

# Lake Effect Newsletter

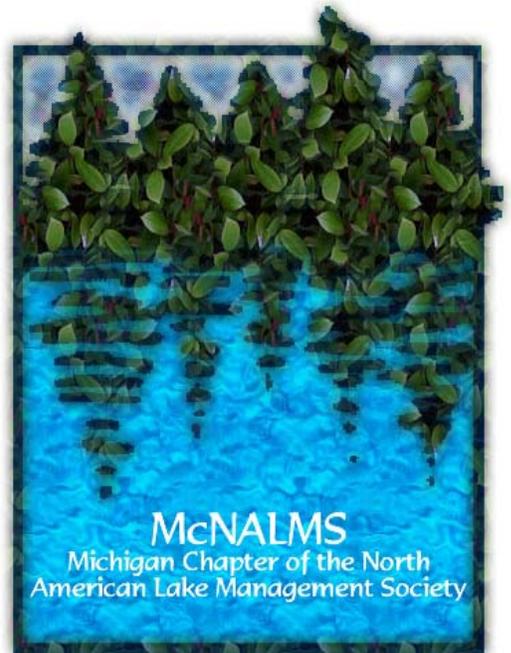
Michigan Chapter of the North American Lake Management Society

February 2010

## Presidential TidBits

By Ted R. Batterson, President, Michigan NALMS

I want to welcome you to the first newsletter of 2010. It is with honor and pleasure that I begin my term of office as President of McNALMS and I want to express my sincere appreciation to those who put this newsletter together, particularly Dave Foley. For those of you who don't know me, I am a faculty member at Michigan State University in the Department of Fisheries and Wildlife who has had a life-long passion for aquatic ecosystems, particularly inland lakes. I received my advanced degrees in limnology with an emphasis on aquatic plants. My first academic appointment at the University of Florida was as an aquatic plant ecologist, a comparable position I filled upon coming to Michigan State in 1984. However, for the last two decades I've served in an administrative position here at the university but I am still very much interested in aquatic plants and lake management. Enough about me, now I want to focus on McNALMS and talk about something I am very excited about that will be undertaken during my term of office. The Membership Committee, which consist of John Drake (chair), Niles Kevern, and Joe Landis, are working on a campaign to increase the membership of the organization. I am extremely hopeful that our Membership Committee will be very successful in this campaign which will greatly enhance our abilities to offer goods and services not only to our members but to others who want to become engaged lake citizens. I want to thank John, Niles, and Joe for all of the work and effort they have and will put into this endeavor and I also need to thank Howard Wandell for all that he does as the Executive Director of McNALMS. He tirelessly works on behalf of the organization, with great passion and integrity, all done out of the goodness of his heart because it is an unpaid position. I also want to thank the other officers and Board members as well as all of the others who give of their time and talent on behalf of McNALMS – THANKS!



## INSIDE THIS ISSUE

- 1 Presidential TidBits
- 2 Calendar of Events/Executive Director Notes
- 3 Conference on Lake Improvements
- 4 NALMS' 29<sup>th</sup> Annual Symposium
- 5 House Bill 5368 and 5369
- 6 Harmful Algal Blooms on the Rise
- 7 McNALMS New Outreach Program
- 8 Michigan DNR Assists with Asian Carp Project / In Memoriam

# Lake Effect Newsletter

Michigan Chapter of the North American Lake Management Society

## Notes from the Executive Director

by Howard Wandell

### Membership - Numbers and Involvement

I would like to continue last newsletter's theme of membership for one more issue. Harvard professor, Dr. Robert Putnam in his best-selling book *Bowling Alone* chronicles the decline in community involvement in America from the 1960s through 2000. What he found was that many organizations relying on member involvement to implement activities have had significant membership declines. He found this to be true across a broad range of organizational types including: churches, unions, large professional societies, local agricultural organizations, chapter based organizations such as the Parent-Teacher Association, 4-H, Boy Scouts, Girl Scouts, Rotary, Optimists and many others. In short people are much less involved in structured community activities and organizations than they used to be.

One of the few groups going against this tide is environmental interests. Many environmental organizations have seen significant increases in membership since 1960. However, other environmental organizations have seen little to no increase in membership. Dr. Putnam concluded that the largest contributor to membership increases was "direct mail" campaigns. Those organizations in existence prior to 1960 that did not adopt direct mail strategies have seen little increase in membership. Those that have, have seen 10 to 30 fold increases. There is, however, a cost and a down side to direct mail memberships. Organizations effective at direct mailing can spend up to 30 percent of their total budget on membership advertising. The return on this investment is 1 to 2 percent and 30 percent of those that do join drop out the first year. The average retention rate for direct mail members is 3 to 4 years. Additionally, Dr. Putnam found that most direct mail members saw themselves as "donors" or "supporters" rather than members and rarely got involved in the organization's activities. To sustain their large membership roles environmental organizations using direct mail campaigns must continuously invest in the campaign.

Continued on page 9

## McNALMS Calendar of Events



### February 17-19

Michigan Assoc. of County Drain Commissioners  
Annual winter conference at the  
Grand Traverse Resort, Acme

### March 3-5

Michigan Stormwater Floodplain Association  
Annual conference at Double Tree, Bay City

### March 9

"The Great Lakes: Learning From the Past,  
Looking Towards the Future," East Lansing.  
Focus on climate change, quagga mussels, Asian  
carp, beaches and shorelines, fisheries, and wind  
farms. For more information, visit  
[www.iwr.msu.edu/events/ANRWeek](http://www.iwr.msu.edu/events/ANRWeek). Free and  
advanced registration requested

### April 30 – May 1

Michigan Lake & Stream Association  
Annual conference  
Radisson Hotel, Lansing

### July 14-16

Michigan Assoc. of County Drain Commissioners  
Annual summer conference at Boyne Mountain  
Resort, Boyne Falls

### October 1

McNALMS 2<sup>nd</sup> Annual Lake Board Conference  
Higgins Lake

Enrollment is now open for the 2010 season of  
the Cooperative Lakes Monitoring Program.  
There are two ways to enroll:

1. Enroll on the MiCorps web page:  
<http://www.micorps.net/lakeoverview.html>
2. Call Jean Roth at Michigan Lake and  
Stream Associations to request a paper  
application (989-257-3715).

# Lake Effect Newsletter

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## Conference on Special Assessment Districts for Lakes a Success

With State resource management funds diminishing, local communities and citizens have a greater stake in lake management. If a community's lake is to maintain its quality and not be degraded by pollution and overrun with exotic species, concerned citizens and local governments must take action.

To help promote community lake management, a one-day conference was held on October 16th at the Kettunen Center, near Tustin, Michigan, south of Cadillac. The purpose of the conference was to create a greater awareness of shared lake management options such as lake improvement boards and township public works projects and to provide a networking opportunity for those interested in lake management.

Michigan law allows local governments and concerned citizens to come together to form management agencies to protect the local lake. Lake improvement boards (Part 309 of Public Act 451 of the Public Acts of 1994) and township public works lake projects (Act 188 of the Public Acts of 1954, as amended) are local collaborations to protect important local lakes.

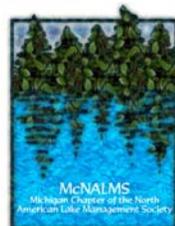
The conference was hosted by the Michigan Chapter – North American Lake Management Society (McNALMS) and was a project of the Michigan Inland Lakes Partnership. Co-sponsors of the conference included the Michigan Association of County Drain Commissioners, the Michigan Township Association, Michigan State University Extension, MSU – Institute of Water Research, Michigan Lake and Stream Associations, Inc., and the Michigan Aquatic Managers Association.

The conference was attended by 113 individuals, representing a wide range of interest, including county and township officials, nonprofit organization representatives, lake managers and citizens. The agenda included three sessions. One session emphasized how to get started in lake management for those who have not been involved previously. A second session was designed for those that have a lake management district and want to improve administration and operations. The third session dealt with some of the ecological issues that lake management districts must often address.

Participants were asked to complete a short evaluation of the conference. Comments were very favorable and 100 percent of the respondents wanted additional promotional materials and training in local community leadership in lake management. They also provided comments and suggestions for future conferences and topics of concern.

McNALMS hopes to provide additional in depth training and educational materials for local governmental involvement in lake management. The McNALMS Board of Directors is planning for an additional conference in 2010.

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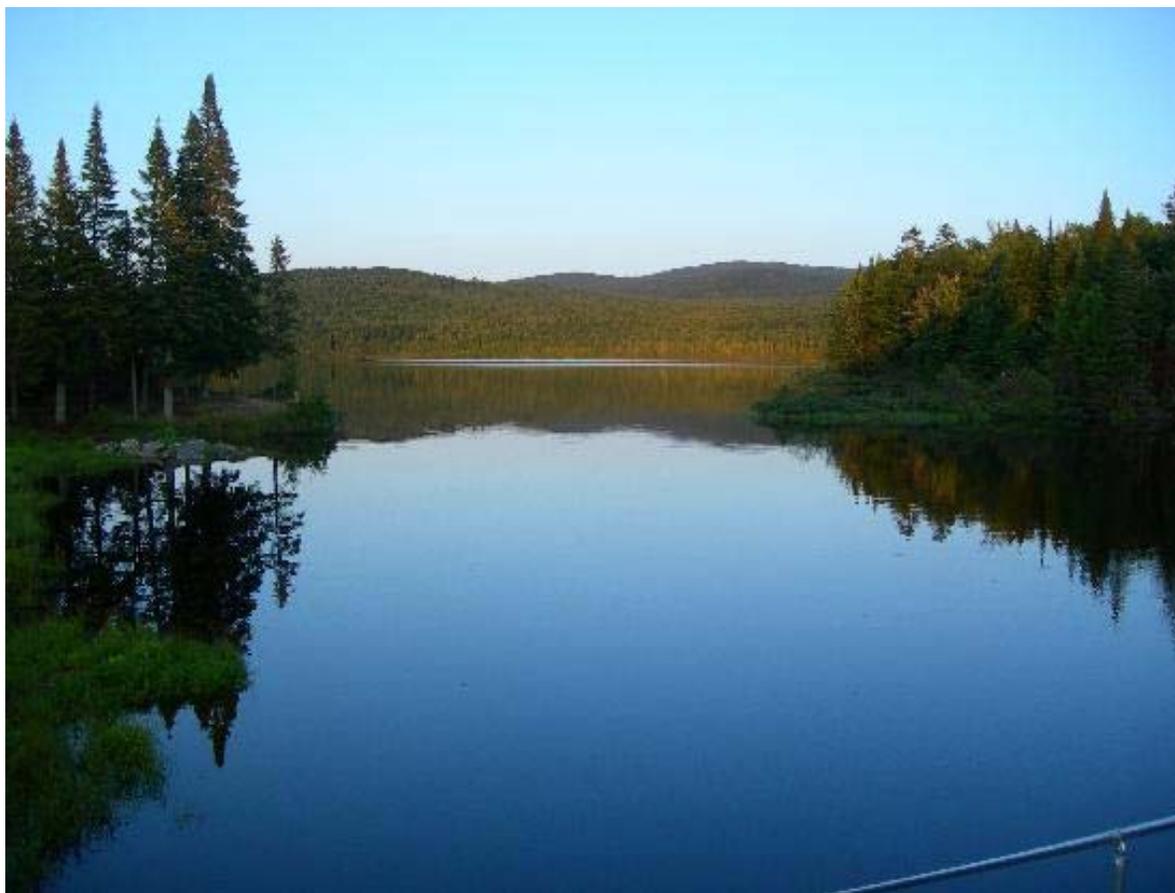


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## NALMS' 29<sup>th</sup> Symposium, October 2009

I had the pleasure of attending NALMS' 29th annual symposium in Hartford , CT in October, 2009. Although Hartford doesn't seem on the surface like an exciting city to visit, we had a great time. We always start the conference with a whirlwind sampling tour of the local streams and ponds, and officially start the conference with workshops (in my case, the algae ID workshop that I co-chair with Ken Wagner). The sessions were well done and I have to say that I attended more useful talks than I have at other recent annual symposiums. Especially exciting were 2 days of toxic blue-green talks (see HAB article) ending in a public forum on what was happening legislatively (Freshwater Harmful Algal Bloom Research & Control Act of 2010 (FHAB Act), Ken Hudnell), and how North American lake managers and researchers see future priorities concerning toxic blue-green algae. There were also several more sessions on the National Lake Assessment results (see <http://www.epa.gov/lakessurvey/>).



# Lake Effect Newsletter

Michigan Chapter of the North American Lake Management Society



## House Bill 5368 and 5369

HB 5368 would prohibit the use of fertilizer containing phosphorus on lawns unless its use is shown necessary through use of a soil test. The companion House Bill – HB 5369 prohibits retailers from displaying phosphate turf fertilizers.

The bills would amend Part 85 (Fertilizers) of the Natural Resources and Environmental Protection Act (MCL 324.8501 et seq.). If passed HB 5368 would prohibit the application of a fertilizer labeled as containing available phosphate to turf unless a test shows a phosphate deficiency or the turf is in its first growing season. Generally speaking, the term "turf" refers to lawns. The bill's definition of turf specifically excludes all forms of agricultural production, including sod farms.

HB 5368 prohibits the application of a phosphate fertilizer on a golf course unless a test shows a phosphate deficiency or the golf course has an appropriate certification and trained staff. The Bill requires the Michigan Department of Agriculture (MDA) to post information about the Bill's requirements on its website. Fertilizer spilled on an impervious surface (such as a street, sidewalk, or parking lot) is to be promptly cleaned up. Additionally applying fertilizer to turf when the soil is frozen or saturated with water is prohibited.

HB 5368 allows local phosphate fertilizer ordinances to be maintained and enforced if in effect when the bill is enacted. Violation of HB 5368 is a civil infraction with a maximum fine of \$1,000 (\$50 if the violation is committed on a single-family residential parcel by the owner, or by another person who lives on the property). Companion HB 5369 prohibits retailers from displaying phosphate turf fertilizers. Instead, retailers could post signs that tell customers this type of fertilizer is available upon request and about the restrictions on its use.

HB 5369 is tie-barred to HB 5368, meaning that unless that Bill is also enacted, HB 5369 will not go into effect. You can read the bill and a summary at: <http://legislature.mi.gov/doc.aspx?2009-HB-5368>. House Bill 5368 is sponsored by Rep. Terry Brown and House Bill 5369 is sponsored by Rep. Mary Valentine.

# Lake Effect Newsletter

Michigan Chapter of the North American Lake Management Society

## Harmful Algal Blooms on the Rise

By Lois Wolfson, PhD

Department of Fisheries & Wildlife, Institute of Water Research

Almost anyone living on or visiting a lake in Michigan has encountered free floating algae or phytoplankton. These microscopic organisms are essential components of a lake ecosystem and often are not even noticeable unless the lake is productive. As primary producers, they photosynthesize and produce oxygen. They also serve as the primary food source for zooplankton. Under certain conditions, particularly with the addition of phosphorus and in some cases nitrogen to the lake, algae can grow to excessive levels and create unsightly blooms or scums that float at the water surface. These algal blooms often lead to declining water quality conditions, as dying blooms are consumed by bacteria which deplete oxygen concentrations in the water. Although not all algal blooms are harmful from a human and animal health perspective, one major group of freshwater algae can produce toxins, and if ingested, can cause illness or in a few reported cases, death.

These freshwater blooms, referred to as Harmful Algal Blooms (HABs), are composed of organisms that used to be classified as algae but are now considered bacteria. Also known as bluegreen algae, but now correctly identified as cyanobacteria, these HABs pose potential health risks to wild animals, pets, livestock, and people primarily via the toxins that they produce. Other types of algae can produce toxic HABs as well (for example, some red tides in marine systems), but they are generally not in the cyanobacteria group.

Cyanobacteria are not new or invasive species. They are among the oldest organisms on earth and are naturally found in waters throughout Michigan and the U.S. They occur as single cells, filaments, or colonies (depending on species), and individually, are usually too small to be seen without the aid of a microscope. However, once conditions become favorable for excessive growth, they can create massive blooms that give the water a green, bluish-green, reddish or brown appearance. Often they float in mats or appear as a scum on the water surface, often making the water look painted. Cyanobacterial blooms can negatively affect other algae by blocking sunlight and altering food web interactions. Blooms can also be unsightly, create noxious smells and obstruct recreational activities. While some benthic algae (such as some of the filamentous green algae) can accumulate at the lake surface causing unsightly conditions, they are not classified as HABs because they do not produce toxins, although they do indicate too many nutrients in the water.

Cyanobacteria blooms often occur in water that is rich in phosphorus or has high phosphorus at the sediment water interface. Many of the cyanobacteria have the ability to "fix" their own nitrogen from atmospheric nitrogen, and thus are not dependent on other external sources. Usually, a nitrogen to phosphorus ratio of less than 10-15 (by atoms) favors nitrogen-fixing organisms. The cyanobacteria also have a wide temperature tolerance range, and thrive during hot summer days.

Cyanobacteria produce liver toxins (or hepatotoxins), neurotoxins, and dermatotoxins that can be hazardous to humans and terrestrial animals. Symptoms include diarrhea, skin rashes, muscle cramps, vomiting, dizziness, tingling and paralysis. If these toxins are consumed in large enough quantities, they can lead to liver or kidney failure (hepatotoxins) or cardiac and respiratory failure (neurotoxins). Some of the well known genera producing these toxins include *Microcystis*, *Anabaena*, *Aphanizomenon*, *Oscillatoria* (*Planktothrix*) and *Cylindrospermopsis*.

Continued on page 9

# Lake Effect Newsletter

Michigan Chapter of the North American Lake Management Society

## **McNALMS Has A New Outreach Program**

The Michigan Chapter North American Lake Management Society (McNALMS) is a professional society with a membership made up of largely university professors, consultants, scientists, lake management contractors and citizen lake practitioners. Citizen lake practitioners are local citizens, usually not trained in limnology, fisheries management or any related discipline, but who have made, or wish to make, a significant effort to become knowledgeable about lake management. McNALMS also is associated with the national scientific society, the North American Lake Management Society (NALMS).

In Michigan there are many organizations that have a lake management emphasis. Some of these organizations are state-wide, some are regional, and some have lake management as only a minor part of their overall responsibilities. Most of these organizations do not have the science-based membership and emphasis of McNALMS and offer training usually in the form of a conference. Most of these conferences take a "shotgun" approach. Many topics are covered but with few receiving more than an hour of attention. This approach is effective and allows the organization to reach a broad audience. However, this approach provides little in-depth education regarding any issue.

McNALMS will take advantage of its distinctive membership, and association with national NALMS to implement a unique outreach program. Rather than competing with other organizations, McNALMS will provide specific in-depth training on issues of importance to professional lake managers and citizen lake practitioners. This approach would reduce competition and fill a critical educational need that is currently not being effectively met in Michigan.

McNALMS will provide half-day or all-day seminars (training workshops) on administrative issues (working through conflict, running a meeting, personality traits, etc.) and ecological issues (aquatic plant control, stormwater management, exotic species, etc.). There would be no more than two or three issues covered in each seminar. We will provide state and national experts when feasible to conduct the training. It may be possible to hold two or three seminars per year.

The seminar approach will better target the educational needs of our citizen lake practitioner members making them more effective community leaders. They are also more likely to become involved in McNALMS and the organization's outreach and other activities. The seminar approach will also attract lake citizens, who can become lake practitioners.

# Lake Effect Newsletter

Michigan Chapter of the North American Lake Management Society

## **Michigan DNR to Assists Illinois on Asian Carp Project (News Release from Michigan DNR)**

The Michigan Department of Natural Resources sent a crew of fisheries technicians and fish-killing chemicals to Illinois as part of an assault on Asian carp populations in the Chicago Sanitary and Ship Canal that threaten to make their way into the Great Lakes.

The large exotics, which escaped from agricultural facilities in the South and have become established in the Mississippi and Illinois Rivers, are able to out-compete native species and pose a dire threat to the entire Great Lakes ecosystem. The fish have been kept out of the Great Lakes by a \$9 million electric barrier, though recent DNA testing of water samples suggests the fish have breached the barrier and are a mere seven miles from Lake Michigan.

The electrical barrier is scheduled to be deactivated for necessary maintenance for several days in December. The Illinois Department of Natural Resources plans to kill the carp in a stretch of the canal below the electrical barrier with rotenone, a natural substance, before the barrier is shut down.

"We jumped on board the minute Illinois requested assistance with this project because the potential of these fish getting into the Great Lakes could be ecologically devastating," said DNR Lake Michigan Basin Coordinator Jim Dexter. "If they do get in, they could wreak havoc on the Great Lakes and its tributaries."

Bighead and silver carp feed on plankton. Bigheads are capable of consuming up to 40 percent of their body weight in plankton daily and can reach weights of 80 pounds. Fisheries officials believe they could drastically alter the food chain in the Great Lakes and out-compete native species for habitat.

The DNR sent six technicians and three boats from Plainwell and Pontiac as well as most of the department's inventory of rotenone and potassium permanganate, which neutralizes rotenone, to Illinois for the project.

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## **Long Time Friend of Great Lakes Passes Away Delvan Sipes: November 22, 1925 – January 2, 2010**



Delavan Wayne Sipes, known to his friends and colleagues simply as "Del", was passionate about lakes and conservation in Michigan. We all knew Del as someone that cared deeply about not only the lake he moved to after retirement, Paw Paw Lake, but also about all lakes in Michigan, no matter how small. He always took time to educate himself, and was tireless about pursuing local and state issues. Del was infinitely patient with the state and townships, despite the urgency he felt to protect and conserve local resources, and his frustration with political inaction. He had the most wonderful, dry sense of humor, and a wisdom that can only come from a lifetime of learning. He will be greatly missed.

# Lake Effect Newsletter

Michigan Chapter of the North American Lake Management Society

continued from page 2

## Notes from the Executive Director

McNALMS will probably need to promote our organization with mail and electronic media campaigns. However, I am curious about the sustainability of direct mail memberships. I feel we need to allocate as much or more effort into promoting the civic engagement of members. Certainly we need the donor/supporter, but we also need those that are willing to contribute their time and talents to the organization's efforts. As an organization we need to create ways for members to give and "get involved".

Continued from page 5

## Harmful Algal Blooms on the Rise

Recent studies have linked *Microcystis*, which produces the hepatotoxin, microcystin, with the presence of zebra mussels. Work by researchers at the Great Lakes Environmental Research Laboratory has shown that filter feeding zebra mussels selectively reject *Microcystis* and change the nutrient ratios at the sediment water interface. More recently, researchers at Michigan State University have explored the connection between zebra mussels, *Microcystis*, microcystin, and nutrient concentrations, in particular phosphorus. They have noted that lakes with zebra mussels and low concentrations of phosphorus have on average, 3-8 times higher microcystin concentrations than comparable lakes without zebra mussels.

Since high quality lakes generally have low phosphorus concentrations, these results present a challenge for lake managers if zebra mussels are present, since these lakes may exhibit higher than expected levels of microcystin. The following references and web sites provide additional information on Harmful Algal Blooms:

Center for Disease Control: <http://www.cdc.gov/hab/default.htm>

Knoll, L.B., O. Sarnelle, S.K. Hamilton, et al. 2008. Invasive zebra mussels (*Dreissena polymorpha*) increase cyanobacterial toxin concentrations in low-nutrient lakes. *Can. J. Fish. Aquat. Sci.* 65: 448-455

NALMS – Blue Green Algae Pages: <http://www.nalms.org/nalmsnew/Scientist.aspx?id=30&Mid=1>

NOAA Center for Excellence for Great Lakes and Human Health

<http://www.glerl.noaa.gov/res/Centers/HumanHealth/habs.html>

Sarnelle, O., J. Morrison, R. Kaul, G. Horst, H. Wandell and R. Bednarz. 2010. Citizen monitoring: testing hypotheses about the interactive influences of eutrophication and mussel invasion on a cyanobacterial toxin in lakes. *Water Research* 44:141-150.

Vanderploeg, H.A., J.R. Liegig, W.W. Carmichael, et al. 2001. Zebra mussel (*Dreissena polymorpha*) selective filtration promoted toxic *Microcystis* blooms in Saginaw Bay (Lake Huron) and Lake Erie. *Can J. Fish. Aquat. Sci.* 58:1208-1221.

# Lake Effect Newsletter

Michigan Chapter of the North American Lake Management Society

## News From Our Corporate Members

PhycoTech is the only commercial lab in North America to utilize a unique proprietary permanent mounting technique for archiving and preparing water samples for enumeration. Our president and algal taxonomist, Dr. Ann St. Amand, has over 26 years of experience and has processed over 28,000 samples from both freshwater and marine systems from all over North America. We have processed several state wide surveys in the Mid-West and Florida. PhycoTech also consults with Federal and State Agencies, including the Environmental Protection Agency, The United States Geological Survey and the Corps of Engineers, on experimental design and QA/QC issues. We process samples for general water quality, as well as for exotic, toxic and taste/odor producing algae.

PhycoTech is now utilizing its proprietary, custom written data management software, ASA (Aquatic Sample Analysis system). This unique, powerful program tracks samples from receipt to data delivery within the same software program. With ASA, we are able to provide the most complete data available commercially.

We have a strong commitment to educational outreach and maintain two educational saltwater reef tanks at Upton Middle School and Brown Elementary School. We are also partnering with Upton Middle School sixth grade teachers on the UpStream project, a hands-on stream ecology program with in-class and field modules and a 7th-8th grade after-school club.



Thanks to our Corporate Sponsors for helping to support McNALMS

Aquarius Systems  
Houghton Lake Improvement Board  
PhycoTech, Inc.  
Progressive AE Water Resource Group  
Giffels-Webster Engineers  
Enviroscience, Inc.  
Lakepro, Inc.  
Aqua-Weed Control, Inc  
Clarke Aquatic Services  
PLM Lake and Land Management Corp.

***Michigan Chapter, North American Lake Management Society***  
***P.O. Box 4812, East Lansing, MI 48826***

**2010 Membership Application/Renewal Form**

We've been making great strides in working together to protect and manage our lakes and waterways! Come join us!

First Name	
Last Name	
Title	
Company	
Address 1	
Address 2	
City, State, Zip	
Phone	(    )
Fax	(    )
E-mail Address	
Would like to receive Newsletter via email	

We would like to have you join us by participating in any of the following committees. Indicate if you are interested by checking as many boxes as applicable (a committee member will contact you with further information).

- |   |   |
|---|---|
| <input type="checkbox"/> Program Committee      | <input type="checkbox"/> Nominating Committee         |
| <input type="checkbox"/> Publications Committee | <input type="checkbox"/> Government Affairs Committee |
| <input type="checkbox"/> Membership Committee   | <input type="checkbox"/> Serving as an Officer        |

Any other areas you are interested in? \_\_\_\_\_

Please indicate which Membership is right for you:

- \$10 Student Membership  
 \$25 Annual Membership  
 \$100 Corporate Membership

General Contribution \$ \_\_\_\_\_

***Please make check or money order payable to McNALMS and send with this completed form to the above address.***