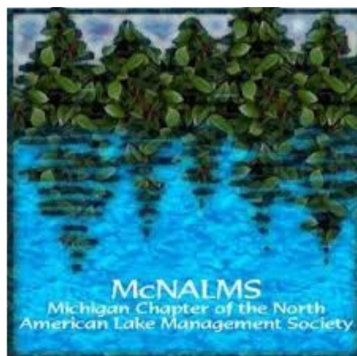




Michigan Chapter
North American Lake Management Society
P. O. Box 4812
East Lansing, MI 48826

Visit our website at www.mcnalms.org

Dedicated to promoting understanding and comprehensive management of Michigan's inland lake ecosystems.

Presidential Ponderings

by Michael Solomon, McNALMS President

Another business year is coming to a close for the **Michigan Chapter of NALMS**. It was a little disappointing in that we were not able to meet in-person due to Covid-19. Zoom to the rescue, and we did have four Board business meetings. The Board selected two student grant proposals for funding in conjunction with **Michigan Lakes and Streams Association**. Ellen Foley's research will focus on Lake Responses to Elevated Levels of Chloride and Phosphorous, and Scott Jackson's research will investigate the Impacts of Climate Change on Gene Expression in Stocked Walleye Populations.

I want to thank Scott Brown for taking over publication of our bi-annual McNALM's newsletter. This is our primary means of contact with our organization's membership, and Scott's willingness to do this is greatly appreciated.

The Board also worked on a new brochure which came out looking very professional. You will be seeing it at up-coming meetings or if you want a supply contact one of the Board members.

I recently saw an announcement that the **Joint Aquatic Sciences Meeting 2022** that will be held May 14 - 20, 2022 in Grand Rapids, Michigan. NALMS will be a joint partner in this meeting as a member of the **Consortium of Aquatic Science Societies**. This will be right in our back yard so hopefully we can get a good turnout of McNALM's members.

The Board is discussing having a **Lunch and Learn** to kick off 2022 but we will have to see what the on-going pandemic will dictate.

Please remember that our **Corporate Sponsors** listed in this newsletter as you fulfill needs associated with the professional management of your lake.

Our President-elect is Dr. Lois Wolfson, so we are in experienced and good hands as we go forward. My thanks to all of the Board members for helping to make this a productive year.



The **Midwest Glacial Lakes Partnership (MGLP)** brings together resource agencies, non-profit organizations, and other stakeholders to protect, rehabilitate, and enhance sustainable fish habitats in naturally formed lakes of the Midwest. We foster collaborations on fish habitat science, education and outreach, and conservation. For more information, stop by our [website](#), follow us on [Twitter](#), or reach out to our coordinator, [Joe Nohner](#). If you aren't already on our newsletter email list, you can [SIGN UP HERE](#).



Michigan Chapter, North American Lake Management Society is a proud affiliate of the **North American Lake Management Society**, an organization that is dedicated to forging partnerships among citizens, scientists, and professionals in order to foster the management and protection of lakes and reservoirs...for today and tomorrow. To learn more about each organization, visit their outstanding websites located at :

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Spotting Freshwater Jellyfish Sparks Interest in their Role

by Dr. Lois Wolfson

It was early evening when a group of aquatic ecologists headed out on a small lake near Cadillac, MI to find the tiny creatures we had seen in the past. We knew that they weren't rare, but their presence was erratic. Some years they were there but not every year. We were on the hunt for *Craspedacusta sowerbyi*, the only freshwater jellyfish in North America. Yet, this cosmopolitan jellyfish is found on every continent except for Antarctica. It originally came from the Yangtze River in China, and some consider it an invasive species.



Between the size of a dime and a nickel in diameter, these jellyfish (Phylum Cnidaria, Class Hydrozoa), are most noticeable between late spring to early fall when they take the form of what we typically think jellyfish look like – the hydromedusa form, with an umbrella like bell-shaped hood and tentacles protruding around the edges. The hood is transparent or translucent, and it's easy to see their internal cavity and organs. The organism tends to oscillate in the water, coming up to the surface and then quickly disappearing as it moves down into the water. The freshwater jellyfish also exist in several other stages, including a polyp resting stage, depending on the water temperature and time of year. In this form they are not readily seen.

They are not a true jellyfish since they don't live in a marine habitat. But, like true jellyfish, this species has stinging tentacles with cells containing nematocysts that are capable of injecting poison into animals that touch the tentacles. The tentacle then coils itself around the prey and brings the prey to its mouth. Fortunately, the tentacles can't penetrate through human skin, so they do not appear to harm people.

Our interest grew when we spotted them, and we proceeded to watch them pulsate in the water. We knew though that these little critters could have an impact on other small species in the lake. Multiple studies have found that blooms of these jellyfish can have a negative impact on several zooplankton species, including those that consume algae. One study found nearly 100 percent mortality of three different zooplankton, when placed in a tank with one to two jellyfish. The smaller zooplankton were eaten, while the larger ones were killed but not consumed. Several other studies suggest a cascading effect where the reduction in herbivorous (algal-eating) zooplankton might lead to an increase in algal biomass in the water.

Not all studies indicate negative interactions. One study noted that the jellyfish could not eat zooplankton fast enough to compete with zooplankton-eating fish. Further, diet studies did not find jellyfish as a main food source for fish. In fact, *Craspedacusta* occurred in high numbers even when fish were abundant.

While some may consider this jellyfish an invasive species, others are uncertain, particularly since its impacts are not well-studied. Its sporadic appearance and disappearance make it a challenge to study in its habitat. We were successful in our quest to find this jellyfish and plan to return in the near future to seek out this somewhat elusive species.

The Use of Diver Assisting Suction Harvesting (DASH) and Benthic Barriers to Reduce Eurasian Watermilfoil in Lake Leelanau

Dr. Jennifer Jermalowicz-Jones, CLP

Restorative Lake Sciences



Lake Leelanau is approximately 8,729.7 acres in surface area with a volume of approximately 262,002.7 acre-feet (RLS, 2020), with the north lake being much smaller than the south lake. An area that joins the north and south lakes is referred to as “the narrows” and occupies an area approximately 287 acres in size. The lake has excellent water clarity and quality and is visited by thousands of lake enthusiasts annually. Additionally, there are numerous homes on the lake with high property values. Protection of the lake is paramount for current lake usage and that of future generations.

Due to the great overall mean water depths and steep slopes that lead to the deep basins, the aquatic vegetation communities are scarce. Despite this occurrence, the overall aquatic plant biodiversity is quite high with twenty one submersed, two floating-leaved, and six emergent native aquatic plant species for a total of twenty nine species. The majority of these species were found in the highly diverse narrows region.

A whole lake benthic scan utilized a total of 128,304 GPS sounding points, and the aquatic vegetation survey utilized a total of 1,922 GPS sampling location points. This comprehensive survey and scan allow for a great degree of certainty in regard to the overall biodiversity, location, and relative abundance of all aquatic vegetation. A collaborative effort between RLS, the Grand Traverse Band of Ottawa and Chippewa Indians (GTB), and the Lake Leelanau Lake Association has resulted in successful eradication of 4.3 acres of Eurasian Watermilfoil (EWM) (pictured) which brings the current total to around 11.1 acres. This finding was supported through comparisons of pre- and post aquatic bio-volume scans and surveys in the DASH and benthic barrier experimental areas. In a lake improvement feasibility study for Lake Leelanau, it was recommended that an early detection rapid response protocol be implemented immediately, along with placement of individual boat washing stations, and all launch sites. Additionally, rigorous annual lake surveys were recommended to determine the locations of all aquatic invasive plants, and allow for prompt placement of barriers or use of DASH.



NALMS 41st International Symposium
Valuing Water: Economics, Ecology & Culture

November 15–19, 2021 • Virtual

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Registration is open.

MLSA 61ST

ANNUAL CONFERENCE

**Friday, May 6 and
Saturday, May 7, 2022**

**Crystal Mountain Resort,
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Highly Capable Unmanned Aircraft are Enhancing the Capacity of Lake Managers to Monitor, Assess, and Manage Michigan's Inland Lakes

by Scott Brown, McNALMS Board Member &
FAA Part 107 Certified Unmanned Aircraft Systems Remote Pilot



Unmanned aircraft systems, commonly referred to as drones, are rapidly changing the way we perceive our world, and perform a multitude of complex tasks. The capacity to deploy drones is proving to be particularly beneficial in places that are difficult for humans to reach, in natural habitats that are highly vulnerable to disruption or damage by the presence of humans, or in circumstances where people might otherwise be incapable of performing necessary tasks in a timely, efficient, or affordable manner. Moreover, the use of remotely controlled small aircraft allows for expeditious assessment of hazardous situations, and the capacity to gather real-time data in dangerous environments without placing humans at risk. Industry observers believe that

the nearly unlimited potential for state-of-the-art technology enabled unmanned aircraft to contribute to safely and reliably accomplishing an increasingly diverse array of human endeavors is only in its infancy. Enabled by a constellation of twenty-four global positioning system (GPS) satellites, and leap-frog advances in aviation technology, computer science, information technology, wireless communications, digital imaging, battery technology, and the development of high-resolution remote sensors, small unmanned aerial systems are dramatically changing the way a host of professionals are conducting business.

In contrast to the large, extraordinarily expensive to operate fixed wing drones that have been in use by the military for almost two decades, the vast majority of the drones in use today are lightweight hover craft that are capable of being launched and retrieved almost anywhere due to their small size and their ability to take-off and land vertically. Ranging in price from \$500.00 to \$2,000, consumer grade unmanned aircraft are capable of capturing high resolution still photographs and videos that are useful for generating geo-referenced natural color mosaics and digital surface models. Capable of collecting scientific research quality data, commercial grade drones that range in price from \$5,000 to \$50,000 are equipped with advanced, application specific remote sensing equipment. Relatively easy to operate commercial and consumer grade unmanned aerial vehicles currently being deployed by scientists, engineers, and natural resource managers on an increasingly frequent basis are nominally equipped with global positioning system (GPS) enabled navigation systems, high resolution video and still photography cameras, and wireless digital communications systems that allow their operators to view and record real-time images and data from altitudes of up to 23,000 feet, and from distances of up to several miles.

Inland lake management professionals operating in North America are just now beginning to recognize the tremendous potential for the small remote-controlled aircraft to enhance their overall capacity to effectively monitor, assess, and manage aquatic ecosystems. The use of highly maneuverable hovercraft that are authorized by the Federal Aviation Agency to operate anywhere in uncontrolled airspace to a maximum altitude of four hundred feet provide lake managers with a versatile and cost-effective tool with which to obtain high-resolution images, and precise data regarding the nature and status of inland lake ecosystems. (Continue reading this article on the Michigan Waterfront Alliance website by [clicking here](#)....

McNALMS Corporate Member Spotlight



Our determination to satisfy all our customer needs is top priority. We understand the Importance of maintaining a strong partnership with our clients, and the Michigan Department of Environmental Quality. Our Team is dedicated to providing effective result oriented aquatic plant management programs and services.

We are an aquatic and lake management company that cares about customer service. Perfecting a homegrown feel with a focus on the people, our clients throughout the State of Michigan. Nothing but the best is what you will find with **LakePro**. Look at all our services we offer, and find what you need with our [LakePro Brochure](#).

Contact us today so we can help at info@lakeproinc.com.

MWA Mission Statement "This corporation is formed to protect, preserve and promote the wise use of inland waters – lakes, streams, rivers, creeks and the waters and bottomlands of the State of Michigan.

[Michigan Waterfront Alliance](#)

[Membership Application](#)

Please help us in our efforts to be a legislative "Watchdog" to protect Michigan's Inland Lakes & Streams.

Annual dues:

Individual membership \$50 Lake Associations \$100

Corporations \$200

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Make checks payable to: Michigan Waterfront Alliance

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Michigan Inland Lake Partnership's Virtual Lake Learning Event Listing

Many organizations offer on-line learning opportunities throughout the year. For your convenience in helping to identify and track on-line events that may interest you, the **Michigan Inland Lake Partnership** has created a continually updated virtual event list that serves to highlight many current inland lake and water resources related on-line events. These organizations welcome participation by lake and water resource professionals, and the general public.

[Check it out today!](#)

