

A

APPENDIX A

Public Participation Materials

Lake Mohawksin Comprehensive Management Plan

Project Kick-Off Meeting

May 12, 2007 1:00pm

SARA Park Community Building, Tomahawk

The City of Tomahawk and the Friends of Lake Mohawksin have received two Lake Management Planning Grants from the Wisconsin Department of Natural Resources to partially fund the completion of a comprehensive management plan for Lake Mohawksin. The project has two primary objectives, the first being the completion of an in-depth study including multiple plant surveys, water quality sampling, and watershed investigations; the second being the completion of a realistic management plan for the lake and its watershed. Most of the studies and analysis will be completed during this spring, summer with the final plan being completed in late fall. The project will also incorporate opportunities for stakeholder education and input, which are both very important components of all lake management planning efforts. The first opportunity for your participation in the process will be at the Project Kick-off Meeting to be held on Saturday, May 12th at 1:00pm at the Community Building at SARA Park in Tomahawk.



Aquatic ecologist, Tim Hoyman of Onterra, speaks to a lake group in Waushara County about their lake management plan. Public participation will be integral part of the Lake Mohawksin project.

Onterra, LLC, a lake management planning firm out of De Pere, has been hired to lead the project. During the meeting Tim Hoyman, an Aquatic Ecologist with Onterra, will describe the project and its importance. His presentation will include a description of the project's components, a quick course on general lake ecology, and a breakdown of how the Friends of Lake Mohawksin Planning Committee will be involved in the plan's completion. This meeting will also include information regarding the herbicide treatment of Eurasian water milfoil scheduled to be completed during the third week of May (please see reverse side). So, please plan on attending the meeting and do not hesitate to ask questions or make comments.

Lake Mohawksin Eurasian Water Milfoil Treatment

Informational Meeting

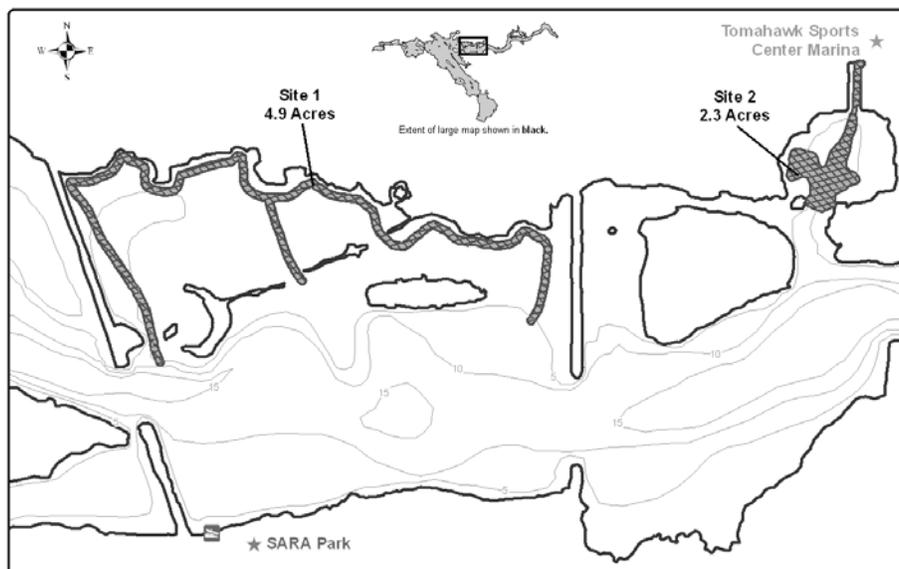
May 12, 2007 1:00pm

SARA Park Community Building, Tomahawk

Eurasian water milfoil (EWM) is an invasive species, native to Europe, Asia and North Africa, that has spread to most Wisconsin counties. EWM is unique in that its primary mode of propagation is not by seed – it actually spreads by shoot fragmentation, which has supported its transport between lakes via boats and other equipment. In addition to its propagation method, EWM has two other competitive advantages over native aquatic plants, 1) it starts growing very early in the spring when water temperatures are too cold for most native plants to grow, and 2) once its stems reach the lake's surface, it does not stop growing like most native Wisconsin plants, instead it continues to grow along the surface creating a canopy that blocks light from reaching native plants. EWM can create dense stands and dominate submergent communities, reducing important natural habitat for fish and other wildlife, and hampering recreational activities such as swimming, fishing, and boating.

EWM was first discovered in Lake Mohawksin during 2001; however, it is likely that it occurred in the lake years before then. Surveys completed during the summer of 2006 discovered approximately 100 acres of surface water area that was dominated or nearly dominated by EWM and 43 of those acres contained EWM that was canopying as described above. Approximately 7 acres of EWM is scheduled for treatment during the third week of May (please see map). Both of the areas being treated are heavily used by lakeshore property owners and recreational boaters. The treatments are being conducted to allow navigation through these areas while reducing the fragmentation and spread of EWM. Both sites will be monitored to determine treatment effectiveness and to aid in the planning of future treatments. The monitoring costs and training of volunteers to monitor the lake for invasive species are being provided by the Friends of Lake Mohawksin and a Wisconsin DNR Aquatic Invasive Species Grant.

An informational meeting will be held in conjunction with the Lake Mohawksin Management Planning Project Kick-off (please see reverse side) at SARA Park on Saturday, May 12th at 1:00pm. The EWM in Lake Mohawksin and the proposed treatments will be presented.





Friends of Lake Mohawksin

Lake Mohawksin Comprehensive Management Planning Project
Kick-off & Informational Meeting
May 12, 2007

Timothy A. Hoyman, CLM



Presentation Outline

- Lake Mohawksin Projects
- Introduction to Lake Ecology
- Lake Management Planning Project
 - Goals
 - Components
 - Process
- Aquatic Invasive Species Project

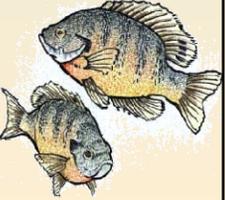


Lake Mohawksin Projects

- Comprehensive Lake Management Planning Project
 - Two Lake Management Planning Grants
 - Technical Phase and Planning Phase
 - 75% Match by Wisconsin DNR
- Eurasian Water Milfoil Treatment Monitoring & Information Project
 - Aquatic Invasive Species Grant
 - 50% Match by Wisconsin DNR

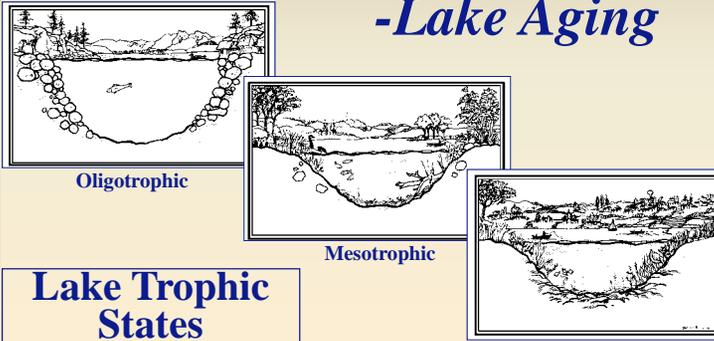


General Lake Ecology



General Lake Ecology

Eutrophication -Lake Aging



Oligotrophic

Mesotrophic

Eutrophic

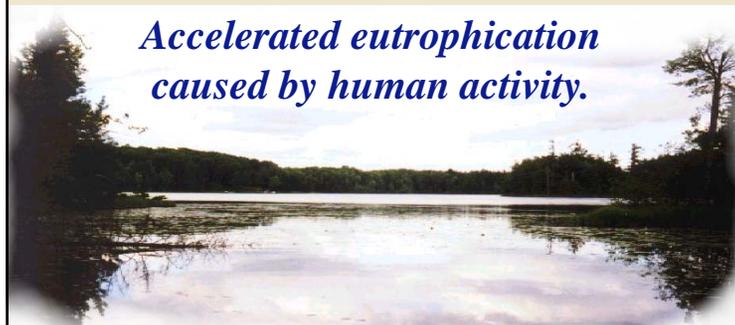
Lake Trophic States

Onterra LLC
Lake Management Planning

General Lake Ecology

Cultural Eutrophication

Accelerated eutrophication caused by human activity.

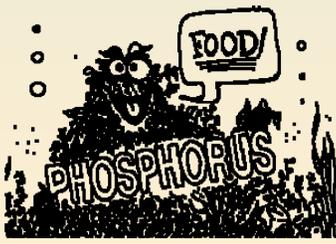


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Lake Management Planning

General Lake Ecology

Phosphorus

- *Limiting Nutrient*
- *Controls Plant Abundance (Productivity)*
 - *Algae*
 - *Macrophytes*



Onterra LLC
Lake Management Planning

General Lake Ecology

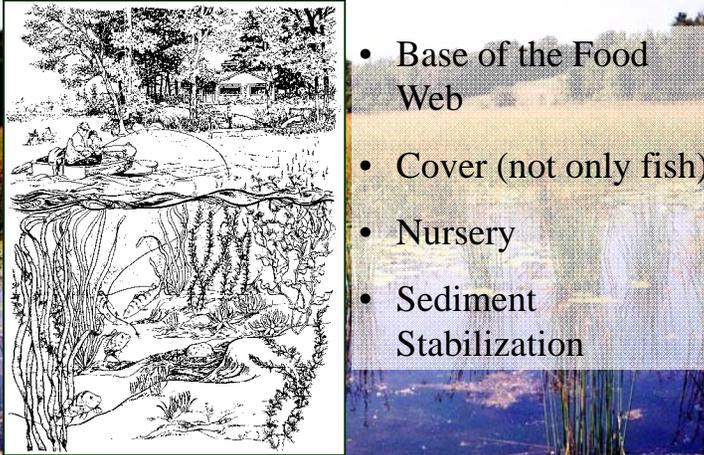
Aquatic Plants (macrophytes)

- *Native Plants*
- *Exotic Plants (non-native)*



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Native Aquatic Plants



- Base of the Food Web
- Cover (not only fish)
- Nursery
- Sediment Stabilization

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Lake Management Planning

General Lake Ecology

Non-native Aquatic Plants

Curly-leaf Pondweed



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Lake Management Planning

General Lake Ecology

Non-native Aquatic Plants

Eurasian Water-Milfoil



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Lake Management Planning

General Lake Ecology

Consequences of Exotics

- Competition with Natives
 - Monotypic Community
- Decreased Recreational Value
- Decreased Property Value



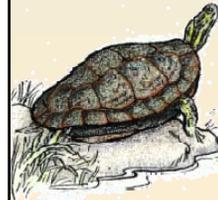
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Planning Project

Study and Plan Goals

- Collect & Analyze Data
- Construct Long-Term & Useable Plan



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Planning Project

Study Components

- Public Participation
- Watershed Modeling
- Water Quality *Volunteer – Citizen Lake Monitoring Network*
- Aquatic Vegetation
 - Curly-leaf Pondweed Survey *June 2007*
 - Comprehensive Survey *Completed Summer 2006*
- Plan Development

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Lake Management Planning

Planning Project

Planning Process

Planning Committee Meetings

- Study Results (including a stakeholder survey)
- Conclusions & Initial Recommendations
- Management Goals
- Management Actions
 - Timeframe
 - Facilitator(s)



↓
Implementation Plan

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Lake Management Planning



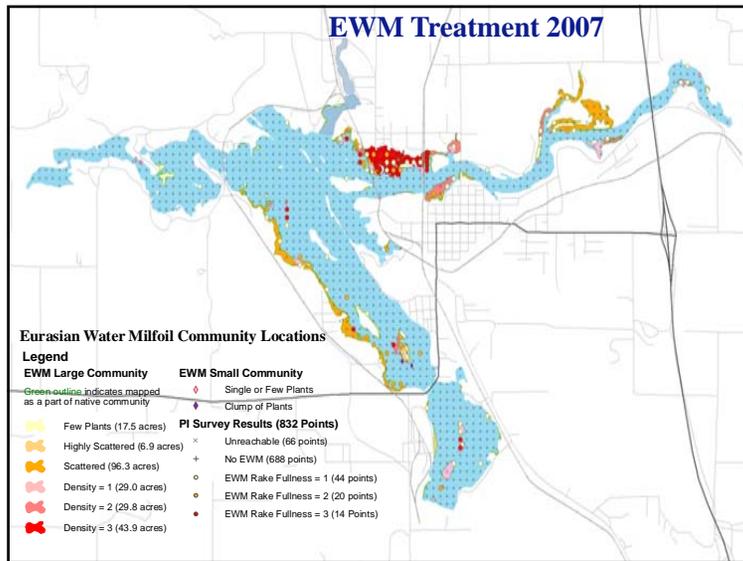
AIS Project

Project Objectives

- Monitor EWM Treatments
 - Pre-treatment
 - Post treatment
 - Dissolved Oxygen
- Use Information in Plan Development
- Provide Information

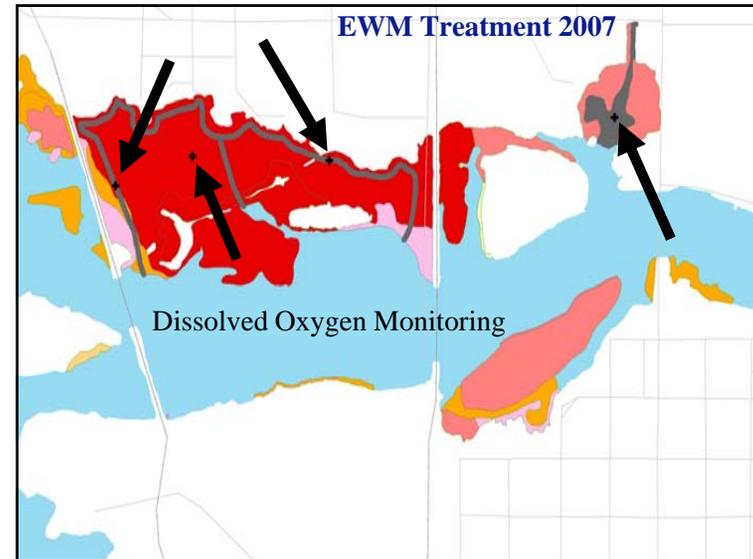
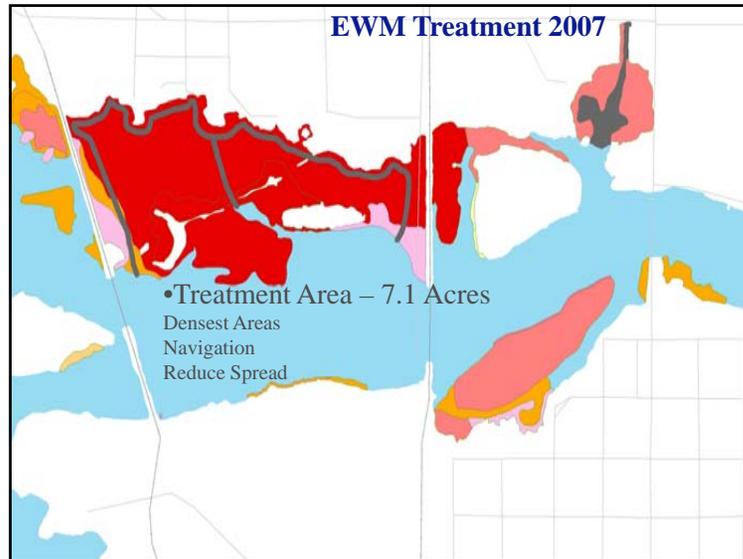


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EWM Treatment 2007

Selected Treatment: Herbicide Application
 Chemical: 2,4-D
 Brand Name: Navigate
 Restrictions: 14 Day Irrigation
 1 Day Swimming
 1 Day Fishing



Thank You

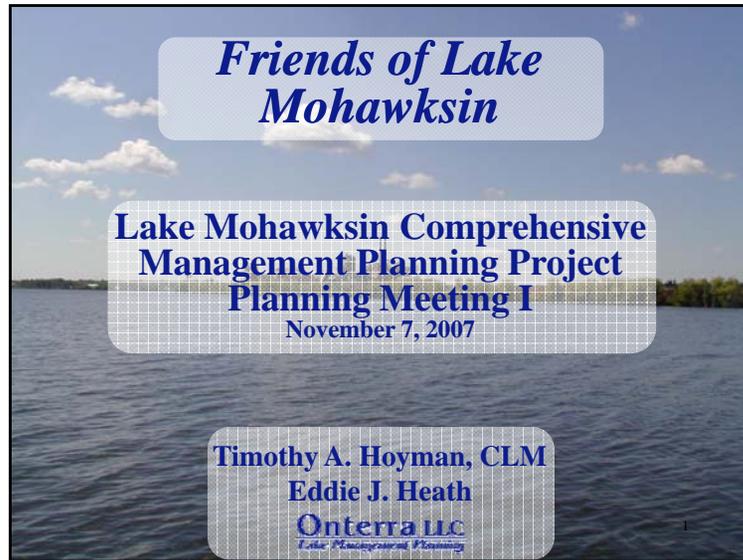
Many of the graphics used in this presentation were supplied by:



Wisconsin
Lakes
Partnership



Onterra LLC
Water Management Planning



Friends of Lake Mohawksin

**Lake Mohawksin Comprehensive Management Planning Project
Planning Meeting I
November 7, 2007**

**Timothy A. Hoyman, CLM
Eddie J. Heath
Onterra LLC
*Lake Management Planning***

Presentation Outline

- Current Lake Project Overview
- Planning Process
- Study Results
 - Watershed
 - Water Quality
 - Aquatic Plants
 - 2007 EWM Treatment
 - Stakeholder Survey
- Preliminary Conclusions
- Discussion
- Management Goals



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Current Project

Study and Plan Goals

- Collect & Analyze Data
- Construct Long-Term & Useable Plan



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Lake Management Planning

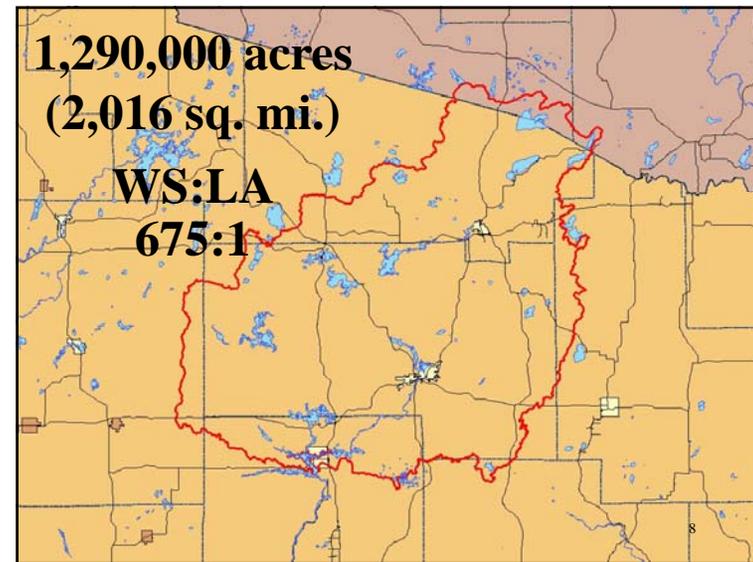
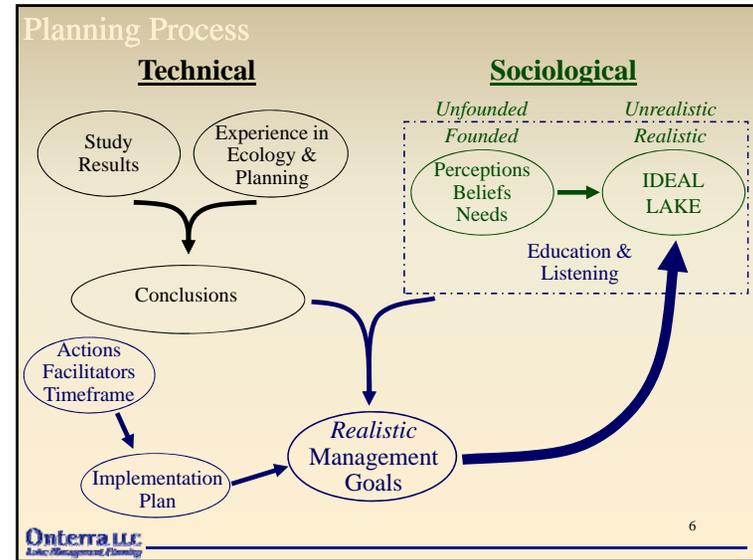
Current Project

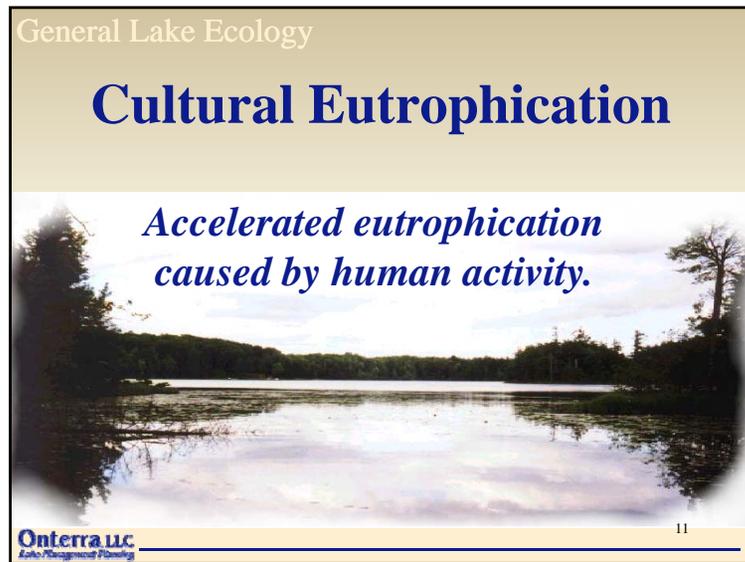
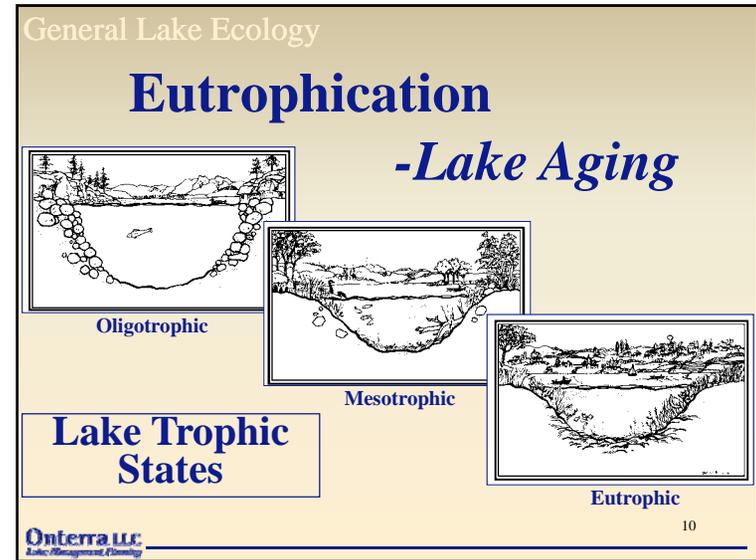
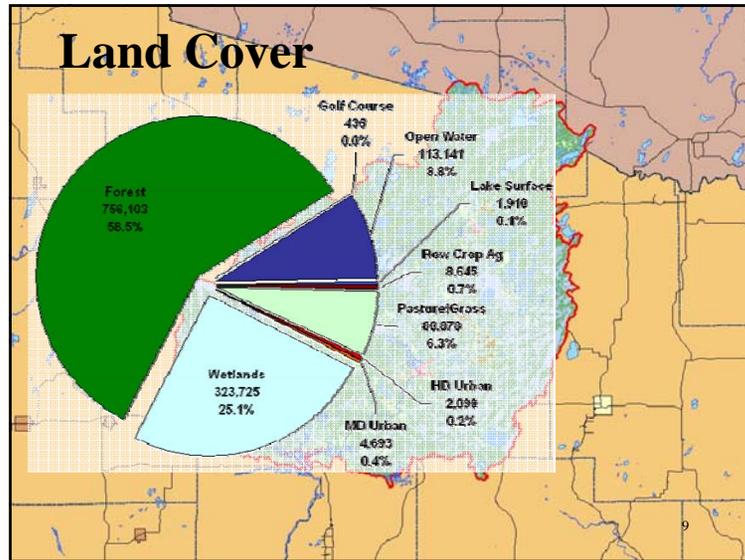
Study Components

- Public Participation
- Watershed Modeling
- Water Quality *Citizens Lake Monitoring Network*
- Aquatic Vegetation
 - Curly-leaf Survey *Completed - None Found*
 - Comprehensive Survey *Completed - Onterra*
 - Treatment Monitoring *Pre & Post Completed*
- Plan Development

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Lake Management Planning





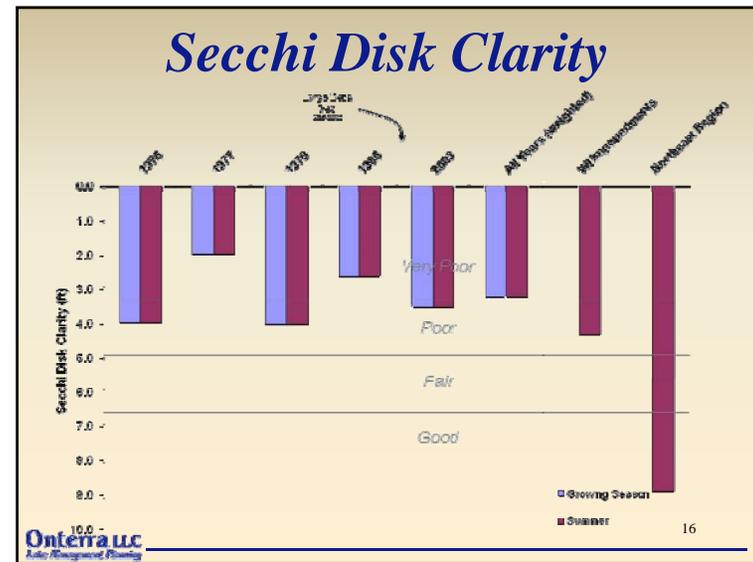
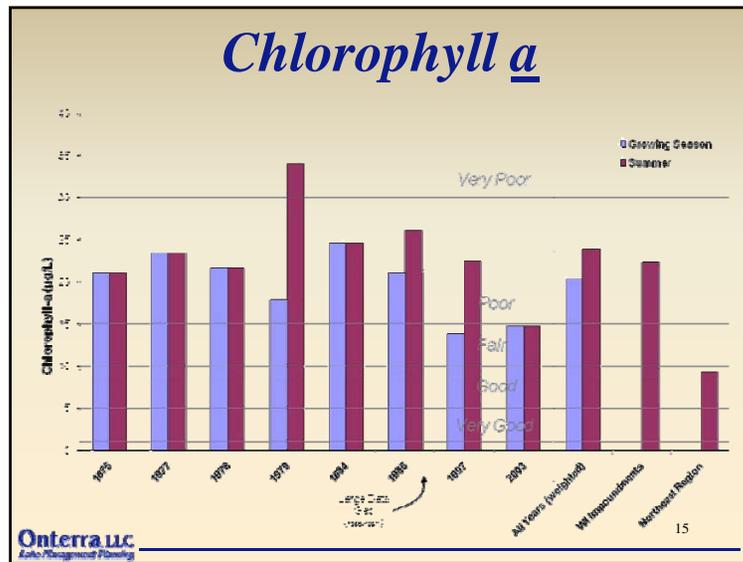
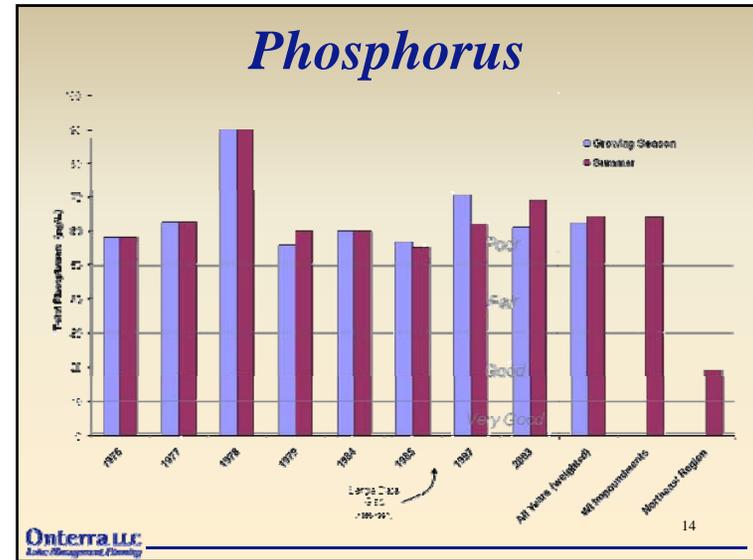
Study Results

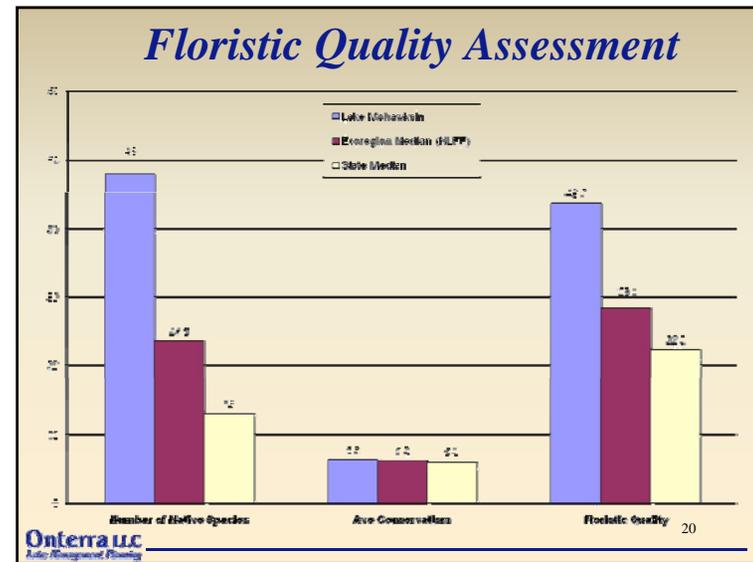
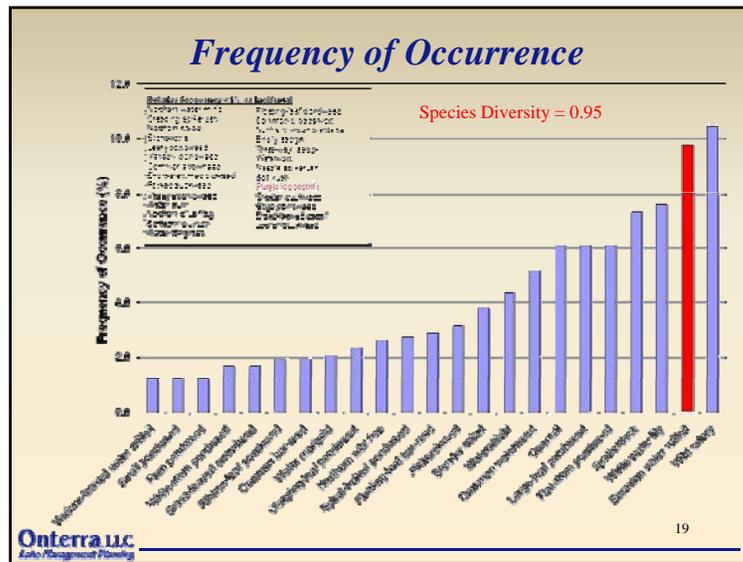
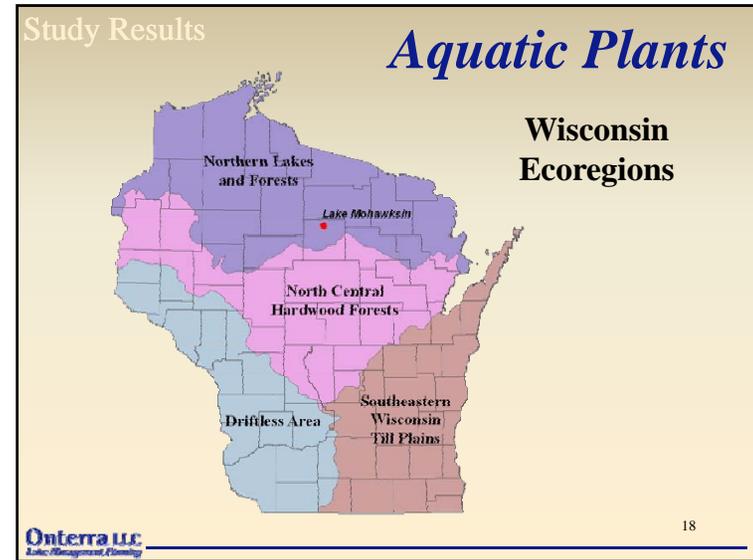
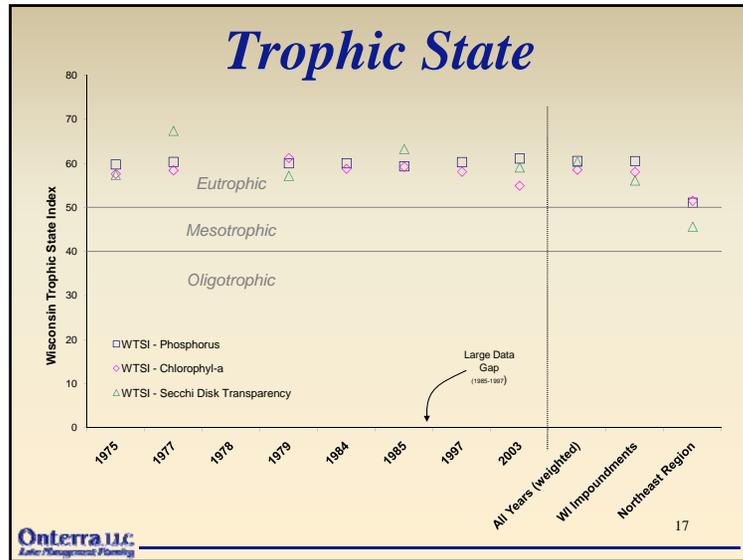
Water Quality

- ↑ Phosphorus (Limiting Plant Nutrient)
- ↑ Chlorophyll-*a* (Algal Abundance)
- ↓ Water Clarity (Secchi Disk)



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Lake Management Planning





EWM Treatment

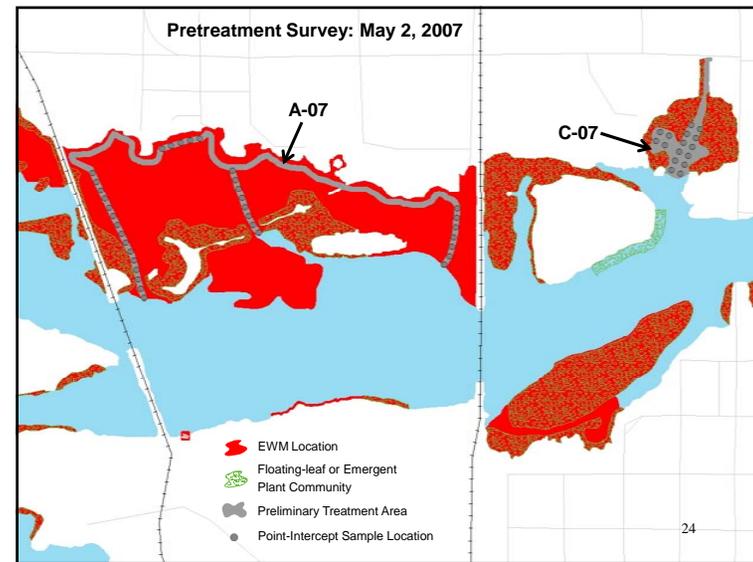
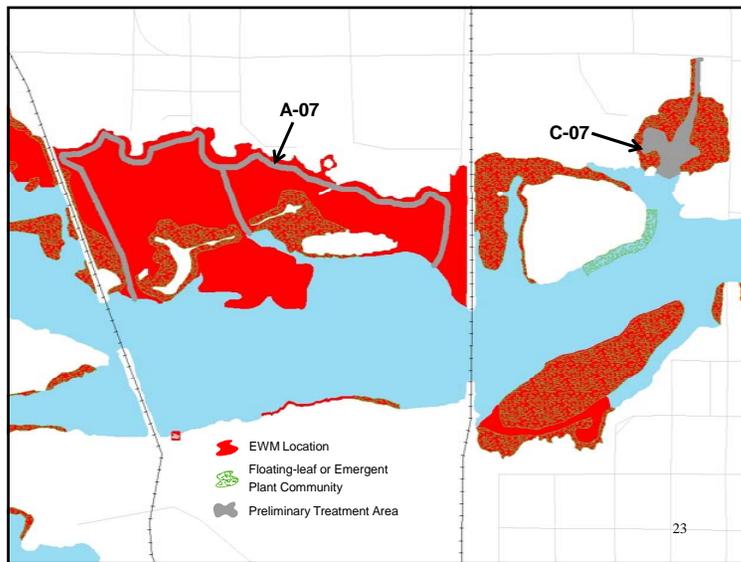
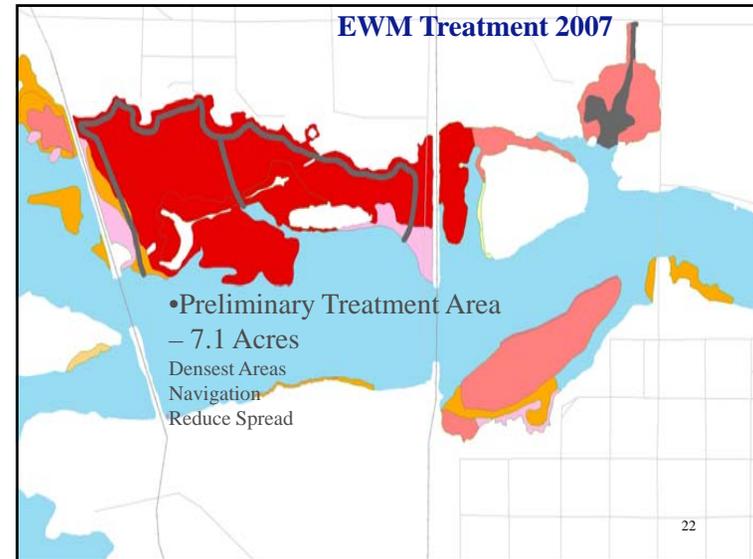
Project Objectives

- Monitor EWM Treatments
 - Pre-treatment
 - Post treatment
 - Dissolved Oxygen
- Use Information in Plan Development
- Provide Information



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Landscape Management Planning

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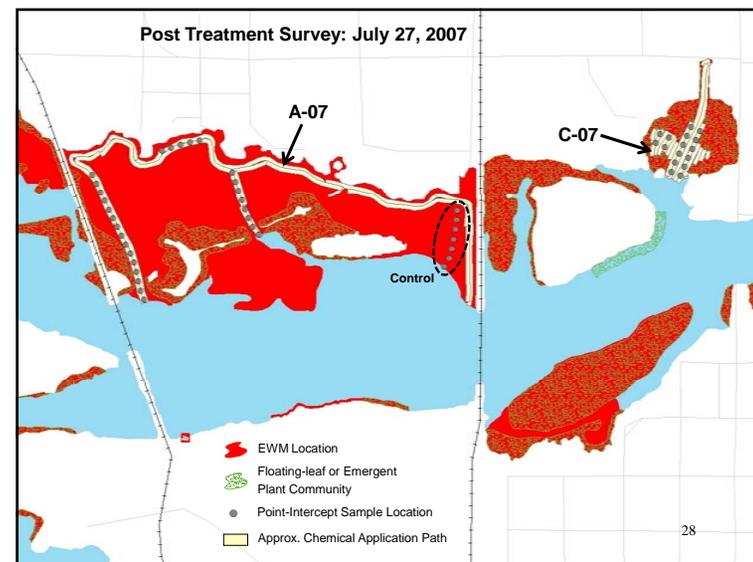
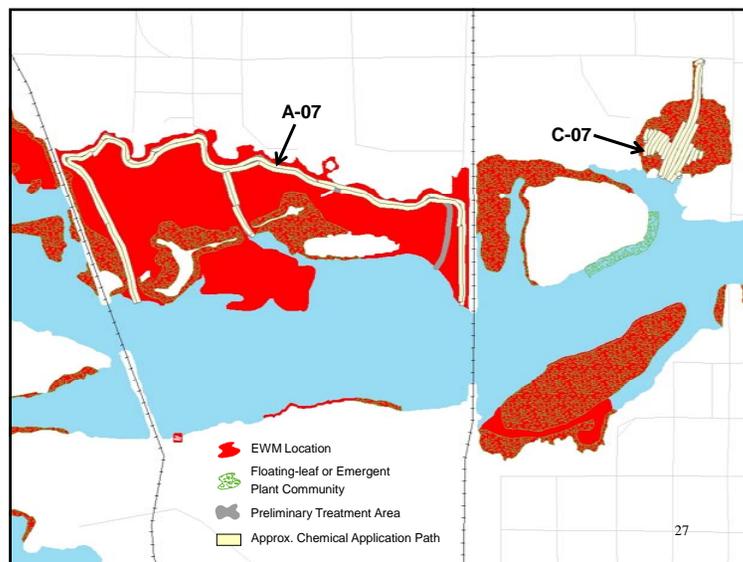
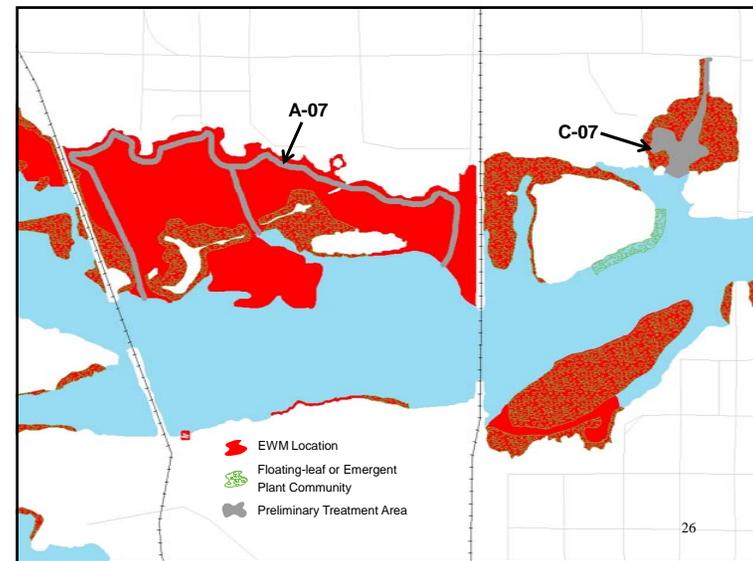


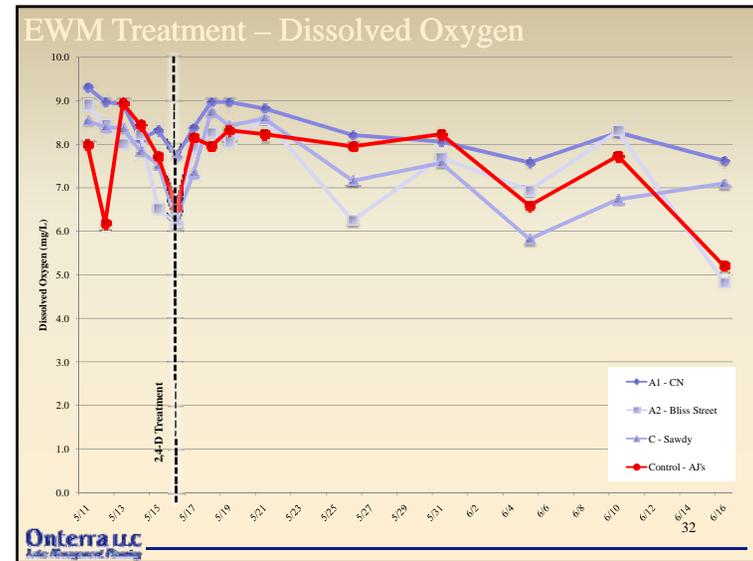
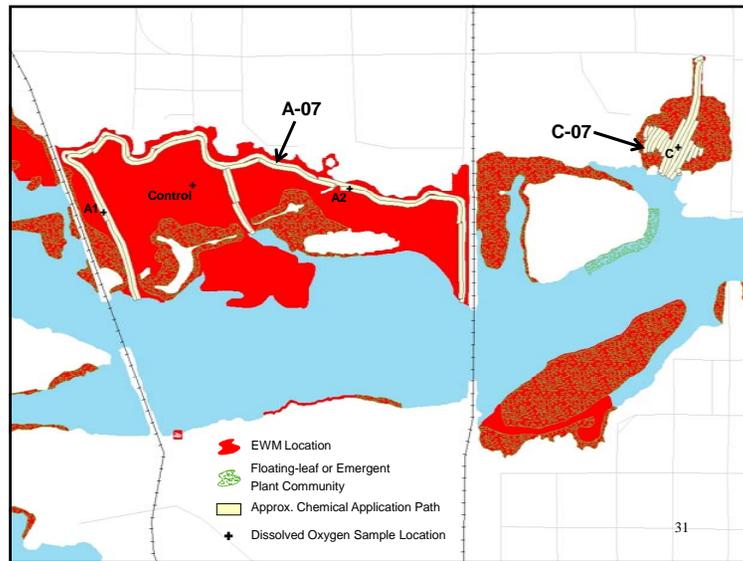
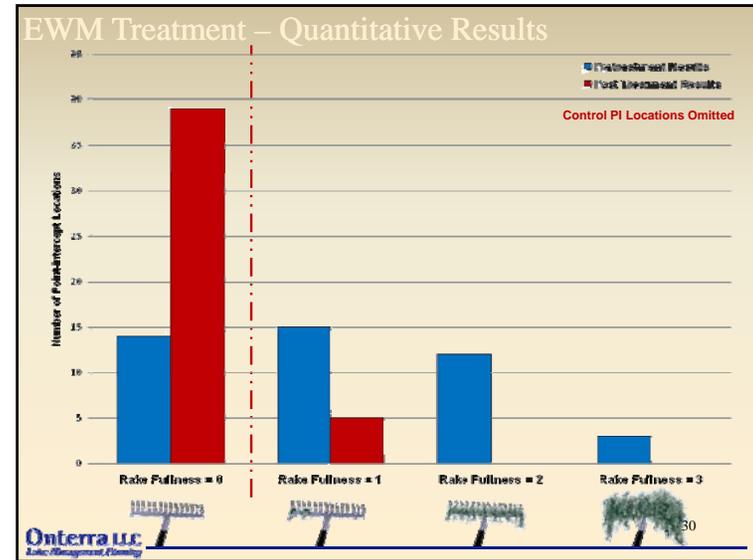
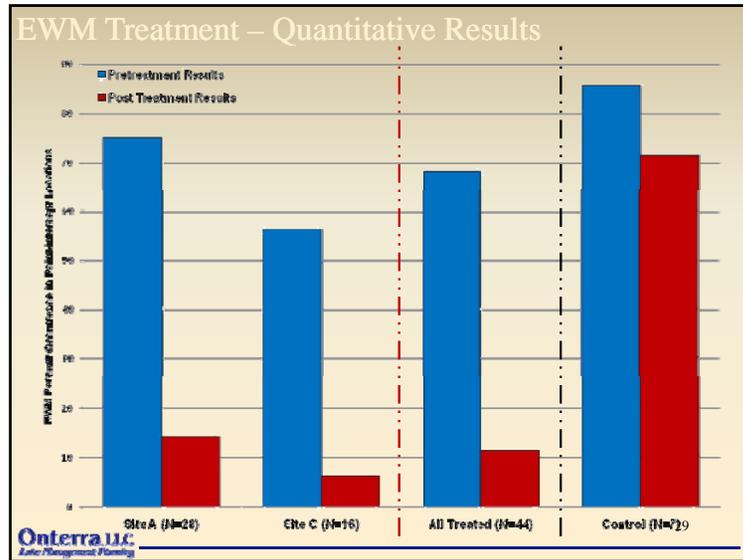
EWM Treatment

*Chemical Treatment
May 16, 2007*

Onterra LLC
Lake Management Planning

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EWM Treatment

Treatment Monitoring Results

- Refinement of Site A
- Point-intercept Survey
 - ~ 60% Reduction of EWM
 - Remaining EWM was Less Dense
- Significant Change in DO not detected
- Qualitative Results
 - June CLP Survey
 - July Post Treatment Survey

Stakeholder Survey

Conclusions

- Mohawksin’s large watershed largely dictates the condition of the lake on an ecosystem basis.
- Water quality is inline with other Wisconsin impoundments
- Aquatic plant community is exceptional
 - Provides excellent habitat
 - Likely competes heavily against EWM
- EWM occurrence is high
 - Impact to native habitat is a concern
 - Nuisance levels occur in some portions of the lake
 - Lake-wide control using herbicides is not feasible

Thank You

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Many of the graphics used in this presentation were supplied by:



Lake Mohawksin Drawdown Scoping Meeting
Friends of Lake Mohawksin & WPS Corp.
Meeting Notes

January 16, 2008 2:30pm

Present: Allen J. Theiler, Friends of Lake Mohawksin
Tim Hoyman, Onterra, LLC
Eddie Heath, Onterra, LLC
James Nuthals, WPS Corp.
Greg Egtvedt, WPS Corp.
Shawn Puzen, WPS Corp.
Peter Wurl, WPS Corp.
William Bloczynski, WPS Corp.

Next meeting: Undetermined

Following introductions, AJ Theiler presented his thoughts regarding the potential drawdown and how much he appreciates the willingness of WPS to come to the discussion table.

Tim Hoyman then discussed the project background including the multiple plant studies that have been completed on the lake, the mapping of Eurasian water milfoil (EWM) within the lake, and the EWM herbicide treatment that was completed during May 2007. Tim also elaborated on why a winter drawdown appears to be the most feasible method at this time for controlling EWM in Lake Mohawksin. Other control alternatives were also presented, such as harvesting, herbicide treatment, and biological control.

Greg Egtvedt stated that they agree and understand that winter drawdown is good method of controlling EWM and that they recently completed a drawdown project on a Peshtigo River dam. Greg continued that while the technique may be useful, there are issues they must contend with in their use:

Reduction in hydroplant's production must be replaced with power from a renewable energy source.

PCA plant uses water from Mohawksin for its cooling process and outfalls its discharge directly to turbines. The drawdown would disrupt both of these activities.

AJ Theiler stated that he understood through discussions with PCA that the intake had been extended to a greater depth. Bill Bloczynski mentioned that the pipe would still be gravity fed and that the plant's intake would still be impacted.

Dike integrity following a winter drawdown may be an issue.

Loss of energy production naturally means a loss in WPS revenue. Further, maintenance and operational costs at the plant would be higher during the drawdown for many reasons. For instance, during the drawdown the turbines would not operate; therefore the facility would need to be heated with an alternate source. Also, the turbines are used to control the water levels in the

lake, if they were not in use, the dam gates would need to be utilized which is more difficult and labor intensive.

Despite these issues, WPS is willing to work with FOLM to study the feasibility of completing the drawdown.

AJ Theiler asked if WPS needed to purchase power during the winter because the hydroplant production was decreased. Craig described that they are constantly buying and selling power to the national grid, but they do produce power at the hydro facilities year-round.

Action Items

Three actions items were created as a result of this meeting and are listed below. The facilitators of each action will report back to either Jamie Nuthals and/or Tim Hoyman on their progress. Once we receive more information, we will likely schedule another meeting.

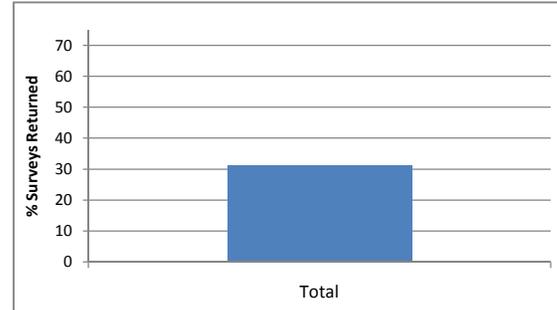
- 1) Contact PCA regarding intake and outfall elevations and impacts to their operations if drawdown is implemented. *AJ Theiler & Peter Wurl*
- 2) Determine fiscal impacts due to loss of power generation and increases in maintenance and operation costs. *Bill Błoczynski & Greg Egtvedt*
- 3) Investigate earthen dike integrity issues. This aspect is the most uncertain of all issues because of the lack of information available. *Bill Błoczynski & Greg Egtvedt*

B

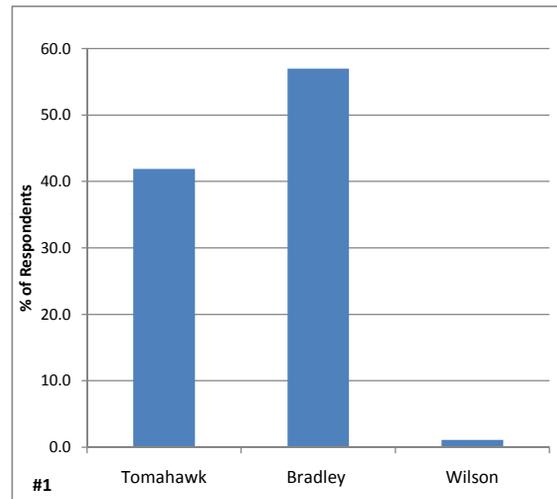
APPENDIX B

Stakeholder Survey Response Charts and Comments

Returned Surveys	Sent	% Returned
Total	573	31.2

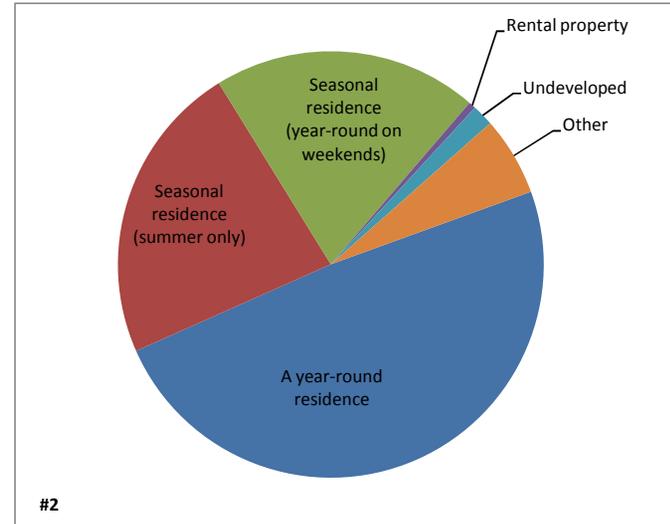


In which township is your Lake Mohawksin property #1 located?		
		Percent
Tomahawk	75	41.9
Bradley	102	57.0
Wilson	2	1.1
	179	



What type of property do you own on Lake

#2 Mohawksin?		%
A year-round residence	90	48.9
Seasonal residence (summer only)	42	22.8
Seasonal residence (year-round on weekends)	37	20.1
Rental property	1	0.5
Undeveloped	3	1.6
Other (please specify)	11	6.0
	184	



If you are not a year-round resident, how many days

#3 each year is your property used by you or others?	
Answered Question	86
Average	67.3
Standard Deviation	58.0

How many years have you owned property

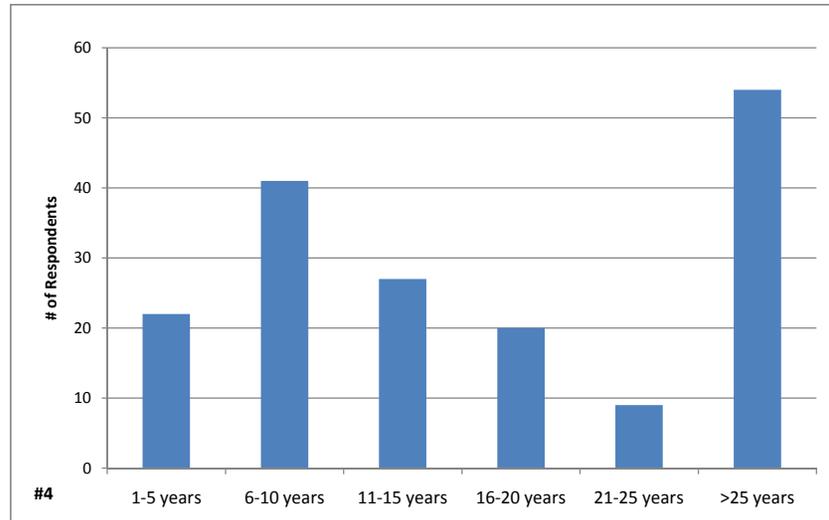
#4 on Lake Mohawksin?

Answered Question	173
Average	21.4
Standard Deviation	18.5

How many years have you owned property

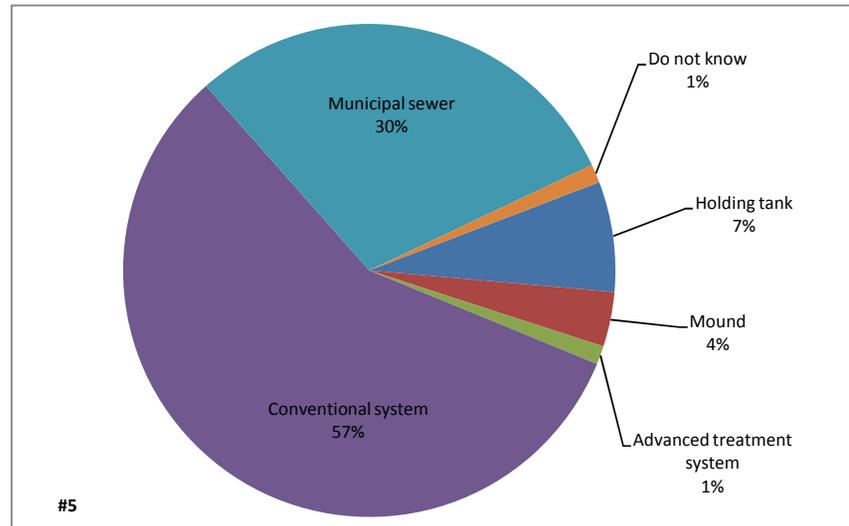
#4 on Lake Mohawksin?

Answered Question	173
1-5 years	22
6-10 years	41
11-15 years	27
16-20 years	20
21-25 years	9
>25 years	54

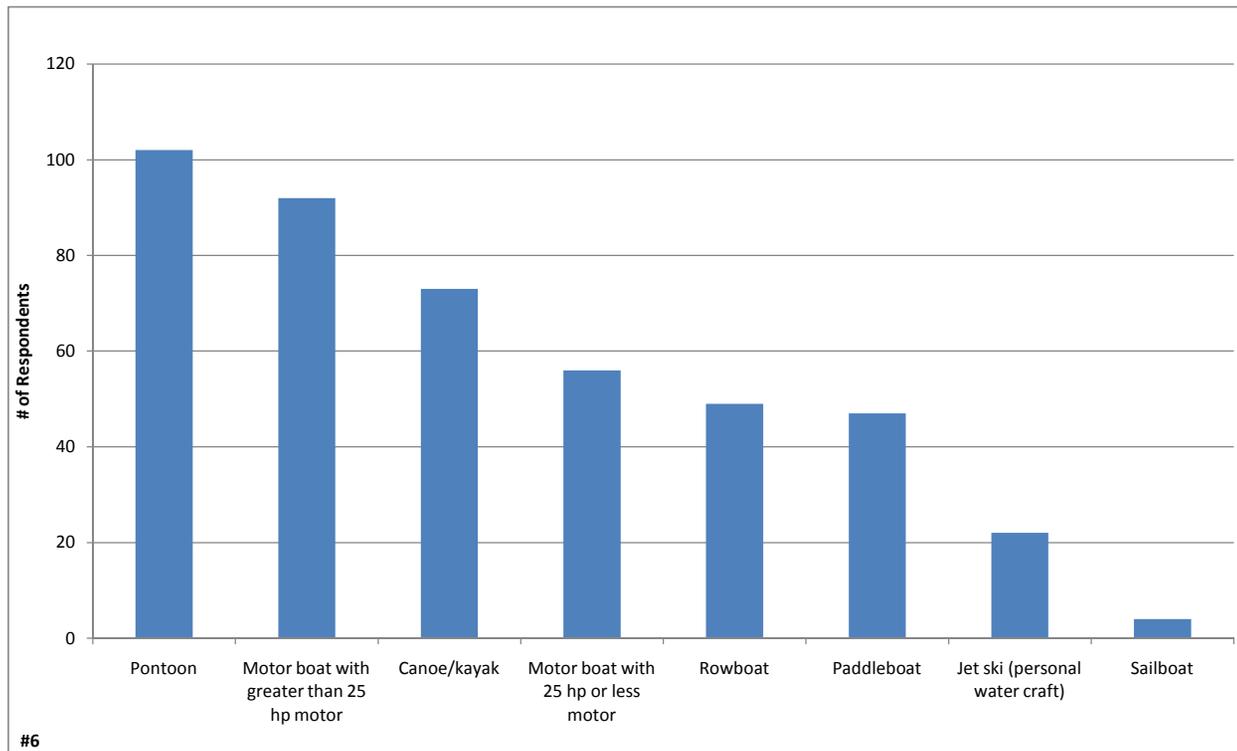


#5 What type of septic system does your property utilize?

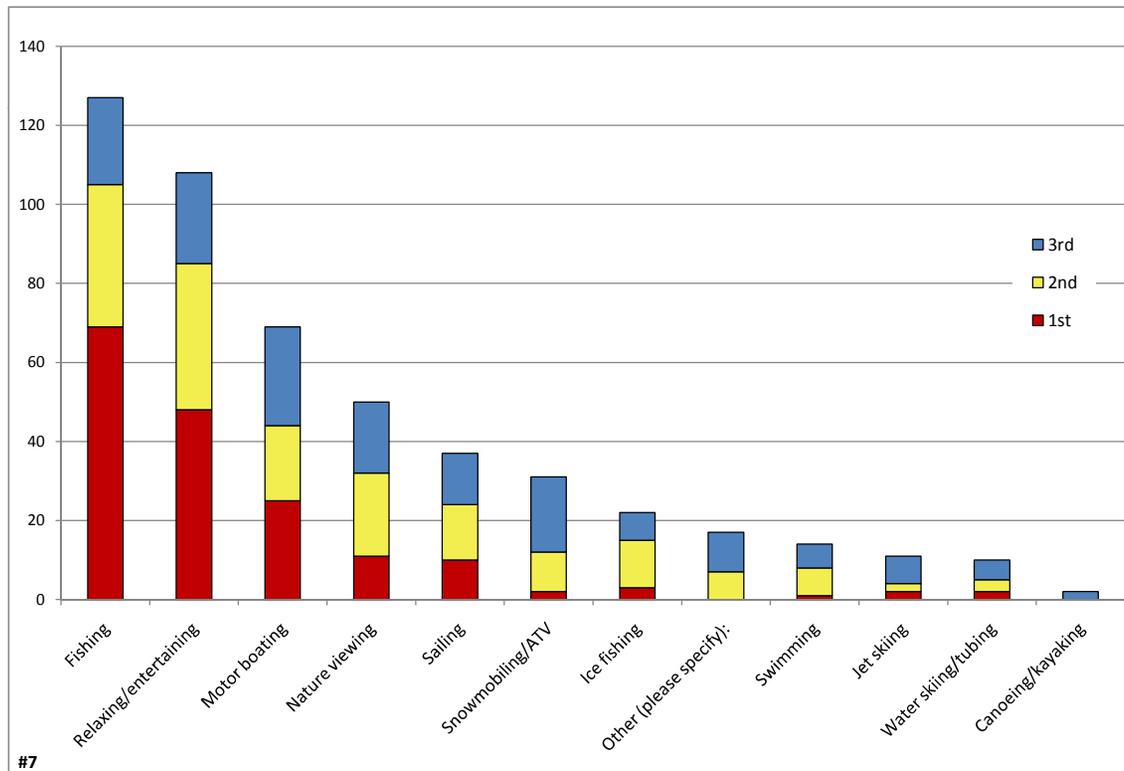
Holding tank	12
Mound	6
Advanced treatment system	2
Conventional system	95
Municipal sewer	49
Do not know	2
Total	166



#6 use on Lake Mohawksin?		% of Total
Pontoon	102	22.9
Motor boat with greater than 25 hp motor	92	20.7
Canoe/kayak	73	16.4
Motor boat with 25 hp or less motor	56	12.6
Rowboat	49	11.0
Paddleboat	47	10.6
Jet ski (personal water craft)	22	4.9
Sailboat	4	0.9
	445	

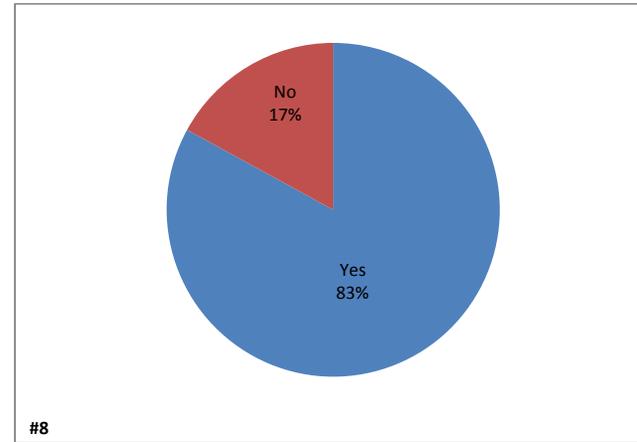


#7	Please rank the activities below that are the most important or enjoyable to you on Lake Mohawksin?	1st	2nd	3rd	% Ranked
	Fishing	69	36	22	25.5
	Relaxing/entertaining	48	37	23	21.7
	Motor boating	25	19	25	13.9
	Nature viewing	11	21	18	10.0
	Sailing	10	14	13	7.4
	Snowmobiling/ATV	2	10	19	6.2
	Ice fishing	3	12	7	4.4
	Other (please specify):	0	7	10	3.4
	Swimming	1	7	6	2.8
	Jet skiing	2	2	7	2.2
	Water skiing/tubing	2	3	5	2.0
	Canoeing/kayaking	0	0	2	0.4
		173	168	157	



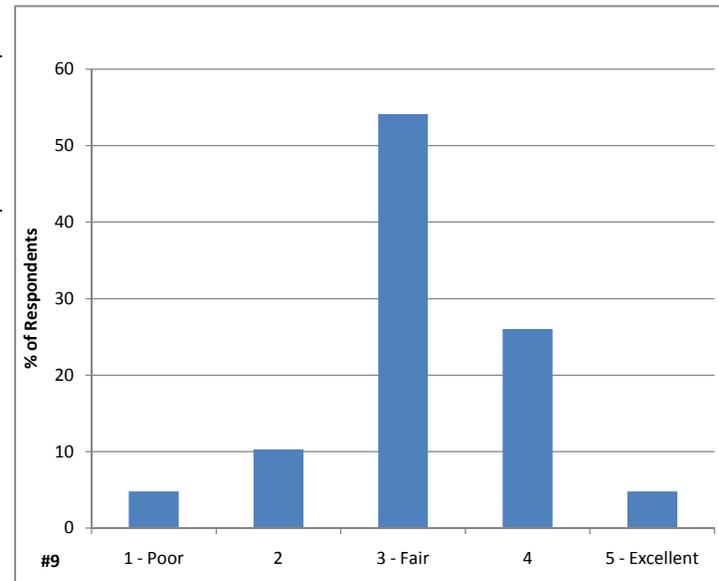
#8 Have you fished on Lake Mohawksin in the past 3 years?

Yes	146
No	30
	176



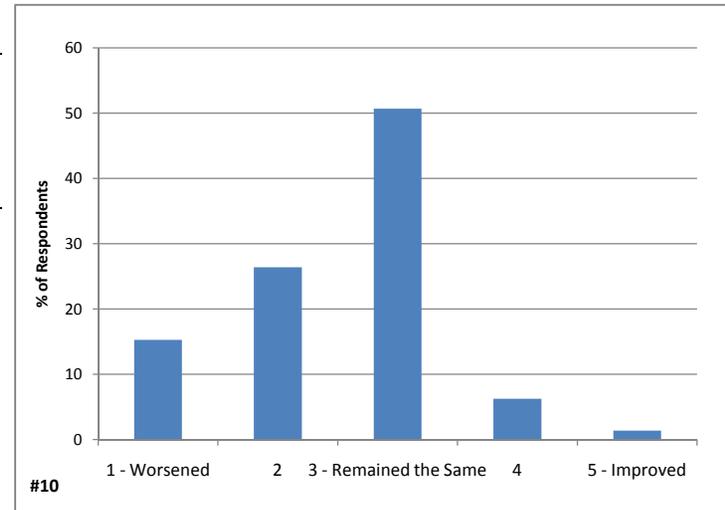
#9 How would you describe the current quality of fishing on Lake Mohawksin?

		%
1 - Poor	7	4.8
2	15	10.3
3 - Fair	79	54.1
4	38	26.0
5 - Excellent	7	4.8
	146	



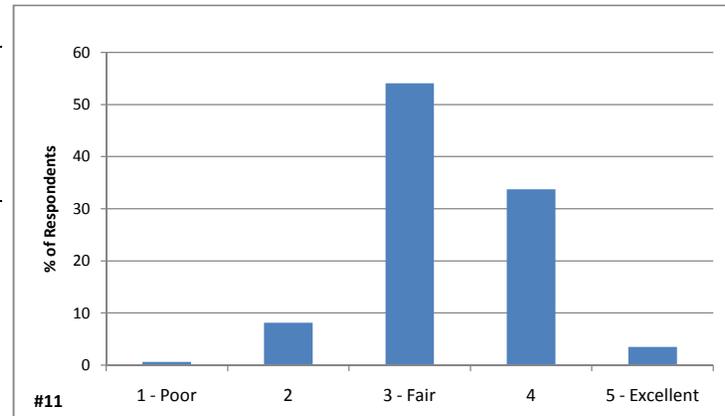
How has the quality of fishing changed on Lake

#10 Mohawksin since you obtained your property?		%
1 - Worsened	22	15.3
2	38	26.4
3 - Remained the Same	73	50.7
4	9	6.3
5 - Improved	2	1.4
	144	



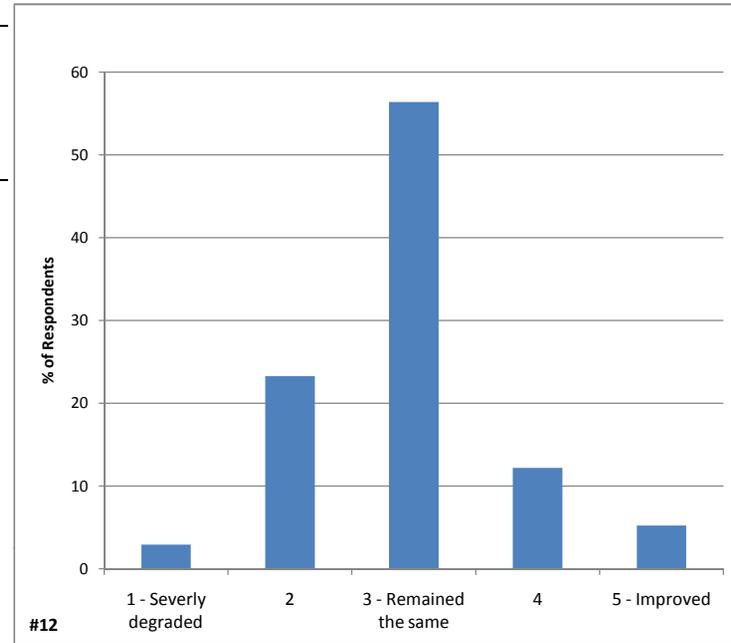
How would you describe the current

#11 water quality of Lake Mohawksin?		%
1 - Poor	1	0.6
2	14	8.1
3 - Fair	93	54.1
4	58	33.7
5 - Excellent	6	3.5
	172	



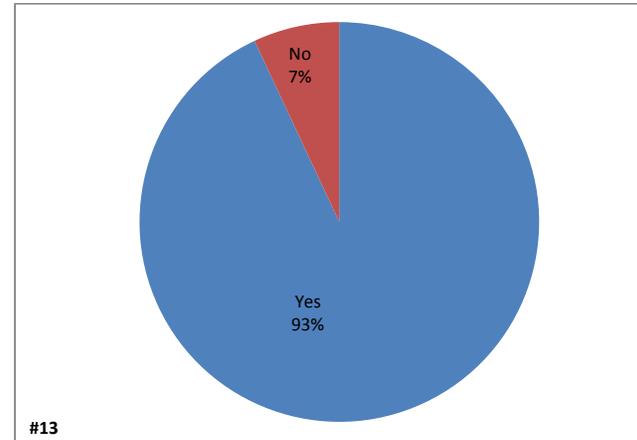
How has the water quality changed in

#12 Lake Mohawksin since you obtained your property?		%
1 - Severly degraded	5	2.9
2	40	23.3
3 - Remained the same	97	56.4
4	21	12.2
5 - Improved	9	5.2
	172	



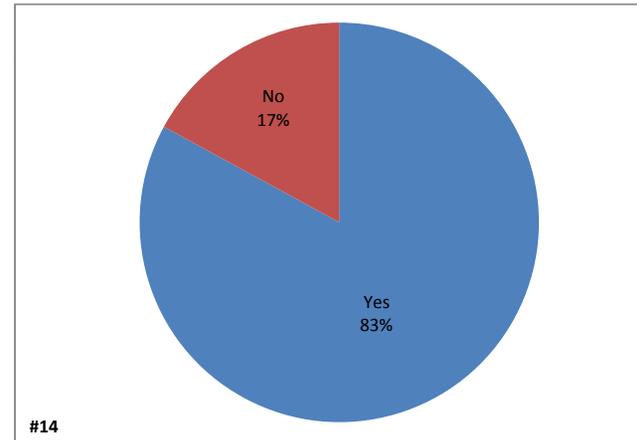
#13 Before reading the statement above, had you ever heard of aquatic invasive species?

Yes	160
No	12
	172



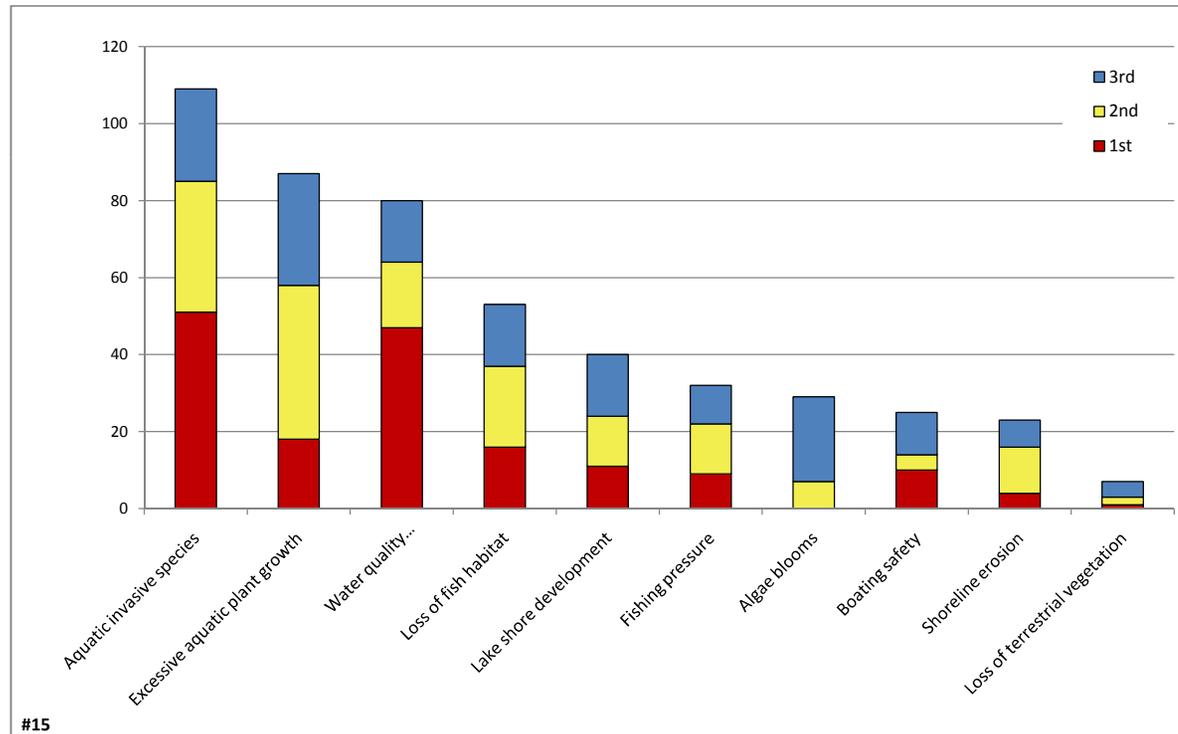
#14 Are you aware of aquatic invasive species on Lake Mohawksin?

Yes	141
No	29
	170

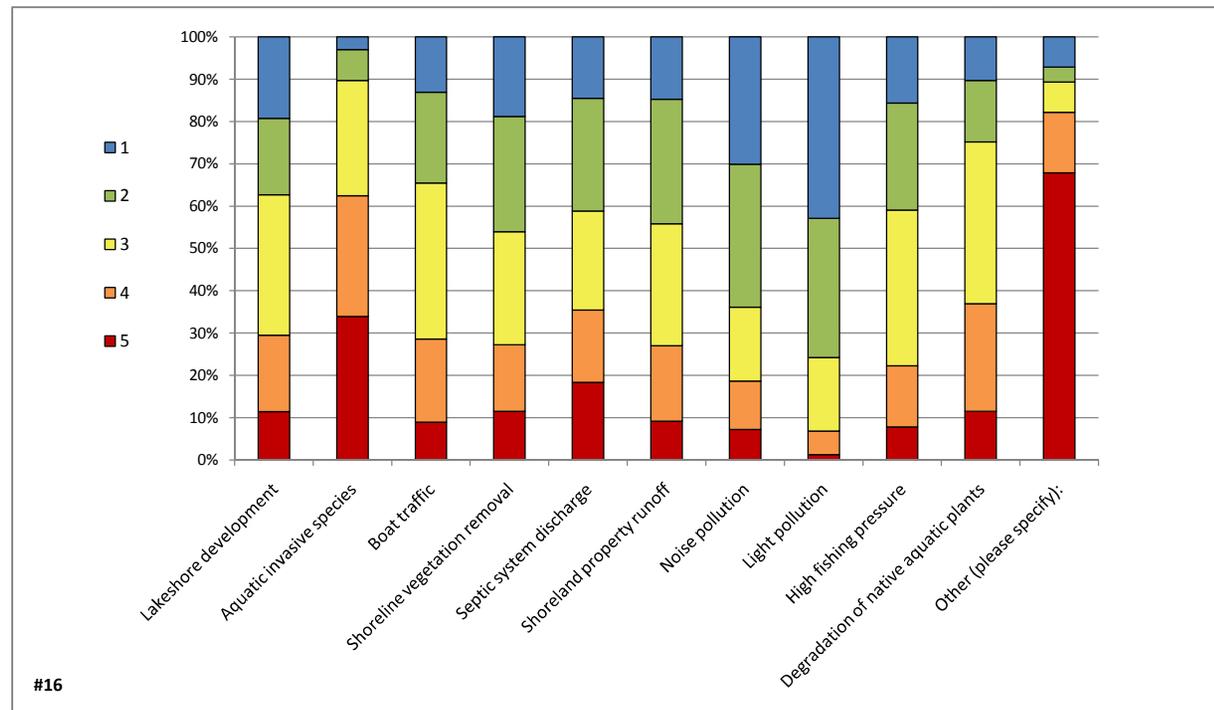


From the list below, please rank your top three

#15 concerns regarding Lake Mohawksin?	1st	2nd	3rd	% Ranked
Aquatic invasive species	51	34	24	22.5
Excessive aquatic plant growth	18	40	29	17.9
Water quality degradation/pollution	47	17	16	16.5
Loss of fish habitat	16	21	16	10.9
Lake shore development	11	13	16	8.2
Fishing pressure	9	13	10	6.6
Algae blooms	0	7	22	6.0
Boating safety	10	4	11	5.2
Shoreline erosion	4	12	7	4.7
Loss of terrestrial vegetation	1	2	4	1.4
	167	163	155	

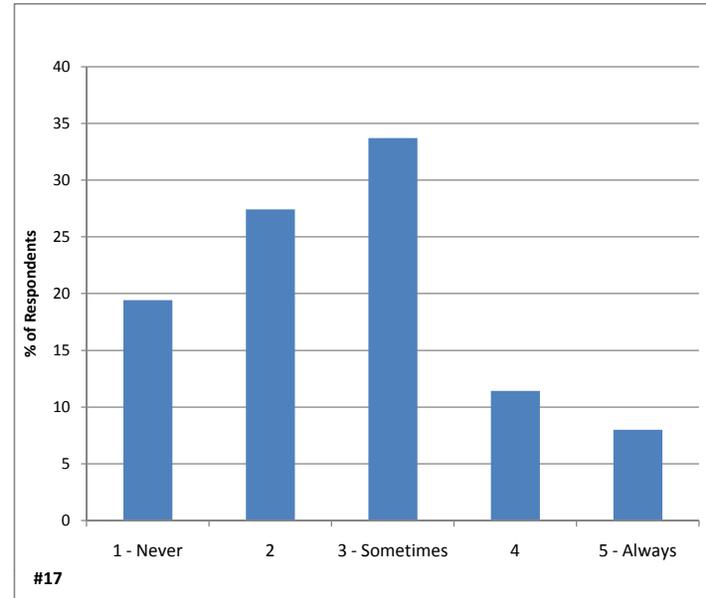


#16 factors are impacting Lake Mohawksin?	1		3	5	
	No Impact	2	Moderate Impact	4	Great Impact
Lakeshore development	32	30	55	30	19
Aquatic invasive species	5	12	45	47	56
Boat traffic	22	36	62	33	15
Shoreline vegetation removal	31	45	44	26	19
Septic system discharge	23	42	37	27	29
Shoreland property runoff	24	48	47	29	15
Noise pollution	50	56	29	19	12
Light pollution	69	53	28	9	2
High fishing pressure	26	42	61	24	13
Degradation of native aquatic plants	17	24	63	42	19
Other (please specify):	2	1	2	4	19



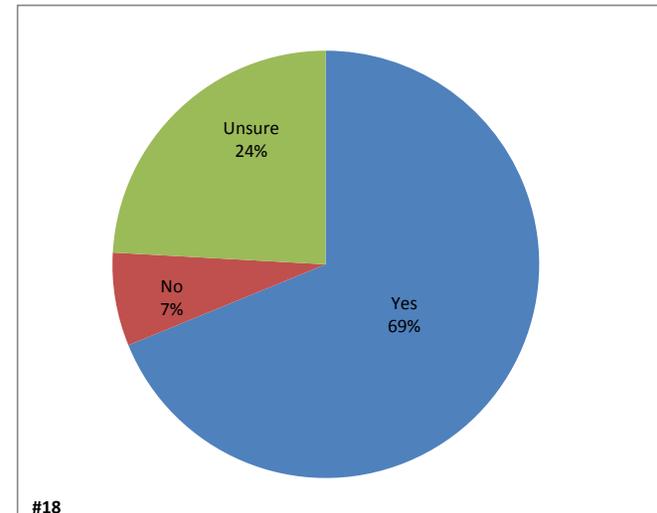
How often does aquatic plant growth impact your recreational use of Lake Mohawksin?

#17 recreational use of Lake Mohawksin?		%
1 - Never	34	19.4
2	48	27.4
3 - Sometimes	59	33.7
4	20	11.4
5 - Always	14	8.0
	175	

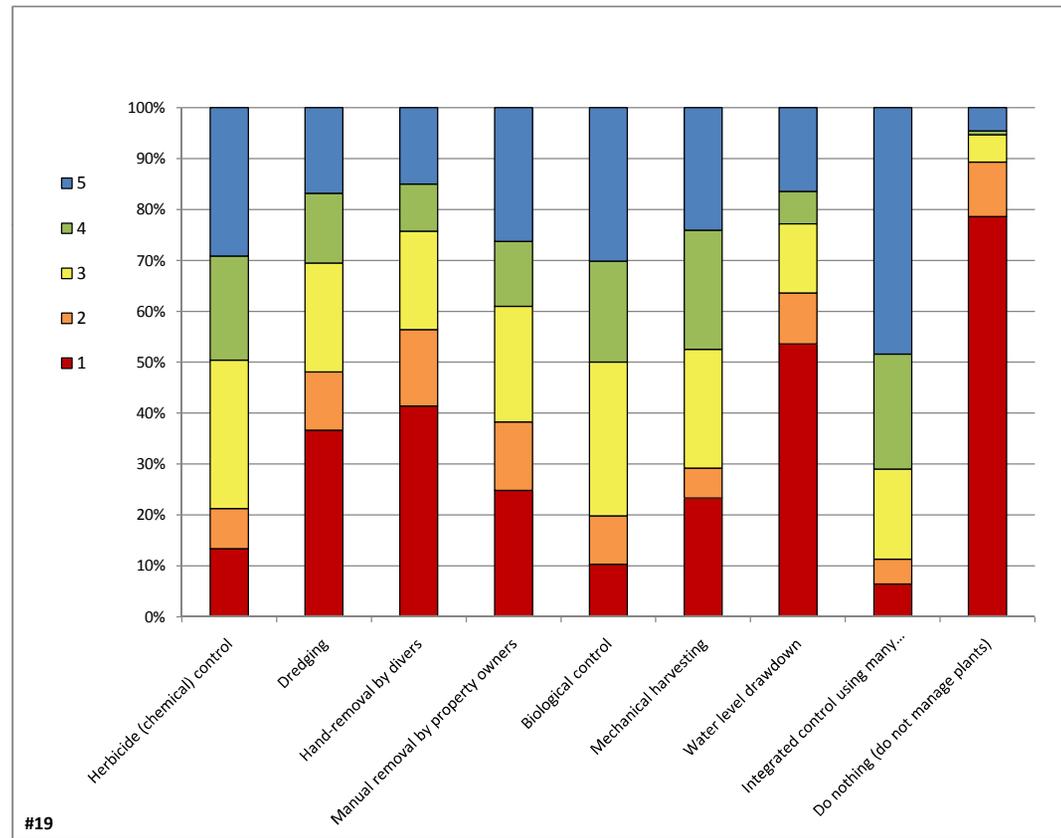


Considering your answer to the question above, do you believe aquatic plant control is needed on Lake Mohawksin?

#18 Mohawksin?	
Yes	117
No	12
Unsure	41
	170

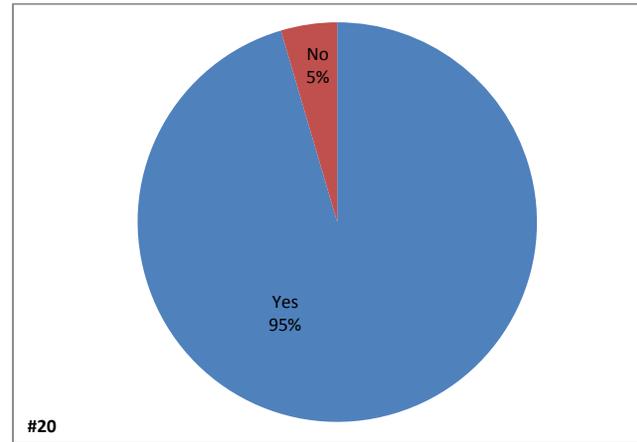


#19	What is your level of support for the responsible use of the following techniques on Lake Mohawksin?					
	1 Not Supportive	2	3 Moderately Supportive	4	5 Highly Supportive	
Herbicide (chemical) control	17	10	37	26	37	
Dredging	48	15	28	18	22	
Hand-removal by divers	58	21	27	13	21	
Manual removal by property owners	35	19	32	18	37	
Biological control	12	11	35	23	35	
Mechanical harvesting	32	8	32	32	33	
Water level drawdown	75	14	19	9	23	
Integrated control using many methods	8	6	22	28	60	
Do nothing (do not manage plants)	103	14	7	1	6	



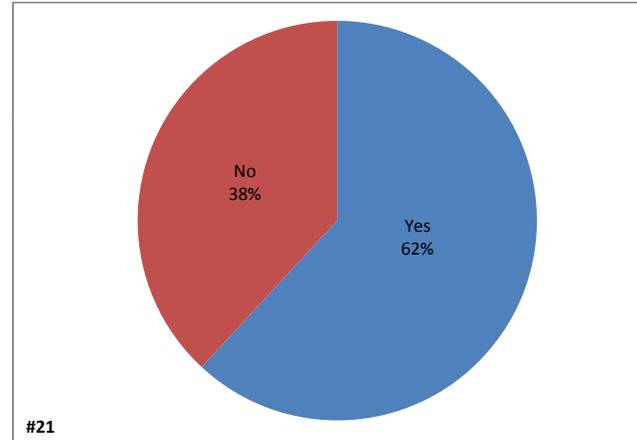
#20 Before receiving this mailing, have you ever heard of the Friends of Lake Mohawksin?

Yes	167
No	8
175	



#21 Are you currently a member of the Friends of Lake Mohawksin?

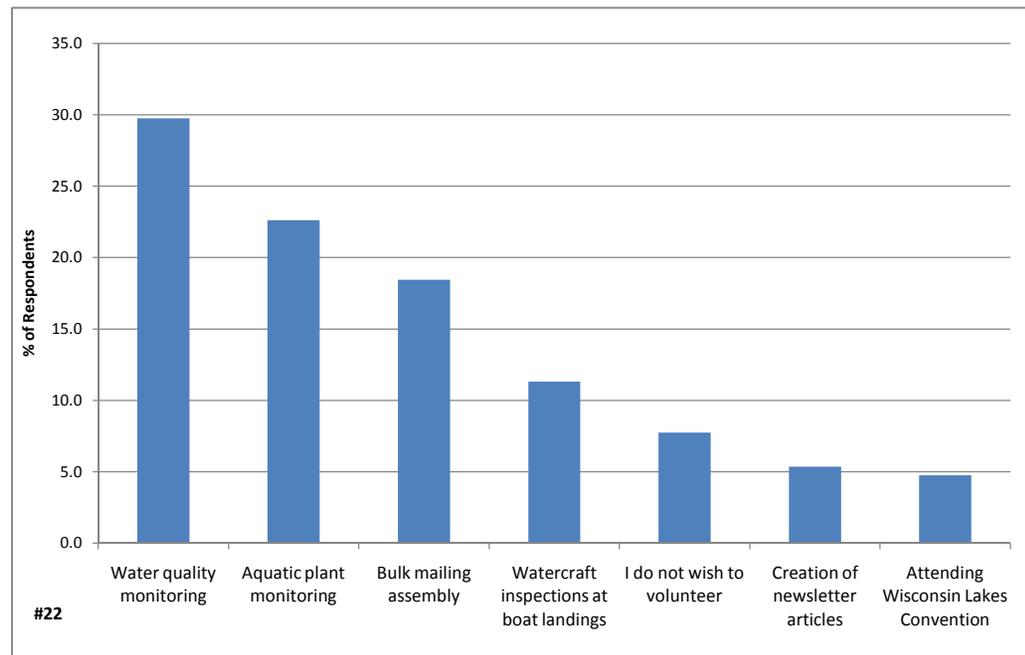
Yes	104
No	64
168	



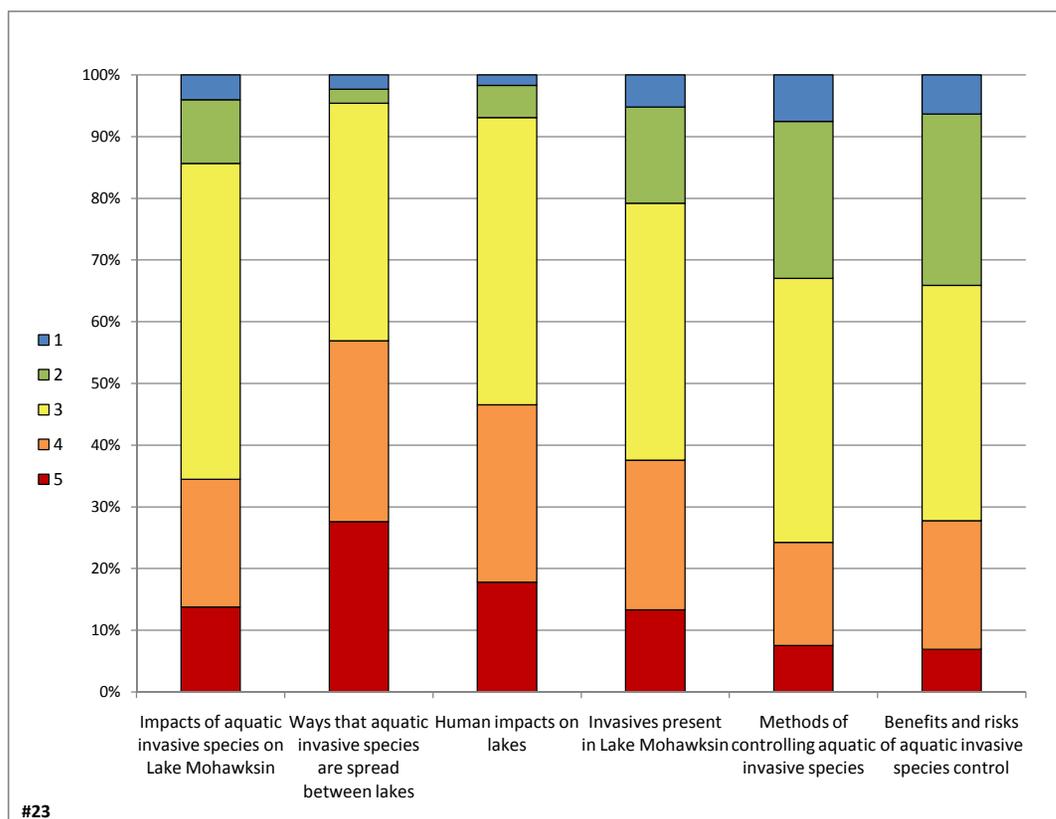
**Please circle the activities you would be willing to
#22 participate in if called upon.**

		%
Water quality monitoring	50	29.8
Aquatic plant monitoring	38	22.6
Bulk mailing assembly	31	18.5
Watercraft inspections at boat landings	19	11.3
I do not wish to volunteer	13	7.7
Creation of newsletter articles	9	5.4
Attending Wisconsin Lakes Convention	8	4.8

168



#23	Please describe your level of understanding of each of the following lake management issues.					
	1 No Understanding	2	3 Basic Understanding	4	5 Full Understanding	
Impacts of aquatic invasive species on Lake Mohawksin	7	18	89	36	24	
Ways that aquatic invasive species are spread between lakes	4	4	67	51	48	
Human impacts on lakes	3	9	81	50	31	
Invasives present in Lake Mohawksin	9	27	72	42	23	
Methods of controlling aquatic invasive species	13	44	74	29	13	
Benefits and risks of aquatic invasive species control	11	48	66	36	12	



Survey No.	Comment
101	<i>I have a small cottage on the Somo River. One of the main reasons I'm on this waterway is because I hope the lake will stay the same for years to come. My cabin is paid for and is willed to my kids and their kids, never to be sold. Please help keep it that way.</i>
102	<i>(See my musky note by #16) Too many musky's eating our pan fish. I feel 95% of fisherman are pan fisherman & 5% musky fisherman. I caught 6 walleyes last time out and two were scabbed with teeth marks from the darn muskys.</i>
103	<i>I've fished on one lake since 1960. The major negative impacts during the 47 year span are human. Too much development has destroyed the fishing habitat or spoiled the waters. There are too many oversized boats that further erode fishing habitat. A number of these folks are rude and disrespectful. There are indeed an "invasive species." How about if FOLM supports a resolution that bans boats with engines larger than 50hp. This will certainly enhance the quality of everyones life.</i>
104	<i>With the risk the lake is experiencing, a moratorium should be placed on all competitive fishing tournaments, many fish size limits should be raised, ??? - Musky 40" Channels should be first treated areas to minimize spread of invasives.</i>
105	<i>Very concerned about the increased presence of invasive species. Would support all efforts to control this - it looks terrible. I live in Wausau and Lake Wausau has become an eye sore in many areas.</i>
106	<i>Seeing as you are concerned with the water quality, I would think for us living in the City of Tomahawk it would benefit for us to have city sewer & water at a reasonable price. Granted our septic system is maintained properly, our water is not drinkable. Some places in our area do not maintain their septic systems. Why should we all suffer?</i>
107	<i>It is important to manage conditions of our lakes as it impacts many things. We are the keepers of this planet and should all share in its care.</i>
108	<i>Plant more musky, then there will be no pan fish to catch.</i>
109	<i>Am not currently a resident of Tomahawk, but do plan on retiring there in the future, at which time would like to get more involved.</i>
110	<i>We are not up there all the time; maybe we could coordinate something (ref Bulk mailing assembly) We see too many jet skis and also other boats that do not understand where the weed beds are and just drive through them. Too many jet skis and noise. Too many Musky tournaments & Big boats racing around. We love this lake and want to see it improve. We plan to retire here if good things happen.</i>
111	<i>I find the tournament use of our lake is an invasion of my rights. Many are arrogant - too much pounding on the waters - big motors - too close to our shoreline. They are out for themselves, very rude to families. Takes away from the peaceful fishing by families and catching good size fish.</i>
112	<i>As a new person on the lake, it would be helpful to have a perspective on lake health 10 years ago and compare it with today. Is the lake healthy? How does the fishing compare statistically to 10 years ago? Thanks for all your efforts!</i>
113	<i>Take the logs out of the water below King Dam and Bay Spring Bay/</i>
114	<i>I live on the Somo River and wonder who is responsible for "no-wake" signs and enforcement of the "No-wake" violations. I think it's necessary to inform boaters and personal watercraft operators what "no-wake" means. I've had to replace 3- 5/8" tie ropes on my boat that have been broken due to the wakes created.</i>
115	<i>We have been on the lake for over 30 years and three areas of changes that we have notice and have concerns about is the increase in recreational boating/jet-skis, the general decline in fishing, outside of musky fishing and the introduction of invasive species, particularly Eurasian Milfoil.</i>

Survey No.	Comment
116	<i>Fixing the problem of the lake now and in the future will in most cases be answered by more rules and more money. In other words - more government. The freedom and special feeling of the lake will change and diminish with more government. Bob Markiewicz</i>
117	<i>Sounds like a big waste of time and money.</i>
118	<i>I think that everytime you get a group of people trying to do good things for any reason the people at management want in some way to profit on the others. For that reason I am against any association.</i>
119	<i>Your efforts are greatly appreciated!</i>
120	<i>Anything to improve walleye fishing, I am all for.</i>
121	<i>I go there when I have time to. I fish on lake Mohawksin. I am on the Somo River, other side of railroad tracks. I have it (owned property) for 10 years.</i>
122	<i>I would like to see a limit to the number of organized fishing events. Seems there is a tournament every week. I would also like to see a closed season on the lake and river. We have too much pressure on the system in March and April.</i>
123	<i>If a water level drawdown can be done we can use the opportunity for a community wide clean up of the river.</i>
124	<i>I have been swimming in Lake Mohawksin since 1976. It seems like the same water - rich in pine pitch, its golden brown hue is so pretty. It does my skin good and I love its energy, the train tressels and the paper plant. I have used her to ski, boat, jet ski, fish and enjoy since 1976. Please don't worry about the Lake - she will be here long after us - Thank you Andrew DeVillers</i>
125	<i>What will these herbicides do to our children's health?</i>
126	<i>Action needs to be taken now. Over the past three decades I have observed degrading of water quality on Lake Mohawksin that needs to be reversed as soon as possible. I am very pleased with FOLM and applaud their efforts that started at the grassroot.</i>
127	<i>We are on Saudy Road. A mess of weeds - even difficult to get our pontoon away from our dock. Sure wish this could be removed so it would look nice as it used to be, when we first bought this place.</i>
128	<i>Thank you for doing this</i>
129	<i>I applaud your efforts this is a great concern to many waterfront property owners, although many are not aware of the future effects of invasive species. The sad truth is, it is difficult if not impossible to prevent the spread of invasive species and once they get into a lake they are almost impossible to remove. The WDNR needs more public education on the subject. Minnesota has summer interns at most of the major boat landings. Boaters listen to 10 min. presentation on exotics and they get a sticker to put on their boat trailer. Feel free to email me at Kordus@charter.net, signed Mark</i>
130	<i>On our few times a year on the Lake, we are like newcomers to the area - due to the loss of family members - and are enjoying the size and beauty of lakeside retreat.</i>
131	<i>There has been very little done to lake Wausau. I see how that has filled in and has become very limited for recreational use. It is tough to navigate all the weeds. I hope we take better care of Lake Mohawksin. Disease Killing the fish in the great lakes could be here soon. There's is too much movement of boats and people do not take the time to properly care for them.</i>
132	<i>I believe we should leave well-enough alone!!</i>
133	<i>We call this a lake, but it is a river. Anything upstream is coming here. How do we control this?</i>

Survey No.	Comment
134	<i>When first contacted about the proposed "Lake Assn." and the request for financial support, I wrote a note explaining my views and why I would not support the organization. My boats stay on this lake, so I don't bring in invasive species! Fishing tournaments bring in hundreds of boats from God-Knows where. Let those people that profit from these tourists set-up and pay the bill. The \$9,000 I pay in taxes to live on this lake is way more than my share! Secondly, even if we cleaned-up our lake, how could we prevent further infestation from Lake Alice or the Jersey flowage? Rich Olinski, W6629 Bay Mill Lane, Tomahawk, WI 54487</i>
135	<i>It is my belief that there should be a charge at each boat landing. I have seen this all over and Lake Mohawksin is no exception, \$25 per season/\$5.00 per day money can be used to improve boat landings and the aquatic plant problems.</i>
136	<i>Would like to see better inspections of septic systems. Want to thank you for sending this survey and think it is a wonderful help. We find where we have been able to get all the leaves & pine needles raked out of the lake, the water is very clear and clean there.</i>
137	<i>Visitors and a few locals/residents are unfamiliar with weed bed locations; hence drive motors over and destroy seasonal fishing potential. Many boaters don't have a clue as to boating safety - i.e. right of way and courtesy for sail boats/canoes, kayaking.</i>
138	<i>The lake is important to Tomahawk every season of the year - and we cannot afford to lose it. Some of the treated areas last spring still have evidence of milfoil.</i>
139	<i>Jet skis should be banned from Lake Mohawksin. In my observation, they are usually operated by younger people who care very little about the ski's wake and any possible destruction of the lake bed and shorelines. Some jet ski operators demonstrate dangerous boating practices that make them a hazard to themselves and to other boaters. Ban them from the lake.</i>
140	<i>I find it strange the DNR "has so much control over land, animals, fish" but little funding for water quality & invasive species, thus leaving land owners to take care of certain issues? More & more control is stripped from landowners. If you own a wetland or low spot, we must conform to their requirements. Invasive species will be an ongoing issue - I hope use of chemicals, etc will be used with care. We seem to find a cure for now & 20 years later find we have done worse things to the eco-system. Mother Nature is fragile and has her cycles. Concerned I feel "fishing Tournaments" are "out of Control" and hinder the quality of fishing. Seems like there is one every weekend of the summer - possible suggestion to charge fees to the tournament or people that enter some of these projects. I'm sure these people use the water more than most landowners.</i>
141	<i>The quality of Lake Mohawksin's water has eroded, due to aquatic invasive species & algae blooms. The water in front of my property is now impassible due to aquatic weeds, algae & out of control lily pads. This same water 10 years ago was weed, algae & lily pad free. The lack of control on this issue has hurt the property values in the bay where my property is located. My property has remained in a natural state for 37 years, most of my neighbors have cut down 100 year old pines creating lawns in front of their lake property. The DNR's lack of control on this issue alone, has created issues with excess run off on those properties. The lack of monitoring is why the current state exists.</i>
142	<i>The water quality has improved immeasurably since I was a child. I am now 81. The quality of the lake has not. This is due to more homes, more and indifferent operators of boats. Fishing tournaments and light pollution from homes. The paper companies now have done a remarkable job of cleaning up. The milfoil has made some areas of this lake unfishable. Which Theiler are you descended from? My father was a friend of Frank Theiler. Art Shannon</i>
143	<i>I am 81 years old - female - I do not own property right on the water. Thus I could not answer all questions.</i>

Survey No.	Comment
144	<i>Please see my enclosed letter. Also RE: Question %15. Muskie contests are held regularly. They are the great predator of the Mohawksin waters. Large amounts of perch have been planted to promote them. However a good many have grown to such size & nearly uncatchable. The northern Pike has diminished to a few. This imbalance I have noticed. Its not nice to foul with MOTHER NATURE. Walleyes are also few.</i>
145	<i>First of all, I am far more concerned about the irresponsible lack of concern for soil erosion caused by inboard motors, i.e. the "Moomba" boats should be <u>banned</u>, & the lack of enforcement of laws governing boating _distances from shorelines. Violations of those rules is widespread on the Wis. River & Lake Mohawksin. Our property has suffered significant erosion. Second, the concern for quality of water and healthy balance of its animals & plants should be the concern of all citizens and area inhabitants, not only the few people (% of entire population) who live & pay taxes to live on the shoreline. Concern for our natural resources should not be put in the lap of only a portion of us. Are those who live a block away from water not accountable?</i>
147	<i>Although most resident take pride and care of the lake, some seem to disregard their impact upon the habitat. They have clear cut their property, practice invasive outdoor lighting and are habitual practitioners of noisy and dangerous jet ski and boating behavior with blatant disregard to others and the lake. We have been on Lake Mohawksin nearly 50 year and have noticed this to be especially prevalent the last 5-10 years and increasing. I hope a Lake Association would also consider the quality of the lake vis a vis those issues as well as invasive species.</i>
148	<i>Fishing Quality - Open season year round is hurting fishing quality. Walleyes poor</i>
149	<i>1. Need more control of larger and larger boats and traffic on weed beds and bays. 2. Need to restrict jet skis to use comparable boats. Need to control power turns and ripping through fish habitat. Jet ski users are destroying the weed beds. There is no control of this. The DNR needs to fine some of the users. Jet skis need to stay in the channels or the large lake. (This will destroy the lake faster than the weeds.) 3. Need to control invasive weeds.</i>
150	<i>The area of the lake/river we are on is filling in with sediment being washed in by a small stream below the King Hill SubDivision. I would love to learn more about dredging allowed in the lakes and if there are any state programs to help property owners maintain their shoreline.</i>
151	<i>I think action should be taken to pressure our natural resources for the present and also the future. Sorry we are not able to be actively involved. We are too old and handicapped.</i>
152	<i>Do not create an association that is intrusive with multiple rules on watercraft & boating use. That will not bring people together on this issue. I've seen lake associations made up of mostly retired Illinois people move up north and attempt to regulate local lake owners with 25-50 years of water use background. It doesn't fly!!</i>
153	<i>They clear stuf on shore line where fish feed.</i>
154	<i>Like most surveys this one is too long</i>
155	<i>The major problem is the level of aquatic problem and the popular time for fishing and boating are the highest level. Generally speaking when fishing in the spring is difficult to get bait to the fish due to the thickness of the aquatic material.</i>
156	<i>We should be allowed to keep 1 or 2 walleye under 15". Almost impossible to catch fish over 15". Most are 12-15". Wis. River should not be open from Bridge in City from Soldier Park to Dam. To save the spawning fish. March 1 to April 30. Kill geese that stay at SARA Park or hose geese crap. Is not healthy for children or adults. Set speed limit on River through town to Kings Dam.</i>
	<i>Two things have negatively impacted us, but I down that much can be done: 1. Damage to boats from hidden stumps. 2. Tree loss because of beavers.</i>

Survey No.	Comment
157	<i>Otherwise, Lake Mohawksin is paradise to us. Thanks for doing all this work.</i>
158	<i>Could there be identified "safe" boating-skiing areas (no stumps just below the surface) and not impact the fish habitat?</i>
159	<i>Is there a way of getting some of the stumps out? We have ruined many props and feel they are unsafe for children to play in the water.</i>
160	<i>I think we should consider "no wake" periods of time to reduce motor noise and encourage fishing, kayaking, canoeing, pontoon use. Example: Sunrise to 90 minutes past sunrise; 90 minutes before</i>
161	<i>We need a Lake Management District to spread the cost of Lake Management.</i>

C

APPENDIX C

Water Quality Data

Wisconsin Trophic State Index (WTSI)			
Year	TP	Chla	SD
1975	59.74	57.59	57.36
1977	60.32	58.40	67.35
1978	63.16	57.83	
1979	60.01	61.21	57.14
1984	60.01	58.75	
1985	59.33	59.20	63.24
1997	60.26	58.08	
2003	61.09	54.92	59.07
All Years (weighted)	60.52	58.54	60.33
WI Impoundments	60.51	58.05	56.10
Northeast Region	51.05	51.49	45.61

Morphological / Geographical Data	
Parameter	Value
Acreage	1910
Volume (acre-feet)	16540
Perimeter (miles)	30.12
Shoreland Development	4.92
Maximum Depth (feet)	25
County	Lincoln
WBIC	1515400
Lillie Mason Region(1983)	Northeast Region
Nichols Ecoregion(1999)	NLFF

Watershed Data			
WiLMS Class	Acreage	kg/yr	lbs/yr
Forest			
Open Water			
Pasture/Grass			
Row Crops			
Urban - Rural Residential			
Wetland			
Watershed to Lake Area			

Year	Secchi (feet)				Chlorophyll a (µg/L)				Phosphorus (µg/L)				Nitrogen (µg/L)			
	Growing Season		Summer		Growing Season		Summer		Growing Season		Summer		Growing Season		Summer	
	Count	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean	Count	Mean
1975	1	3.9	1	3.9	2	21.0	2	21.0	1	58.0	1	58.0				
1977	1	2.0	1	2.0	8	23.4	8	23.4	4	62.5	4	62.5				
1978					3	21.7	3	21.7	2	90.0	2	90.0				
1979	1	4.0	1	4.0	6	17.8	2	34.0	7	55.7	4	60.0				
1984					2	24.5	2	24.5	2	60.0	2	60.0	2	760.0	2	760.0
1985	1	2.6	1	2.6	3	21.0	2	26.0	3	56.7	2	55.0	3	856.7	2	840.0
1997					3	13.9	1	22.4	2	70.5	1	62.0	2	492.5	1	615.0
2003	1	3.5	1	3.5	1	14.7	1	14.7	2	61.0	1	69.0				
All Years (weighted)		3.2		3.2		20.3		23.8		62.2		64.1		725.0		763.0
WI Impoundments				4.3				22.3				64.0				1060.0
Northeast Region				8.9				9.3				19.0				660.0

D

APPENDIX D

Watershed Analysis WiLMS Results

Date: 11/6/2007 Scenario: Mohawksin Current

Lake Id: Mohawksin

Watershed Id: Mohawksin

Hydrologic and Morphometric Data

Tributary Drainage Area: 1289711.0 acre

Total Unit Runoff: 12.20 in.

Annual Runoff Volume: 1311206.2 acre-ft

Lake Surface Area <As>: 1910 acre

Lake Volume <V>: 16540 acre-ft

Lake Mean Depth <z>: 8.7 ft

Precipitation - Evaporation: 5.8 in.

Hydraulic Loading: 1312129.4 acre-ft/year

Areal Water Load <qs>: 687.0 ft/year

Lake Flushing Rate <p>: 79.33 1/year

Water Residence Time: 0.01 year

Observed spring overturn total phosphorus (SPO): 0.0 mg/m³

Observed growing season mean phosphorus (GSM): 0.0 mg/m³

% NPS Change: 0%

% PS Change: 0%

NON-POINT SOURCE DATA

Land Use	Acre (ac)	Low	Most Likely	High	Loading %	Low	Most Likely	High	
		Loading (kg/ha-year)				Loading (kg/year)			
Row Crop AG	9081.0	0.50	1.00	3.00	6.0	1838	3675	11025	
Mixed AG	0.0	0.30	0.80	1.40	0.0	0	0	0	
Pasture/Grass	80878.0	0.10	0.30	0.50	16.1	3273	9819	16366	
HD Urban (1/8 Ac)	2090.0	1.00	1.50	2.00	2.1	846	1269	1692	
MD Urban (1/4 Ac)	4693.0	0.30	0.50	0.80	1.6	570	950	1519	
Rural Res (>1 Ac)	0.0	0.05	0.10	0.25	0.0	0	0	0	
Wetlands	436866.0	0.10	0.10	0.10	28.9	17680	17680	17680	
Forest	756103.0	0.05	0.09	0.18	45.0	15300	27540	55079	
Lake Surface	1910.0	0.10	0.30	1.00	0.4	77	232	773	

Lake Mohawksin
 WiLMS Data – Current

POINT SOURCE DATA

Point Sources	Water Load (m ³ /year)	Low (kg/year)	Most Likely (kg/year)	High (kg/year)	Loading %
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SEPTIC TANK DATA

Description	Low	Most Likely	High	Loading %
Septic Tank Output (kg/capita-year)	0.30	0.50	0.80	
# capita-years	0.0			
% Phosphorus Retained by Soil	98.0	90.0	80.0	
Septic Tank Loading (kg/year)	0.00	0.00	0.00	0.0

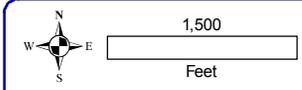
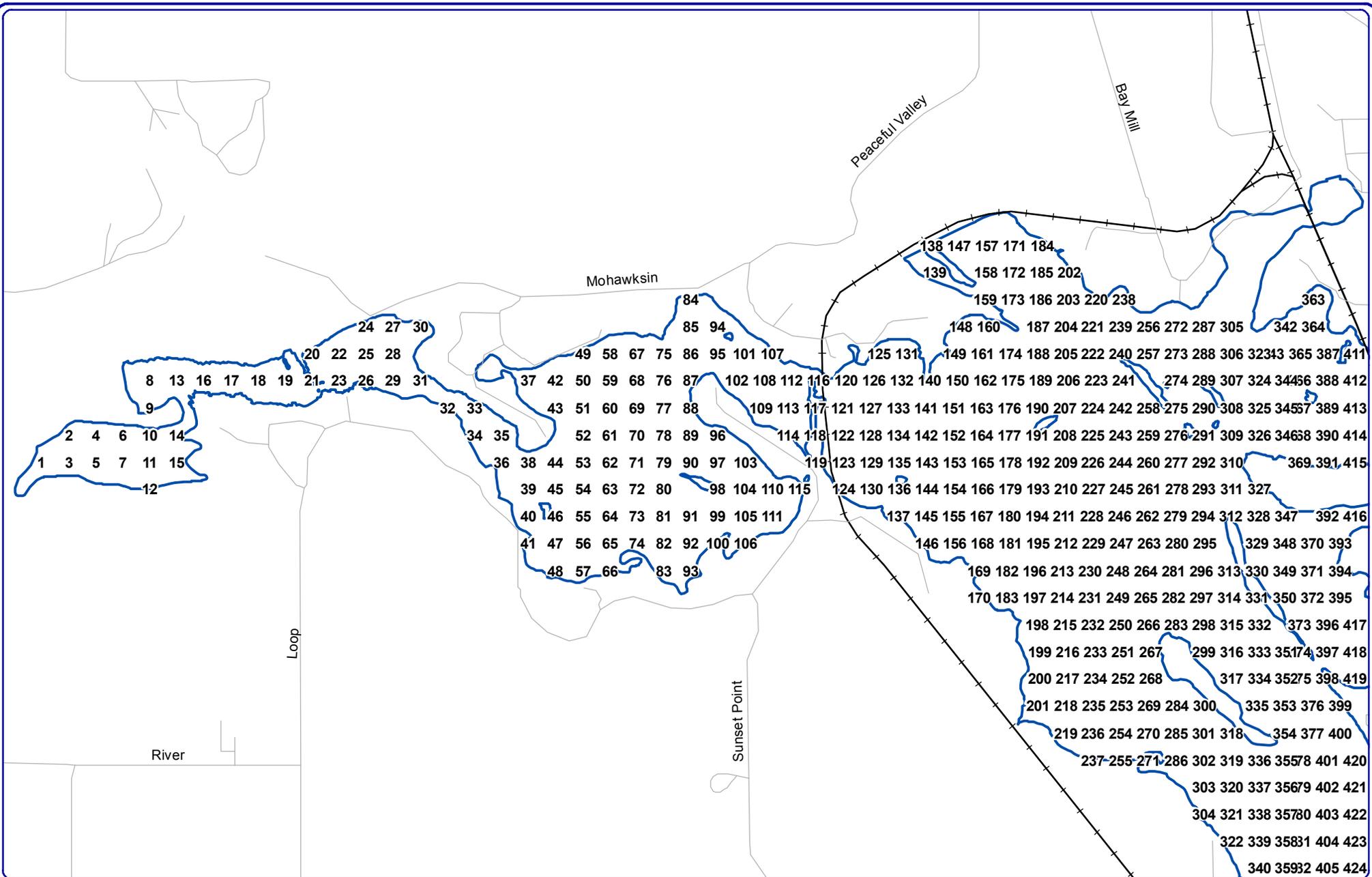
TOTALS DATA

Description	Low	Most Likely	High	Loading %
Total Loading (lb)	87265.3	134842.7	229573.8	100.0
Total Loading (kg)	39583.3	61164.2	104134.0	100.0
Areal Loading (lb/ac-year)	45.69	70.60	120.20	
Areal Loading (mg/m ² -year)	5121.07	7913.10	13472.29	
Total PS Loading (lb)	0.0	0.0	0.0	0.0
Total PS Loading (kg)	0.0	0.0	0.0	0.0
Total NPS Loading (lb)	87094.9	134331.5	227869.7	100.0
Total NPS Loading (kg)	39506.0	60932.3	103361.0	100.0

E

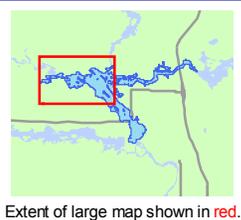
APPENDIX E

2006 Aquatic Plant Survey Data



Onterra LLC
 Lake Management Planning
 135 South Broadway Suite C
 De Pere, WI 54115
 920.338.8860
 www.onterra-eco.com

Sources:
 Roads, Railroad & Hydro: WDNR
 Point-Intercept Locations: WDNR ISS
 Bathymetry: WDNR, Digitized by Onterra
 Map date: May 20, 2008

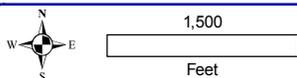
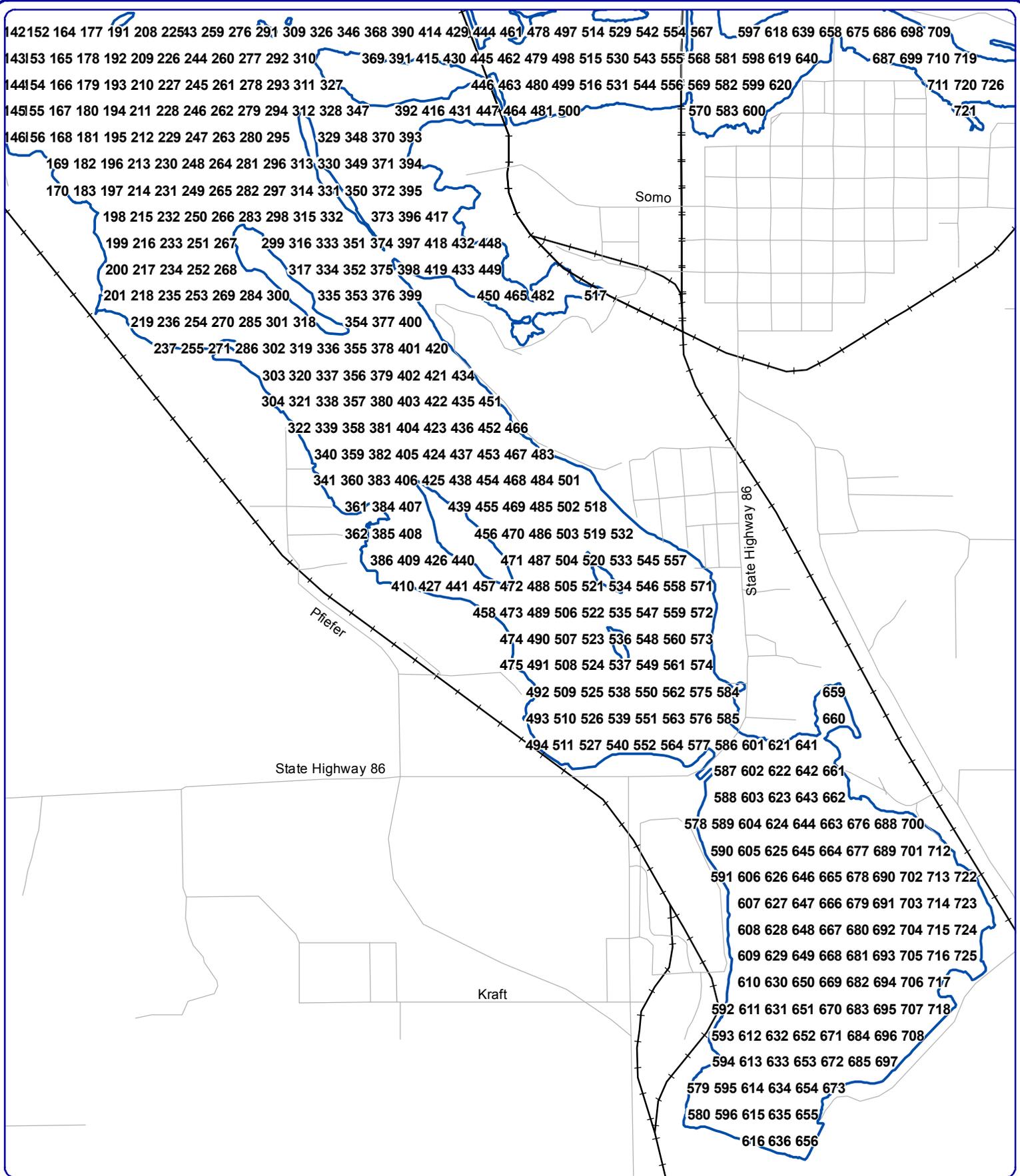


Extent of large map shown in red.

Legend

Point-intercept Sample Location

Appendix E
Lake Mohawksin
 Lincoln County, Wisconsin
**Point-intercept
 Sample Locations**



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Sources:
 Roads, Railroad & Hydro: WDNR
 Point-Intercept Locations: WDNR ISS
 Bathymetry: WDNR, Digitized by Onterra
 Map date: May 20, 2008

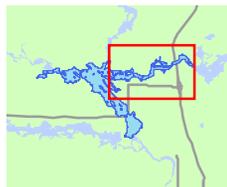
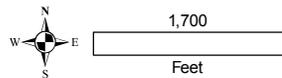
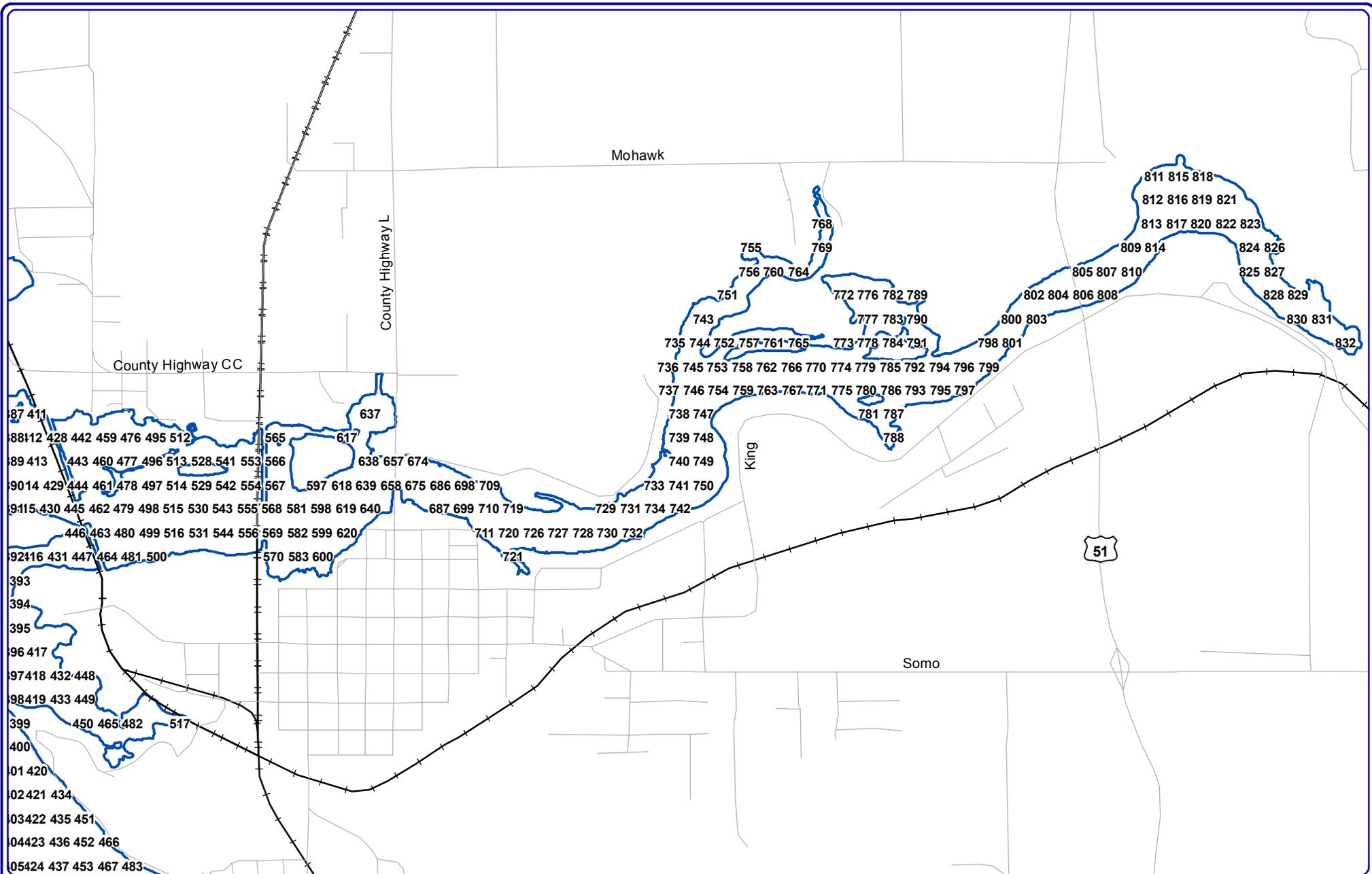


Extent of large map shown in red.

Legend

Point-intercept Sample Location

Appendix E
 Lake Mohawksin
 Lincoln County, Wisconsin
**Point-intercept
 Sample Locations**



Extent of large map shown in red.

Onterra LLC
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Sources:
 Roads, Railroad & Hydro: WDNR
 Point-Intercept Locations: WDNR ISS
 Bathymetry: WDNR, Digitized by Onterra

Map date: May 20, 2008

Legend

Point-intercept Sample Location

Appendix E Lake Mohawksin Lincoln County, Wisconsin Point-intercept Sample Locations

F

APPENDIX F

2007 Treatment Report (Including maps and appendices)

INTRODUCTION

Lake Mohawksin is an approximate 1,910-acre flowage on the Wisconsin River system. The lake has an average depth of 9 feet and a maximum depth of approximately 25 feet. The water levels are controlled by a dam operated by the Wisconsin Public Service.

In 2001 the presence of Eurasian water milfoil (EWM) was verified by the Wisconsin Department of Natural Resources (WDNR). In the early summer of 2006, Eurasian water milfoil was believed to cover approximately 10-15 surface acres within the confines of the flowage. Surveys completed during August and September 2006 proved that the original estimate was drastically low and in fact, nearly 103 acres of the lake was discovered to have EWM colonies exhibiting aerial coverages of 50% or greater. Furthermore, many other areas of the lake contained scattered levels of the exotic plant. A more elaborate explanation of these findings were provided to the Friends of Lake Mohawksin (FOLM) in *Preliminary Eurasian Water Milfoil Assessment Results* (September 2006).

Although lake stakeholders understand that eradication of EWM from Lake Mohawksin is impossible they would like to start treating the densest colonies and the colonies that occur in high traffic areas in the hope of reducing sources of spread and impacts to open water access by riparian landowners. Because this is the first treatment to be completed on Lake Mohawksin, FOLM, the group financing the treatments, thought it was of utmost importance to keep the Lake Mohawksin stakeholders informed concerning the project and provide concrete evidence that the treatments performed as intended. In addition to a qualitative and quantitative assessment of the treatment areas, FOLM also monitored dissolved oxygen concentrations within the treatment areas to ensure localized anoxia was not an unwanted affect associated with treating the extremely dense areas of EWM.

A preliminary treatment area of approximately 7.1 acres (Map 1), consisting of a few dense areas of EWM within heavy traffic corridors, was used to obtain a conditional chemical application permit from the WDNR. During May, these areas were surveyed and modified slightly to avoid navigational hazards such as stumps and shallow bars (Map 1). The necessary data was supplied to the applicator, Schmidt's Aquatic Plant Control (SAPC), and an application of Navigate® (2,4-D) was completed on May 16, 2007 at 100 lbs/acre. At the time of the treatment, Cliff Schmidt (SAPC) met with A.J. Theiler, founder of FOLM, and coordinated the adjustment of a section of the navigation lane (Site A) to a position more familiar amongst riparians (Map 2). Due to this adjustment, the total treated acreage was slightly increased to 7.4 acres. The winds were light (0-5 mph) and the water temperature was 14.4°C (58°F). To aid in our understanding of the treatment, the applicator provided the approximate application path which is generated by his onboard Global Positioning System (GPS) (Map 2).

TREATMENT MONITORING

Determining the success or failure of chemical treatments on EWM is often a difficult task because the criteria used in determining success or failure is ambiguous. Most people involved with EWM management, whether professionals or laypersons, understand that the eradication of EWM from a lake, or even a specific area of a lake, is nearly, if not totally, impossible. Most understand that achieving control is the best criteria for success. During the surveys reported on here, two different methods of evaluation were used to understand the level of control that was

achieved by the chemical treatment. A qualitative assessment was determined for each treatment site by comparing detailed notes of pre- and post treatment observations and spatial data were collected with the a sub-meter GPS data collector. A quantitative assessment of the treatment was also made by collecting data at 44 point-intercept sample locations on Lake Mohawksin (Appendix A). At these locations, EWM presence and rake fullness was documented as well as water depth and substrate type. Native plant abundances were also determined at each plot during the pre- and post treatment surveys; however, these data are only discussed lightly here because comparisons between early spring samples and summer samples are not fully valid due to the lifecycles of these species. The monitoring of dissolved oxygen levels within the treatment areas is explained separately.

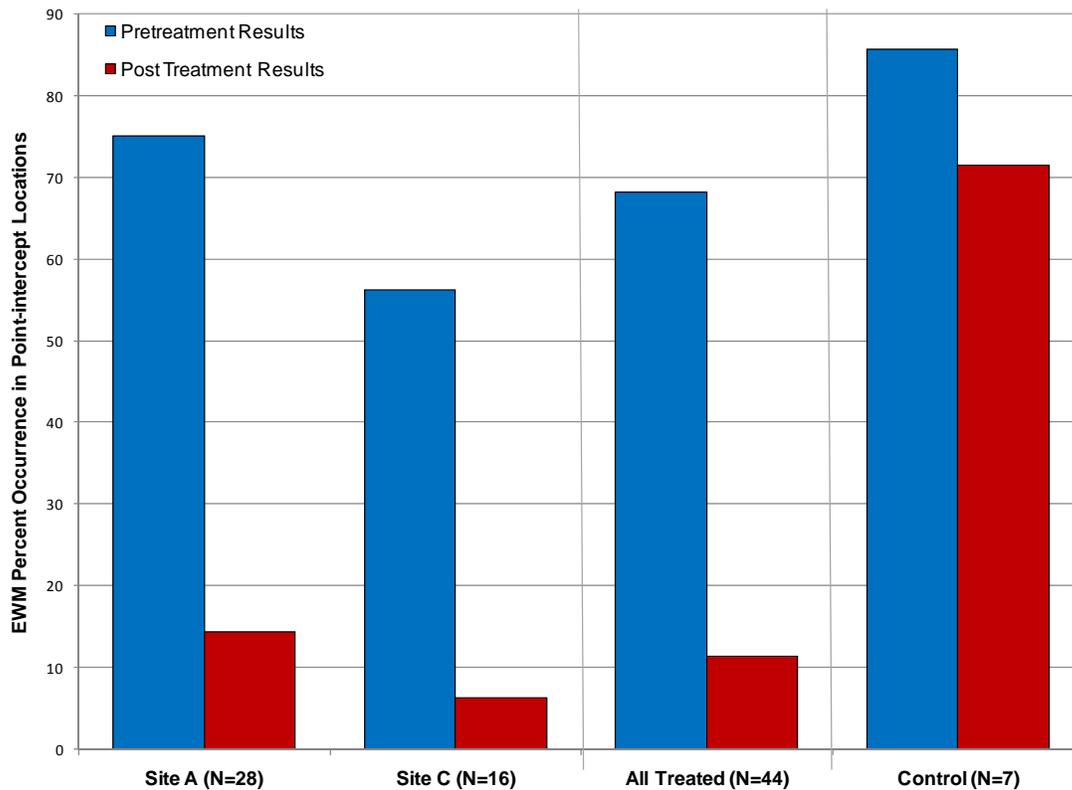


Figure 1. EWM percent occurrence in point-intercept locations displayed based on treatment site. Please note the vertical axis maximum value is 90%.

Pretreatment Survey – May 1 & 2, 2007

The purpose of this survey was to verify the locations of the treatment areas used in the conditional permit. The weather conditions were sunny and windy but had almost no affect on the ability to locate the dense EWM in these isolated areas of Lake Mohawksin. EWM was already at the surface in almost all areas where the treatment was to take place.

Site A Extremely dense EWM was observed in all areas of this treatment site. Two modifications were made to the proposed navigation lane: (1) the western-most lane was adjusted to avoid several submerged stumps and (2) the east-west orientated, shoreward lane was moved to avoid a shallow bar (Map 1). As stated above, an adjustment of the eastern navigation

lane (Map 2) was made based on the coordination of A.J. Theiler and Cliff Schmidt. Of the 28 point-intercept locations within this treatment site, 21 (75%) contained EWM (Figure 1).

Site C Slightly less EWM was observed in this site compared with Site A. EWM was actually growing denser outside of this treatment area within the extents of the floating-leaf species community that had not yet emerged (Map 2). Nine of the 16 (56.3%) sub-sample locations contained EWM.

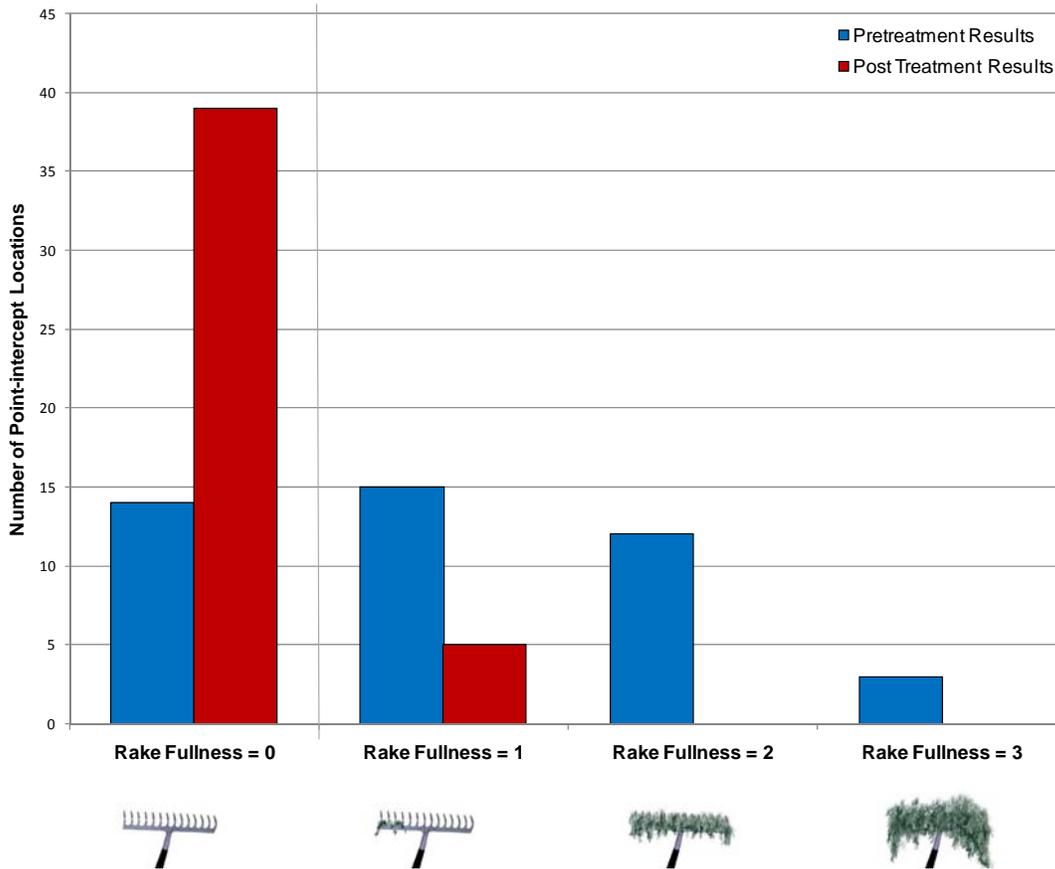


Figure 2. EWM rake fullness distribution within treated areas on Lake Mohawksin.

Post Treatment Survey – July 27, 2007

During this survey, all treatment areas were visited to determine the efficacy of the chemical application. The conditions were sunny and windy with EWM growth matted at the surface. All point-intercept sample locations were re-visited and data were collected in the same manner as during the pretreatment survey.

Site A-07 Considering the entire bay, the EWM appeared slightly less dense than in July 2006. However, it was still matted at the surface ceasing all forms of navigation in these areas. It is interesting to note that within the confines of the 40-foot treatment lane, almost no EWM was observed, but within roughly 10 feet on either side of this lane, there was a continuum of EWM density which increased as the distance from the treatment area got larger. In other words, EWM was affected, but not killed, within a small distance from the treatment area. Only 4 of the 28

(11.4%) point-intercept locations contained EWM after the treatment (Figure 1). Many native species were observed within this treatment area including Vasey’s pondweed, a species of special concern. Actually, amounts of native plants, especially coontail, within the treatment lane made navigation a challenge. However, it was significantly easier to boat through than the surrounding mat of EWM.

Site C-07 Almost no EWM was observed within this treatment area. Presumably due to the high boat traffic that this area endures, native plants were not causing the navigational difficulties observed in Site A. Only 1 of the 16 (6.3%) point-intercept locations contained EWM after the treatment (Figure 1).

Dissolved Oxygen Monitoring

All of the proposed treatment areas contained very dense infestations of EWM and as a result, it is plausible that the chemical treatments could lead to localized anoxia as treated plants decay. All treatment areas were relatively small, so the risk of large scale anoxia leading to a fishkill was very small. However, by understanding the affects of the small-scale treatment on dissolved oxygen levels, considerations for future management of this and other waterbodies can be made.

Using a dissolved oxygen probe (Hach® Model HQ30d), readings were collected at 4 locations throughout the treatment areas including 1 control site (Map 2). Monitoring started 5 days prior to treatment and occurred each day leading to treatment, the day of treatment, 1, 2, 3, and 5 days following the treatment and then continued every 5 days until 30 days post treatment (12 samples).

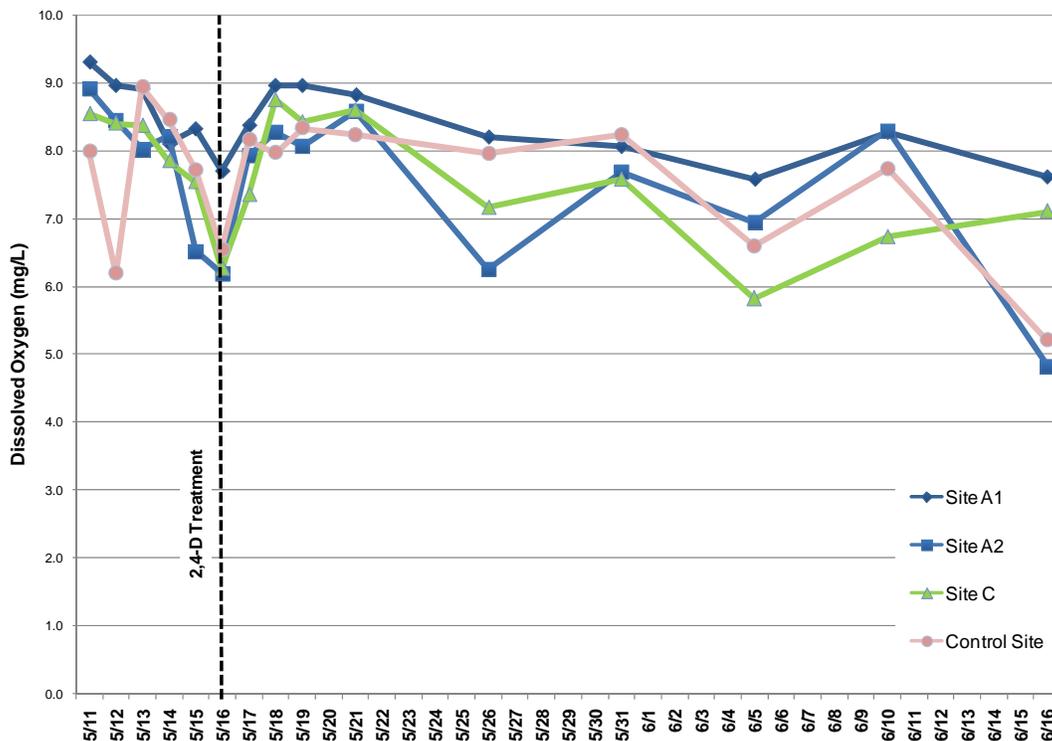


Figure 3. Dissolved oxygen levels observed within 4 sites in Lake Mohawksin.

CONCLUSIONS AND RECOMMENDATIONS

Differing from many herbicide treatments of EWM, the goal of this treatment was not to eliminate or reduce a colony's density, but to provide relief in a few high traffic areas of Lake Mohawksin. With much uncertainty related to the efficacy of 2,4-D treatments on area lakes, the fledgling lake association also wanted evidence that the treatments were going to be successful before large-scale treatments were considered.

Before the treatment on Lake Mohawksin, 68.2% of the point-intercept locations contained EWM and 11.4% contained EWM after the treatment (Figure 1). A rake fullness rating of 1-3 was used to determine abundance of the EWM at each location. Figure 2 displays the number of point-intercept locations exhibiting each of the rake fullness ratings within the areas treated on Lake Mohawksin. Of the 5 point-intercept locations that contained EWM after the treatment (Figure 1), they all exhibited a rake fullness rating of 1 (Figure 2).

Because of the alteration of the treatment lane (Map 2, Site A) after the pretreatment point-intercept sub-sampling monitoring data had been collected, these locations served as an unintentional *control group*. By collecting data at these same locations after the treatment, this allowed predictions to be made about untreated EWM. Of these 7 locations, 6 contained EWM before the treatment and 5 contained EWM after the treatment (Figure 1) showing that there was a negligible difference in occurrence of EWM within the control site. There was also a small increase in the average rake fullness when comparing the pretreatment survey data to the post treatment survey data, which is to be expected as plants increase their biomass as the growing season progresses.

Table 1. Percent occurrence of native dicots from the point-intercept survey.

Species	% Occurrence	
	Pretreatment Results	Post Treatment Results
Coontail	31.0	40.5
Watershield	4.8	9.5
Water marigold	0.0	4.8
White water lily	0.0	4.8
Spatterdock	0.0	2.4
Northern water milfoil	0.0	2.4
Common bladderwort	0.0	2.4

Conclusions made from comparing quantitative pretreatment survey data to post treatment survey data need to be understood in the context that the plants are at different phases of their lifecycle during each of the surveys. Most native plants should be at very low biomass (or not even started growing yet) during the spring survey and at their peak growth during the August survey. However, it is important to understand the effects of the dicot-specific herbicide on some of the broad-leaved natives. Table 1 show that there was an increase in occurrence of all broad-leaved natives within the treatment area. Elodea, a monocot, did decrease slightly in percent occurrence from 57% before the treatment to 43% after the treatment. It is unclear what caused this reduction since the herbicide does not cause mortality to monocot plants. Because this plant is not rooted and is largely influenced by water movement, the observed reduction is

not of a concern, especially in light of its highly common status in this and many regional waterbodies.

The data displayed in Figure 3 clearly show that dissolved oxygen levels did not reach anoxia. There was a reduction in dissolved oxygen levels on the date of the treatment and it remains unknown if this was a result of natural variations or if it can be attributed to the herbicide application. 2,4-D is biodegraded and it is possible that microbial activity could lead to minor changes in dissolved oxygen within a treatment site. However, the control site's readings mimicked the levels found within the treatment sites, causing doubt on the hypothesis that the herbicide application caused this reduction. Perhaps since the control site was only 51 meters (170 feet) away from the navigation lane, a wider range of the herbicide's influence on dissolved oxygen may have been detected. It is important to note the following three points: (1) there was a trend of decreasing dissolved oxygen levels even before the date of application in all monitoring locations; (2) the degree of change (approximately 1 mg/L) is quite small and the values remained above 6 mg/L (significantly greater than levels considered harmful to aquatic life); and (3) the day after the treatment, when one would expect to see the levels decrease if significant biodegradation was occurring, the levels rebounded to what was observed a few days before the treatment.

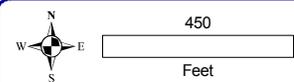
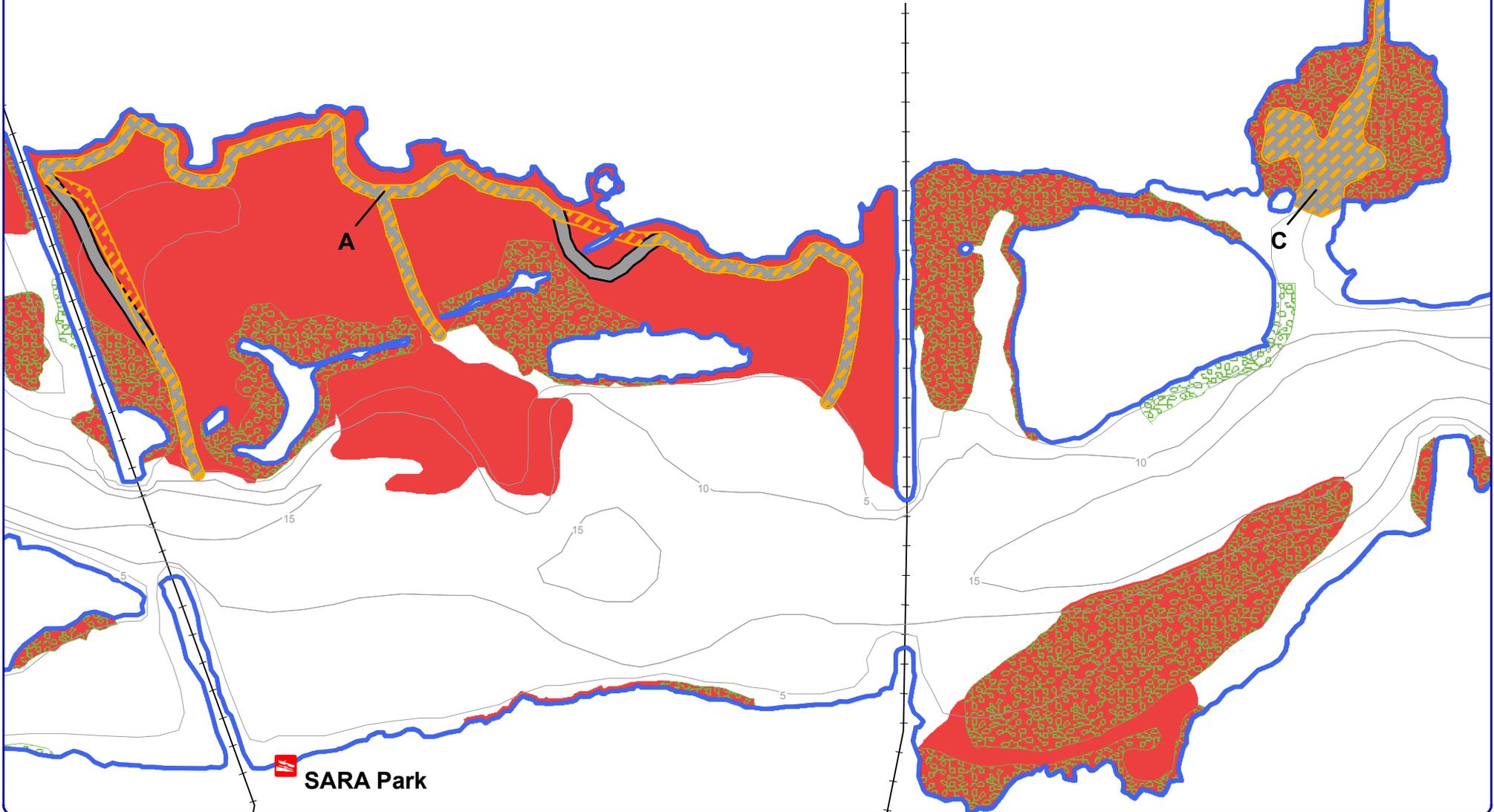
It is obvious that there was a significant reduction in the occurrence of EWM caused by the 2007 chemical treatments conducted on Lake Mohawksin. The factors that most likely contributed to the success of this treatment include EWM growing in shallow water within isolated bays where water movement had little effect on the dilution of the herbicide concentration. Reports from riparians, especially those near Site A (Map 1, 2) state that navigation was greatly improved compared to 2006 and the native plants that "filled in" after the treatment did not become problematic until late in the growing season. It is perceived that long-term reduction of EWM in these areas will not be observed and continual maintenance of these lanes will be needed on an annual or semi-annual basis to achieve continual control. If FOLM decides to target larger colonies of EWM on Lake Mohawksin, attention will need to be paid to factors that influence chemical concentrations, such as water depth and vulnerability to dilution, if similar successes are to be achieved.

Please Note:

1. Entire area of lake used for fishing.
2. Proposed Treatment areas are used for all boating activities.

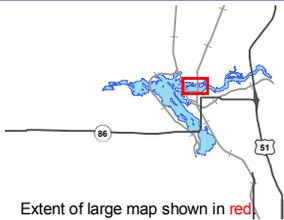
Site	Acres	Average Depth (ft)	Note
A	4.9	3	40' - Wide Navigation Lane
C	2.3	4	High Traffic Area
Total	7.1		

Tomahawk Sports Center Marina



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Sources:
 Roads & Hydro: WDNR
 Aquatic Plants: Onterra, 2006
 Bathymetry: WDNR Digitized by Onterra
 Map date: April 5, 2007

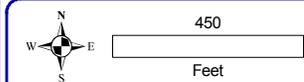
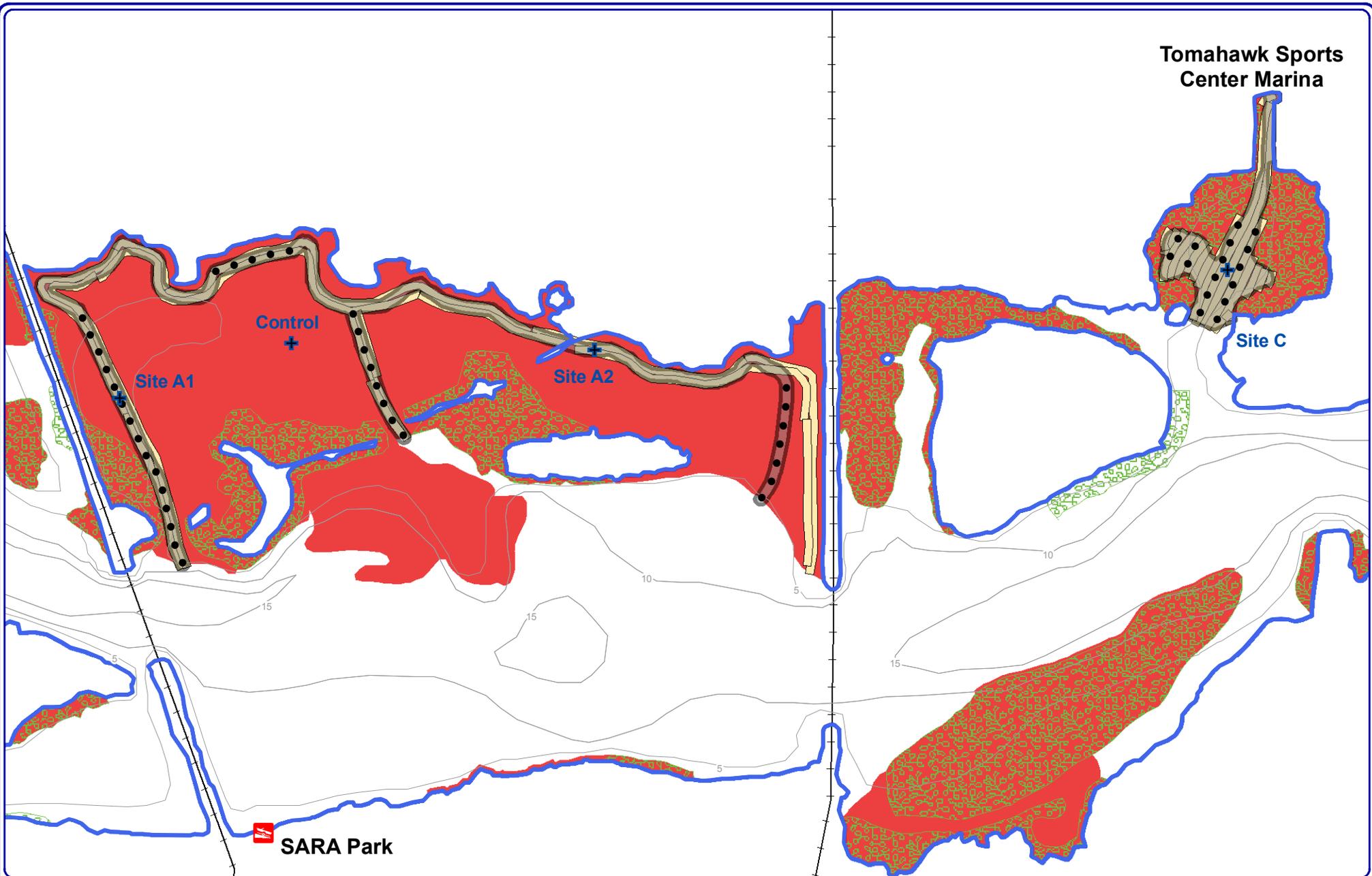


Extent of large map shown in red.

Legend

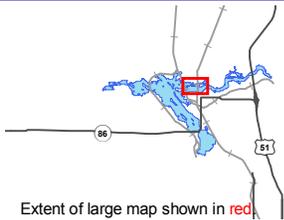
- Native Plant Community
Mapped by Onterra - Aug '06
- Eurasian Water Milfoil Location
Mapped by Onterra - Aug '06
- Proposed Chemical Treatment (7.1 Acres)
- Modified Chemical Treatment (After Pretreatment Survey)

Map 1
Lake Mohawksin
 Lincoln County, Wisconsin
2007 Proposed
EWM Treatment Areas
Used for Conditional Permit



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Sources:
 Roads & Hydro: WDNR
 Aquatic Plants: Onterra, 2006
 Herbicide Path: SAPC, 2007
 Bathymetry: WDNR Digitized by Onterra
 Map date: April 5, 2007



Legend

-  Native Plant Community
Mapped by Onterra - Aug '06
-  Eurasian Water Milfoil Location
Mapped by Onterra - Aug '06
-  Modified Treatment Area
After Pretreatment Survey
-  Approximate Herbicide Application Path (7.4 acres)
-  Dissolved Oxygen Monitoring Site
-  Point-intercept Sub-sampling Location

Map 2
Lake Mohawksin
 Lincoln County, Wisconsin
2007 Finalized
EWM Treatment Areas
& Monitoring Locations

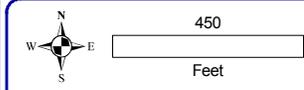
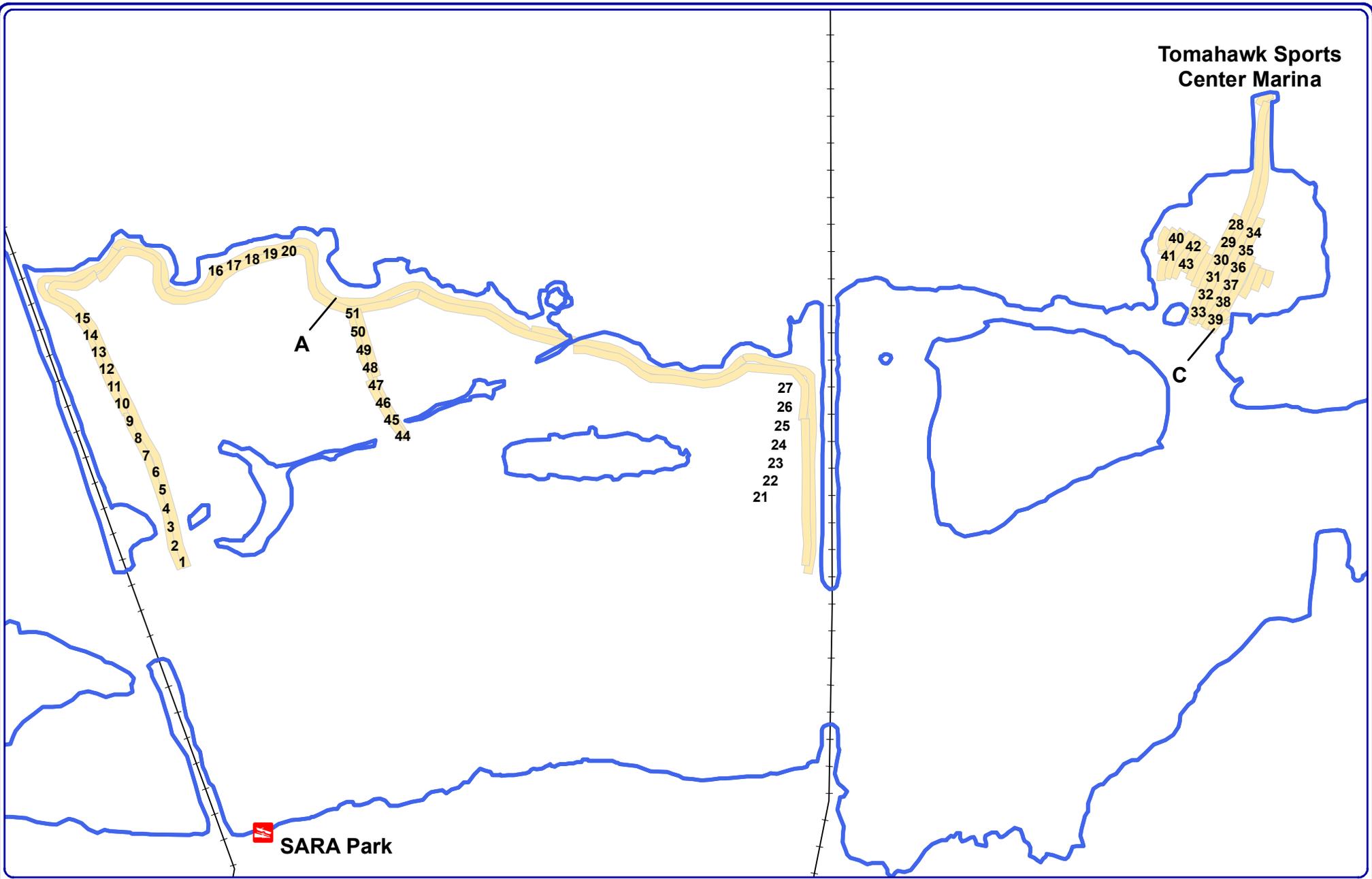
Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R), Pole (P); Visual (V)	<i>Myriophyllum spicatum</i>	<i>Elodea canadensis</i>	<i>Ceratophyllum demersum</i>	<i>Potamogeton robbinsii</i>	<i>Potamogeton amplifolius</i>	<i>Potamogeton zosteriformis</i>	<i>Brasenia schreberi</i>	<i>Potamogeton natans</i>	Note
1	-89.744668	45.477217	9	-	P									
2	-89.744767	45.477383	2	S	P		1							
3	-89.744816	45.477560	2	S	P	1								
4	-89.744877	45.477735	2	S	P									
5	-89.744935	45.477910	3	S	P				2					
6	-89.745021	45.478080	3	M	P	1	1		1		1			
7	-89.745152	45.478234	3	M	P		2	1	1	1				
8	-89.745257	45.478398	3	M	P	1	1	1						
9	-89.745365	45.478562	5	M	P	1	1							
10	-89.745469	45.478726	5	M	P	3	1							
11	-89.745580	45.478888	4	M	P	1	1	1						
12	-89.745681	45.479054	4	M	P	3	1				1			
13	-89.745789	45.479217	5	M	P	2	1				1			
14	-89.745901	45.479379	5	M	P	2	1	1	1	1			1	
15	-89.746005	45.479543	5	M	P	2	1	1		1	1			
16	-89.744199	45.479983	2	S	P	1			1			1		
17	-89.743955	45.480037	2	M	P	2	1	1						
18	-89.743712	45.480093	4	M	P		1	1	1					
19	-89.743465	45.480140	3	M	P		2		1		1			
20	-89.743213	45.480170	2	M	P	1		1	2			1		
21	-89.736853	45.477818	6	M	P									Not Treated
22	-89.736720	45.477972	4	M	P	1	1							Not Treated
23	-89.736651	45.478145	3	M	P	1	1							Not Treated
24	-89.736602	45.478322	2	M	P	1	1							Not Treated
25	-89.736565	45.478500	2	M	P	1						1		Not Treated
26	-89.736527	45.478678	3	M	P	2	1			1				Not Treated
27	-89.736517	45.478858	3	M	P	1		3			1	1		Not Treated
28	-89.730421	45.480389	4	M	P									
29	-89.730523	45.480224	4	M	P	2								
30	-89.730626	45.480059	5	M	P	1								

Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	<i>Myriophyllum spicatum</i>	<i>Elodea canadensis</i>	<i>Ceratophyllum demersum</i>	<i>Potamogeton robbinsii</i>	<i>Potamogeton amplifolius</i>	<i>Potamogeton zosteriformis</i>	<i>Brasenia schreberi</i>	<i>Potamogeton natans</i>	Note
31	-89.730729	45.479894	6	M	P	1								
32	-89.730832	45.479729	5	M	P									
33	-89.730935	45.479565	4	M	P									
34	-89.730186	45.480317	4	M	P	1								
35	-89.730289	45.480152	5	M	P	2				1				
36	-89.730392	45.479987	6	M	P					1				
37	-89.730495	45.479822	5	M	P		1							
38	-89.730597	45.479657	5	M	P									
39	-89.730700	45.479492	4	R	P									
40	-89.731231	45.480261	4	M	P	1	1							
41	-89.731334	45.480097	4	M	P	2	1							
42	-89.730996	45.480189	4	M	P	1								
43	-89.731099	45.480024	4	M	P	1	1							
44	-89.741681	45.478418	5	M	P	1		1						
45	-89.741834	45.478562	3	M	P	1		1						
46	-89.741948	45.478724	3	M	P	2	1	1						
47	-89.742043	45.478891	2	M	P	2	1	1						
48	-89.742121	45.479062	3	M	P	2	1							
49	-89.742209	45.479231	3	M	P	2	1							
50	-89.742286	45.479403	4	M	P	3	1							
51	-89.742354	45.479576	4	M	P	2	2	1						

Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=sand, R=Rock)	Rope (R); Pole (P); Visual (V)	<i>Myriophyllum spicatum</i>	<i>Elodea canadensis</i>	<i>Ceratophyllum demersum</i>	<i>Vallisneria spiralis</i>	<i>Potamogeton amplifolius</i>	<i>Potamogeton robbinsii</i>	<i>Brasenia schreberi</i>	<i>Potamogeton foliosus</i>	<i>Potamogeton zosteriformis</i>	<i>Megalodonta beckii</i>	<i>Nuphar variegata</i>	<i>Nymphaea odorata</i>	<i>Potamogeton praelongus</i>	<i>Potamogeton richardsonii</i>	<i>Myriophyllum sibiricum</i>	<i>Nitella sp.</i>	<i>Potamogeton epiphydrus</i>	<i>Potamogeton pusillus</i>	<i>Utricularia vulgaris</i>	Note
1	-89.744668	45.477217	9	M	P																				
2	-89.744767	45.477383	3	M	P			1														1			
3	-89.744816	45.477560	3	M	P			1	1																
4	-89.744877	45.477735	2	M	P		1	1																	
5	-89.744935	45.477910	3	M	P		2	1																	
6	-89.745021	45.478080	3	M	P		1	1													1		1		
7	-89.745152	45.478234	3	M	P			2	1						1					1					
8	-89.745257	45.478398	5	M	P		1	1				1													
9	-89.745365	45.478562	5	M	P		1	1																	
10	-89.745469	45.478726	5	M	P			1		1	1														
11	-89.745580	45.478888	4	M	P		1			1			1												
12	-89.745681	45.479054	4	M	P		1	3																	
13	-89.745789	45.479217	4	M	P					1									1						
14	-89.745901	45.479379	5	M	P		1			1															
15	-89.746005	45.479543	5	M	P		1	1				1	1						1						
16	-89.744199	45.479983	2	M	P		1		1		1	1													
17	-89.743955	45.480037	2	M	P		1	1			2														
18	-89.743712	45.480093	4	M	P		2				1														
19	-89.743465	45.480140	3	M	P						2	1					1								
20	-89.743213	45.480170	2	M	P		2				2														
21	-89.736853	45.477818		M	P																				Not Treated
22	-89.736720	45.477972	5	M	P	1																			Not Treated
23	-89.736651	45.478145	3	M	P	2			1																Not Treated
24	-89.736602	45.478322	2	M	P	1	1		1																Not Treated
25	-89.736565	45.478500	2	M	P	1	1		1			1				1									Not Treated
26	-89.736527	45.478678	2	M	P	2				1				1											Not Treated
27	-89.736517	45.478858	2	M	P			1						1											Not Treated
28	-89.730421	45.480389	4	M	P																				
29	-89.730523	45.480224	4	M	P																				
30	-89.730626	45.480059	5	M	P					1															
31	-89.730729	45.479894	6	M	P																				
32	-89.730832	45.479729	5	M	P																				

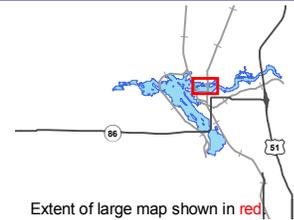
Number	Longitude (Decimal Degrees)	Latitude (Decimal Degrees)	Depth (ft)	Sediment type (M=muck, S=Sand, R=Rock)	Rope (R); Pole (P); Visual (V)	<i>Myriophyllum spicatum</i>	<i>Elodea canadensis</i>	<i>Ceratophyllum demersum</i>	<i>Vallisneria americana</i>	<i>Potamogeton amplifolius</i>	<i>Potamogeton robbinsii</i>	<i>Brasenia schreberi</i>	<i>Potamogeton foliosus</i>	<i>Potamogeton zosteriformis</i>	<i>Megalodonta beckii</i>	<i>Nuphar variegata</i>	<i>Nymphaea odorata</i>	<i>Potamogeton praelongus</i>	<i>Potamogeton richardsonii</i>	<i>Myriophyllum sibiricum</i>	<i>Nitella sp.</i>	<i>Potamogeton epiphydrus</i>	<i>Potamogeton pusillus</i>	<i>Utricularia vulgaris</i>	Note
33	-89.730935	45.479565	4	M	P			1																1	
34	-89.730186	45.480317	4	M	P																				
35	-89.730289	45.480152	5	M	P					1															
36	-89.730392	45.479987	6	M	P																				
37	-89.730495	45.479822	5	M	P																				
38	-89.730597	45.479657	5	M	P																				
39	-89.730700	45.479492	4	R	P																				
40	-89.731231	45.480261	4	M	P	1	1									1									
41	-89.731334	45.480097	4	M	P		1	1				1													
42	-89.730996	45.480189	4	M	P			1																	
43	-89.731099	45.480024	4	M	P		1	1		1			1												
44	-89.741681	45.478418	5	M	P			2				1													
45	-89.741834	45.478562	3	M	P	1		2																	
46	-89.741948	45.478724	3	M	P	1		2	1																
47	-89.742043	45.478891	2	M	P			1	1	1	2														
48	-89.742121	45.479062	3	M	P	1				2	1					1									
49	-89.742209	45.479231	3	M	P				1		1	1			1										
50	-89.742286	45.479403	3	M	P	1	1		1		1									1					
51	-89.742354	45.479576	4	M	P		1	2																	

Tomahawk Sports Center Marina



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Sources:
 Roads & Hydro: WDNR
 Aquatic Plants: Onterra, 2006
 Herbicide Path: SAPC
 Map date: April 5, 2007



Extent of large map shown in red.

Legend

- Approximate Herbicide Application Path (7.4 acres)
- Point-intercept Sub-sampling Location

Appendix A
Lake Mohawksin
 Lincoln County, Wisconsin
2007 Eurasian Water Milfoil Treatment Point-intercept Monitoring Locations

		Control Site				Site A1				Site C				Site A2			
		Latitude		N 45 28'45.48		Latitude		N 45 28'43.62		Latitude		N 45 28'47.86		Latitude		N 45 28'45.19	
		Longitude		W 89 44 35.49		Longitude		W 89 44 43.82		Longitude		W 89 43'50.01		Longitude		W 89 44 20.78	
Date		Time	DO	T	%	Time	DO	T	%	Time	DO	T	%	Time	DO	Temp	%
5/11	-5	3:47	7.98	63.6	88.0	3:52	9.31	65.6	104.8	3:29	8.54	64	94.4	3:36	8.91	65.7	100.5
5/12	-4	10:19	6.18	62.0	66.5	10:25	8.97	62.7	97.4	9:53	8.39	62.6	90.9	10:06	8.44	59.1	87.8
5/13	-3	2:15	8.94	59.5	93.7	2:19	8.92	60.7	94.9	2:31	8.37	59.9	88.2	2:42	8.02	59.0	83.6
5/14	-2	12:10	8.44	61.2	91.7	12:17	8.11	63.1	90.0	12:32	7.84	63.7	87.7	12:46	8.21	62.3	90.3
5/15	-1	2:58	7.71	64.7	86.8	3:03	8.32	62.9	91.7	3:14	7.53	62.4	82.5	3:25	6.52	63.8	72.5
5/16	0	10:39	6.54	58.3	67.9	10:46	7.7	58.9	80.5	11:00	6.25	58.7	65.3	11:13	6.19	58.7	64.7
5/17	1	12:04	8.15	59.3	84.8	12:09	8.38	59.3	87.2	12:21	7.34	59.9	77	12:34	7.93	61.8	85.1
5/18	2	12:04	7.96	60.6	84.7	12:11	8.97	59.8	94.5	12:23	8.75	62.2	94.9	12:34	8.27	61.8	89.2
5/19	3	9:09	8.32	62.1	90.7	9:16	8.97	60.6	96.1	9:27	8.42	62.7	92.3	9:36	8.06	62.9	88.7
5/21	5	4:24	8.23	62.1	89.6	4:33	8.82	61.6	95.3	4:49	8.59	63	94.5	5:00	8.58	64.8	96.3
5/26	10	8:20	7.95	63.4	87.4	8:29	8.21	63.2	90.1	8:42	7.16	63.1	78.5	9:13	6.25	63.5	68.9
5/31	15	2:50	8.23	71.2	99.2	2:59	8.06	69.9	95.9	3:13	7.57	69.7	89.8	3:29	7.69	73.6	95.2
6/5	20	3:27	6.59	65.3	74.8	3:36	7.58	66.1	86.9	3:52	5.82	64.9	65.9	4:06	6.94	81.6	81.6
6/10	25	3:07	7.73	69.4	91.2	11:24	8.27	69.3	97.4	11:38	6.73	69.1	79.2	11:57	8.3	70.6	99.2
6/16	31	10:19	5.2	77.7	67.1	10:29	7.62	76.8	97.4	10:51	7.1	75.1	89.1	11:00	4.83	77.4	62.2

Notes:

- 1 All readings taken with Hach Meter Model HQ30d
- 2 Time shown is AM for values 7:00 to 11:59 and PM for values 0:00 to 6:59
- 3 All readings taken at depth of 3 feet except for Bliss Street where the reading depth was 2 feet (24 inches) and the water depth is 2.5 feet (30 inches)
- 4 Prepared by A.J. Theiler, (715) 453-0010, ajtheiler@charter.net
- 5 Data collected and documented under WDNR Aquatic Invasive Species Grant AEPP-087-07, Project activities number 6) DO monitoring in treatment areas.