**Task 1B:** Complete a mid-late season whole lake survey for EWM. (Information is incorporated into a GIS database system.) Extend of efforts required by Many Water, LLC to complete this survey will be determined by the level of participation by volunteer monitors.

### **Objective 2: Manage Eurasian watermilfoil.**

**Task 2A:** Determine level of need to continue control efforts of EWM. This may mean repeating control efforts, or part of control efforts completed in 2014, or adopting new strategies.

**Task 2B:** Implement chosen management strategies.

### **Objective 3: Evaluate monitoring and management efforts.**

**Task 3A:** Complete an end of the year evaluation of all control activities. The metrics used will be determined on the extent of management activities. Qualitative metrics used in 2014 will be repeated if the extent of management remains below 10 acres or less than 10% of the littoral zone. Control activities that take place on 10 or more acres or an area greater than 10% of the littoral zone will use WDNR Aquatic Plant Treatment Evaluation protocols (WDNR, APM).

### **Objective 4: Continue to support a volunteer based surveillance/monitoring program.**

**Task 4A:** Train lake volunteers on how to identify EWM. The goal of the second year and beyond is to continue training new volunteers and adapt program to increase volunteer capacity to work towards the goal of a 100 hours of volunteer monitoring annually. (Information collected will follow WDNR protocol and be submitted to SWIMS.)

**Objective 5: Continue to support a volunteer hand removal program.**

**Task 5A:** Use lead divers from 2014 to train volunteers on how to manually remove EWM.

**Objective (6): Work towards implementing a volunteer/ or paid Clean Boats Clean Waters watercraft inspection program.**

**Task 6A:** Pursue a WDNR grant to implement a Clean Boats Clean Waters watercraft inspection program that uses paid personal. **OR**

**Task 6B:** Work towards implementing a volunteer based Clean Boats Clean Waters watercraft inspection program. This will require volunteers to attend a WDNR Clean Boats Clean Waters training program.

**Objective (7): Strengthening existing partnerships and continue to expand outreach efforts.**

**Task 7A:** If necessary, use State and County resources to facilitate a EWM identification workshop.

**Task 7B:** Continue Tasks 7B-7D.

**Objective (8): Prepare to address ongoing need to manage EWM.**

**Task 8A:** Prepare and submit a proposal to the WDNR Aquatic Invasive Species Control Grant-Education, Prevention and Planning to fund the development of a comprehensive lake management plan for Smoky Lake.

### **Project Deliverables**

Annual reports produced will synthesize all the information as itemized under the tasks above. Report will include consolidated maps of all findings, results of hand removal and DASH efforts, project highlights and recommendations for the following year. A schedule of re-imburement requests will be based on fiscal coordination between the Town of Phelps and the Smoky Lake Property Owners Association. A final end of the project report will be submitted to the WDNR to fulfill final reimbursement requirements.

### Time Table and Responsibilities 2015 & 2014

	J	F	M	A	M	J	J	A	S	O	N	D	SLPO	Many Waters
Task 1A														
Task 1B														
Task 2A														
Task 2B														
Task 3A														
Task 4A														
Task 5A														
Task 6A														
Task 6B														
Task 7A														
Task 7B														
Task 7C														
Task 7D														
Task 8A														

Please note that on water activities may shift due to weather

	2014			2015			2016	
	Cash Value		Donated Value	Cash Value	Donated Value	Cash Value	Donated Value	
	Known Focus Area							
<b>Monitoring</b>								
Early Season Survey		\$1,200		\$1,200		\$1,200		
Mid-Late Season Survey		\$1,200		\$1,200		\$1,200		
Volunteer Training Session (10 people first year, 3 people each follow year, 4hrs @ 12.00/hr)			\$480.00		\$144.00		\$144.00	
Volunteer Monitoring (40hrs 1 <sup>st</sup> yr, 80hrs 2 <sup>nd</sup> yr & 100 hrs by the 3 <sup>rd</sup> yr @ 12.00/hr)			\$480.00		\$960.00		\$1,200.00	
Usage Rate Boat - Volunteer Monitoring (\$165/day 8 hr day) <a href="http://www.boatsport.com/#!/boat-rentals/cn5p">http://www.boatsport.com/#!/boat-rentals/cn5p</a>			\$825.00		\$1,650.00		\$2,062.50	
<b>Management</b>								
Permit Preparation and Pre-DASH Mapping	\$450.00							
WI Permitting Fees for DASH*	\$300.00 Max			\$300.00 Max		\$300.00 Max		
Hand Removal/DASH (2014) / Control Strategies for 2015 and beyond TBD	\$4,000.00	TBD		TBD		TBD		
Volunteer Divers (20hrs, 2 divers 1 <sup>st</sup> yr, 40hrs 2 divers following years @ 12.00/hr)			\$240.00		\$480.00		\$480.00	
Usage Rate Volunteer Divers (3.3 hr days/diver, 2 tanks air/diver/day) Day rental equipment with additional tank: \$69.00/day + 1 dive down flag. (\$5.00/day) <a href="http://www.timberbayscuba.com/6.html">http://www.timberbayscuba.com/6.html</a>			\$433.18		\$866.00		\$866.00	
<b>Evaluation/Final Reporting/Administration</b>								
Post Management Evaluation	\$450.00	TBD		TBD		TBD		
Annual Reporting		\$700.00		\$700.00		\$700.00		
Project Administration (60hrs 2st yr, 20 hrs/yr following years @ 12.00/hr)			\$720.00		\$360.00		\$360.00	
End of the Year Meeting (6 people/2 hours)			\$144.00		\$144.00		\$144.00	

\*Michigan permitting fees cannot be paid for under WDNR grant funding

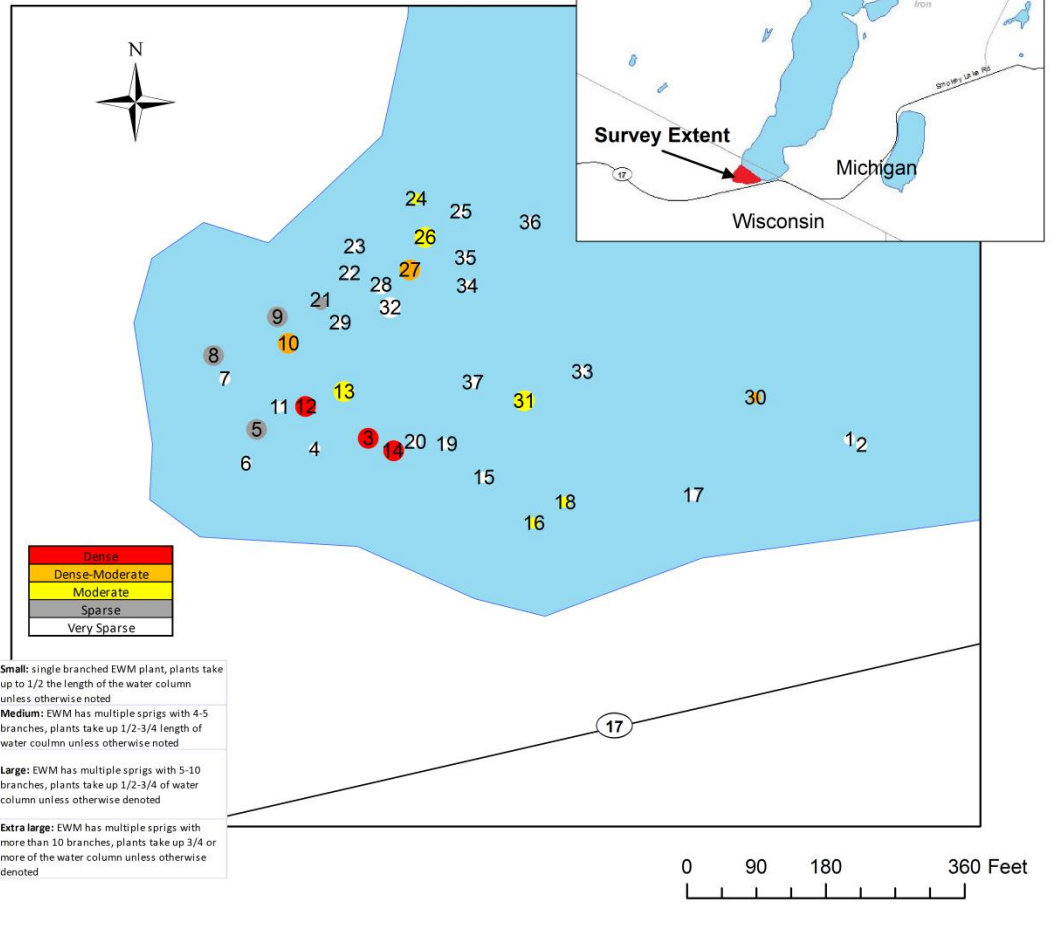
Lumberjack Resources Conservation & Development Council, Inc. & Golden Sands Resource Conservation & Development Council, Inc., 2012. Eurasian Water Milfoil Manual Removal. [http://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb5373240.pdf](http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5373240.pdf)

Hauxwell, J., S. Knight, K. Wagner, A. Mikulyuk, M. Nault, M. Porzky and S. Chase. 2010. Recommended baseline monitoring of aquatic plants in Wisconsin: sampling design, field and laboratory procedures, data entry and analysis, and applications. Wisconsin Department of Natural Resources Bureau of Science Services, PUB-SS-1068 2010. Madison, Wisconsin, USA.

Aquatic Plant Management in Wisconsin. Appendix D.  
<http://www4.uwsp.edu/cnr/uwexplakes/ecology/APMguide.asp>

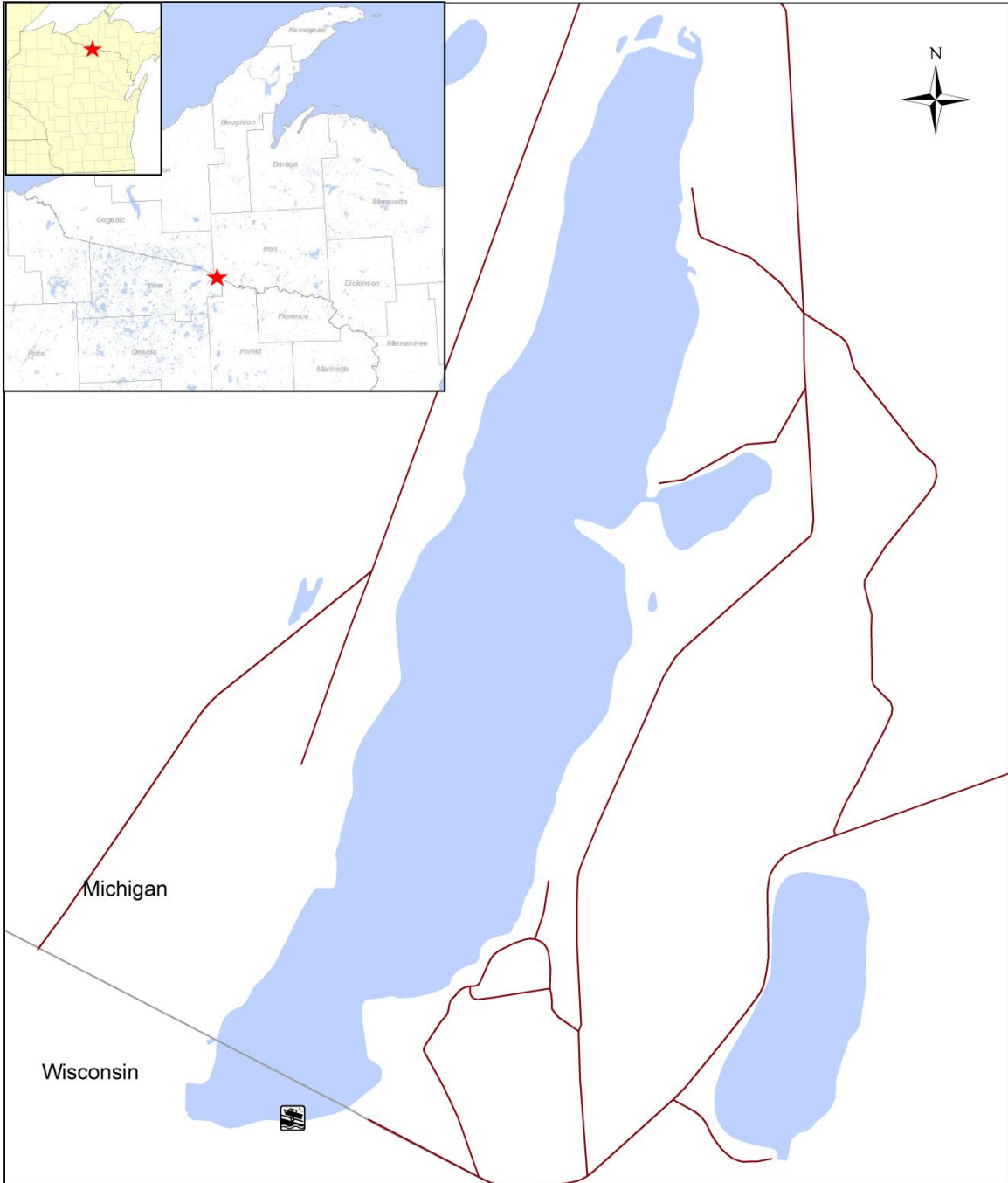
## 2013 Distribution of Eurasian Watermilfoil Smoky Lake - Vilas County, WI & Iron County, MI

Map ID	EWM Distribution Estimate	EWM Biomass Estimate	EWM Estimated Total Extent (ft circumference)	Notes
1	Very sparse (1 plant)	Small		
2	Very sparse (1 plant)	Small		
3	Dense	Large-At surface	35'	10' circumference dense colony, surrounded by 25' circumference sparse distribution of EWM
4	Very sparse (3 plants)	Small		
5	Sparse	Small	30'	6'-8' spacing
6	Very sparse (1 plant)	Small		Less than a foot of water-plant is to surface
7	Very sparse (1 plant)	Small		Less than a foot of water-plant is to surface
8	Sparse	Small	30'	
9	Sparse	Medium	30'	6'-8' spacing
10	Dense-Moderate	Large-Plants just below surface	20'	(2) 2' dense colonies surrounded by sparse distribution of EWM
11	Very sparse (4 plants)	Small		
12	Dense	Large-Plants just below surface	30'	12' dense colony, surrounded by 20' circumference sparse distribution of EWM
13	Moderate	Medium	20'	(5-6) 2' colonies of EWM, 2-4 feet apart
14	Dense	Large-Plants just below surface	20'	(1) 6x12' dense colony of EWM, (1) 5x5' dense colony of EWM, surrounded by sparse distribution of EWM
15	Very sparse (1 plant)	Medium		
16	Moderate	Large	2'	
17	Very sparse (1 plant)	Small		
18	Moderate	Large	2'	
19	Very sparse (1 plant)	Medium		
20	Very sparse (1 plant)	Small		
21	Sparse	Medium	15'	1' dense cluster of EWM surrounded by 5 EWM outliers
22	Very sparse (1 plant)	Large		
23	Very sparse (4 plants)	Small		
24	Moderate	Medium	2'	
25	Very sparse (1 plant)	Large		
26	Moderate	Medium	25'	(3) 2' clusters of EWM 3' apart, surrounded by sparse distribution of EWM
27	Dense-Moderate	Large	35'	6x20' EWM colony, surrounded by sparse distribution of EWM
28	Very sparse (3 plants)	1 extra large, 2 medium	12'	
29	Very sparse (1 plant)	Small		
30	Moderate	Large	3x4'	1 very large EWM plant 6' northeast of dense colony
31	Moderate	Medium	24'	
32	Very sparse (4 plants)	Medium		
33	Very sparse (1 plant)	Small		
34	Very sparse (1 plant)	Medium		
35	Very sparse (3 plants)	Large		
36	Very sparse (1 plant)	Medium		
37	Very sparse (1 plant)	Medium		

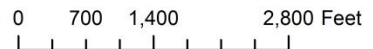


Created By: Many Water, LLC, 2527 Lake Ottawa Road, Iron River, MI 49935  
 Source: Fall\_EWM\_Smoky\_2013, MIGDL\_Lake\_Polygons\_200403, ESRI USA Base Map  
 Survey Date: October 14<sup>th</sup> 2013

# Smoky Lake - Vilas County, WI & Iron County, MI



Created By: Many Waters, LLC  
Lake: Smoky Lake - Vilas Co., WI & Iron Co., MI  
Source: MIGDL Lake\_polygons\_200403, MIGDL allroads\_miv13a, ESRI USA Base Map

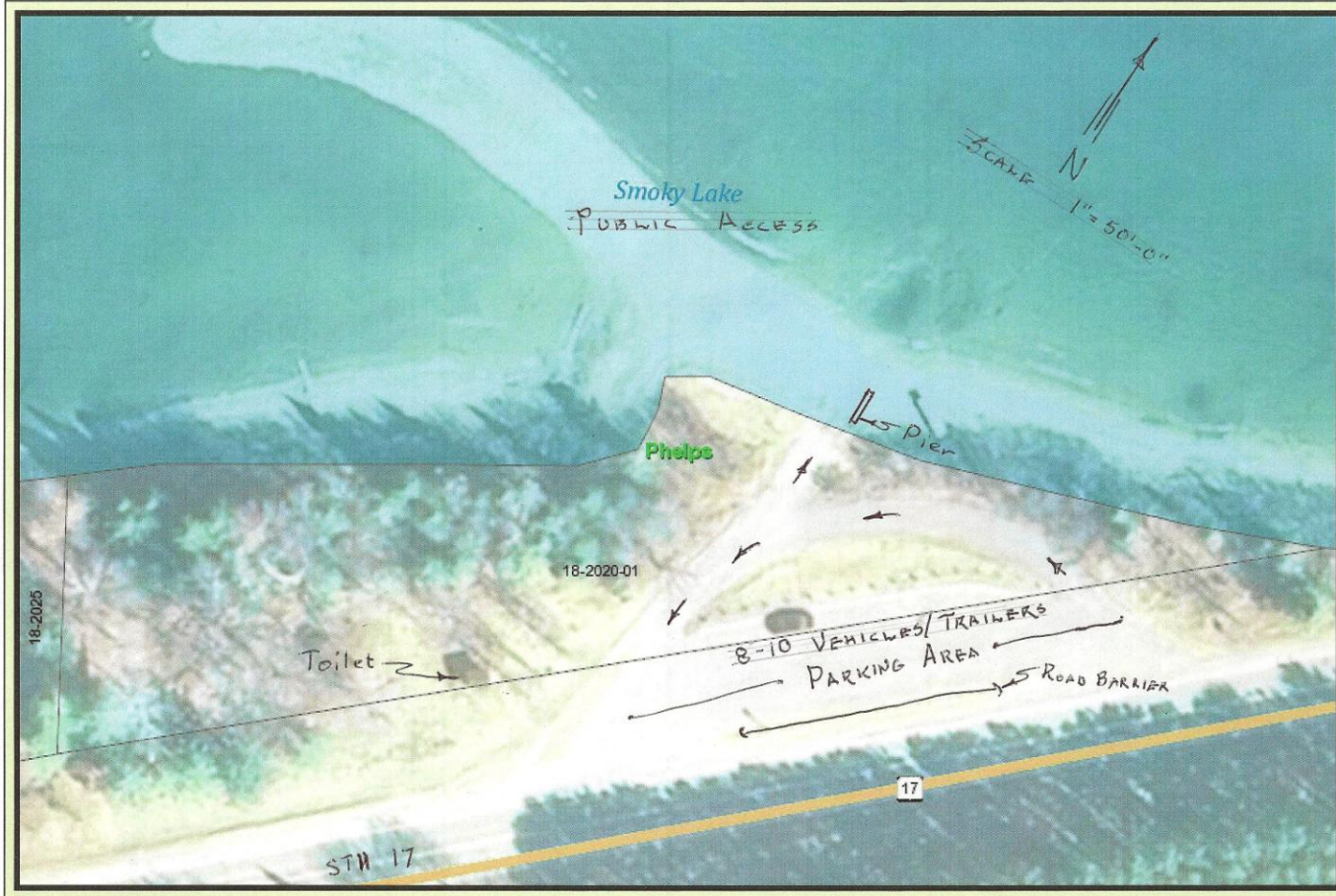








# Smoky Lake Access



Created from V-MApp on January 3, 2014  
Prepared by: Adam Grassl

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