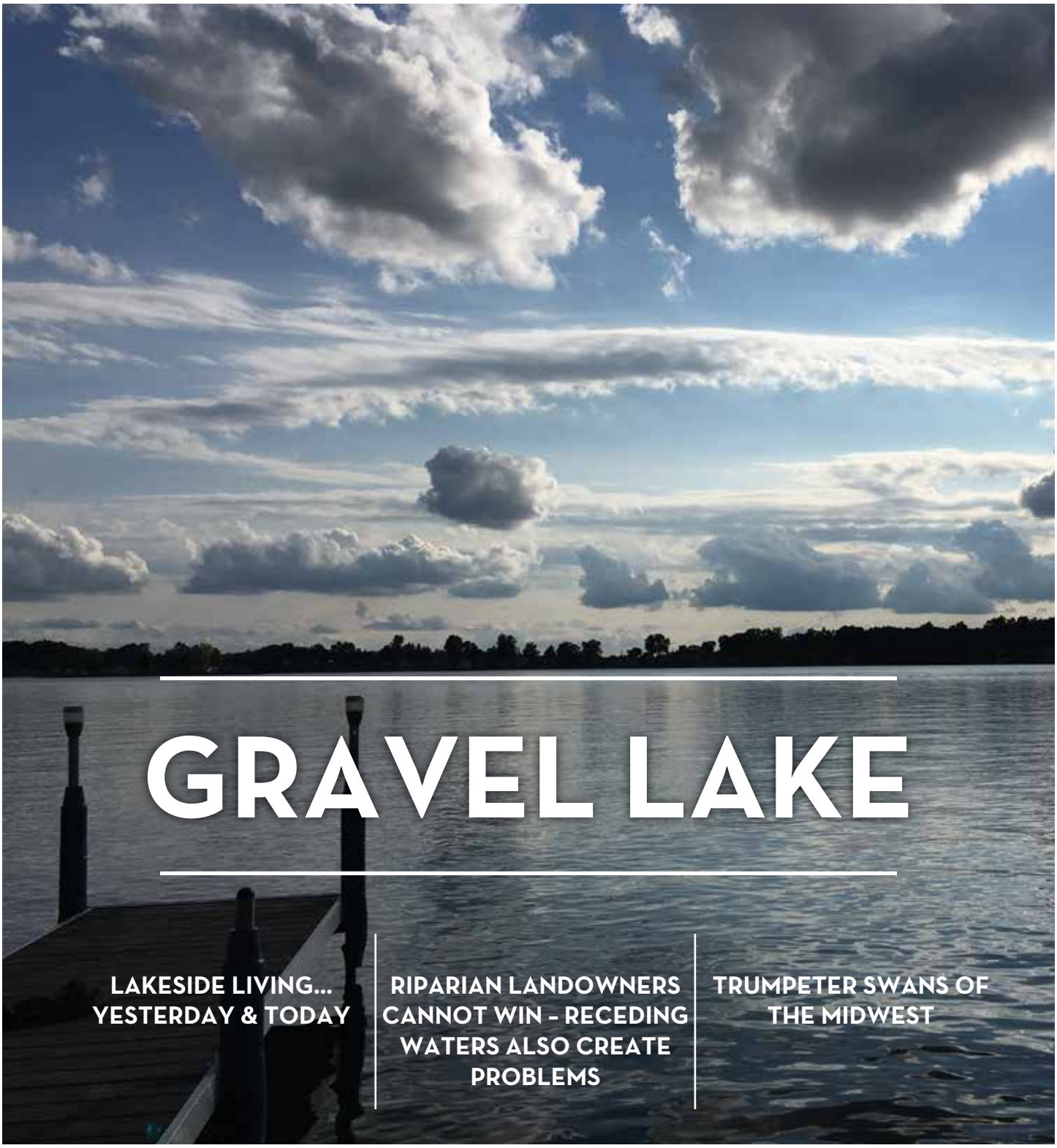
THE MICHIGAN
RIPARIAN
FALL 2021 | VOLUME 57 | NUMBER 4



GRAVEL LAKE

LAKESIDE LIVING... YESTERDAY & TODAY

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TRUMPETER SWANS OF THE MIDWEST

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FEATURE

IN EVERY ISSUE

THE MICHIGAN RIPARIAN
mi-riparian.org

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DIRECTOR'S NOTES

If you live on a water body in the state of Michigan, you know every year you could see a new situation. One year the invasive vegetation is under control, the weather is excellent, and life is great. The next year, invasive species take over, you can hardly paddle your kayak or drive your boat, or worse, toxic algae arrives and causes a fish kill. Those that live on the water have all the benefits of this life. However, with these benefits there is also added responsibility to act in a manner that preserves the gift of living near the water.

Everything is interconnected, especially around a lake and its watershed. What if septic systems are old and leaking, or road runoff buffers are not properly set up? They will probably run into your lake, but also your wells. What if there is a farm near your lake and they fertilize with chemicals or manure? What if an industrial business is close to your lake, or too many leaky boats put gas and oil in the water? Where does all this end up?

Many of our readers already have active and effective associations working every year to monitor and maintain your lake, pond, stream, river, and the watershed that feeds it. If you are not in one of these groups, please ponder the following: Even if your lake appears to be in very good shape, will it remain that way into the future? You and your neighbors have made a serious investment in lakefront property. Do you want to take the risk of inaction?

How do you handle current and new threats to your inland lake? Perhaps the best solution for your lake is to have residents work together in a cooperative framework, as the power of many is much greater than individual action to identify and find solutions to lake issues. By developing a partnership with other lake residents, you create a common bond to support your lake and share in responsibilities and expenses. Create your plans, communicate, and form resident agreements for lake management and funding options. Funding can be found through a variety of programs, but do not forget to budget for follow-up water quality evaluations to confirm if your efforts and investment worked.

If you have an association and past experience with identifying local issues, you may already have a lake management plan. Even if this is not the case, do not be put off. If you have funds, there are many private consulting groups with a long history of lake evaluation, research, management, and treatment solutions. You may be surprised by the expertise of your own lake residents who have been involved with water management in the past.

Talk with the DNR, EGLE, local universities, and government offices such as your local drain commissioner and planning authority. The good news is that there is a deep body of knowledge and expertise in Michigan since we have 10,000+ inland lakes and ponds. We have more than 700 registered associations for various water bodies that were formed with the goal of preserving, protecting, or educating citizens about water conservation and management. You can always start with the Michigan Lakes and Streams Association and MSU Extension.

Water protection starts with you: the lake, river, stream, and wetlands residents. Study your water body and local environment, identify any issues, and then talk with local, county, and state officials to understand zoning ordinances, laws, and rules. To make and implement an effective water protection program, go to the township and county planning commission, township board, and other meetings to build relationships with elected and appointed officials and start working to preserve your water!

LON NORDEEN | MLSA BOARD DIRECTOR

MLSA is a 501(c)3 nonprofit, statewide organization dedicated to the preservation, protection, and wise management of Michigan's vast treasure of inland lakes and streams.

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Frequently, lake associations, the press, educational institutions, and others request permission to reprint an article from *The Michigan Riparian* magazine in a newsletter, newspaper, or other publication. In general, *The Michigan Riparian* magazine is relatively liberal in granting permission for such reprints. However, no such reprint can be done without the express prior written permission of the magazine.

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RIPARIAN LANDOWNERS CANNOT WIN – RECEDING WATERS ALSO CREATE PROBLEMS

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Up until this spring, many citizens in Michigan were concerned about and faced extreme problems due to the record high water level conditions of the Great Lakes. Those problems stretched over several years given the continually rising lake levels. Happily, the water levels of Lakes Michigan and Huron began dropping significantly this past spring. Although water levels throughout the Great Lakes remain above their traditional historic average levels, the flooding problems have greatly diminished (at least for now).

As with any weather or climatological cycle, arriving at a different phase in the cycle often creates its own new problems. Although the overwhelming number of consequences resulting from dropping Great Lakes water levels are positive, some new problems have been created.

First and foremost, the "after" results of high lake levels and flooding will have to be corrected and repaired in many instances. Many docks, piers, boat ramps, and similar structures will need to be repaired or replaced. Some eroded areas and shorelines will have to be remedied, shored up, or altered. Many flooded structures and buildings will have to be either dried out, repaired and remediated, or torn down. One problem area that has not been discussed much publicly is the negative impacts of emergency erosion control items installed during the last few years along Lake Michigan or Lake Huron shorelines, pursuant to temporary or emergency permits, that now litter some beaches and shorelines of those lakes given the receding lake waters. Those temporary or emergency shoreline protection items include riprap (i.e. rocks) in general, huge boulders, seawalls, sand-filled bag structures, and other erosion control devices (collectively, "Barriers"). Some of those artificial shoreline Barriers are not problematic as they have been buried by beach sand and do not present an obstacle to beach walkers. However, other shoreline protection items such as the large boulders, broken cement, filled sandbags, and other items either present a safety hazard to beach walkers or constitute barriers blocking the ability of pedestrians to freely walk along the shorelines of the Great Lakes.

Pursuant to the so-called "beach walker" case decided by the Michigan Supreme Court in *Glass v Goeckel*, 473 Mich 667 (2005), members of the public have the legal right to walk between the waters of the Great Lakes and the ordinary high-water mark (the "public trust zone area") on any given stretch of beach or shoreline along the Great Lakes within Michigan. For several years leading up to this past spring, the *Goeckel* case really did not allow much legal beach walking without permission, as the waters of the Great Lakes were at or above the ordinary high-water mark. In other words, there was no dry strip of land between the ordinary high-water mark and lake waters where pedestrians could lawfully walk. However, now that the lake waters are receding, beach walkers would normally have the legal right to traverse the area between the lake waters and the ordinary high-water mark without permission from the adjoining riparian landowner. Now, in many areas, Barriers installed during the past few years to protect the shoreline impede the ability of beach walkers to walk within the allowed dry area between the lake waters and the ordinary high-water mark.

Unfortunately, it does not appear that the state or federal agencies that issued the emergency or temporary permits for Barriers during the past few years included within the permits the requirement that the Barriers be removed if they represent a safety hazard or block the lawful areas used by beach walkers once the waters recede.

It is likely that lawsuits will begin to emerge by beach walkers or public interest groups that will force riparian property owners along the Great Lakes within Michigan to remove some of the Barriers from the beach that were installed during the high-water emergency if they either

present a safety hazard to beach walkers or block the routes of citizens walking the beach within the public trust zone area. It is also possible that the United States Army Corps of Engineers and the Michigan Department of the Environment, Great Lakes, and Energy ("EGLE") may require the removal of such items even though the permits that authorized their installation did not require their removal once waters recede. The low water levels may also allow some riparians to replace unsightly, environmentally problematic, or impediment barriers with more reasonable permanent barriers that are safe, less visible, and do not impede pedestrians.

Municipalities along the Great Lakes shores in Michigan (which can include cities, villages, and townships) may have ordinance authority and jurisdiction to require that impediments to lawful beach walking be modified or removed, notwithstanding state or federal emergency permits for those Barriers. In that situation, it is probable that the riparian property owners involved (and even the state or federal government) may argue that the local municipality is "preempted" (i.e. precluded) from enforcing such an ordinance due to the supremacy of state or federal statutes, although it is not clear that such a preemption argument would prevail in court.

What remedy might beach walkers or local municipalities have to require that unreasonable impediment Barriers along the Great Lakes shorelines be modified or removed to allow beach walkers to freely traverse the public trust zone area along the Great Lakes? Generally, there are three possibilities as follows:

a. File complaints with the Army Corps of Engineers and EGLE.

b. Petition the local municipality to enact an appropriate ordinance to remedy the situation.

c. File and pursue a civil lawsuit alleging improper impairment of the public trust zone area along the beach.

Notwithstanding any climate change, one thing is certain: the waters of the Great Lakes will generally rise and fall during various cycles, even if the cycles themselves are somehow interrupted.

ARE YOU LOOKING FORWARD TO YOUR NEXT MEETING?

MELISSA DESIMONE | GRAVEL LAKE ASSOCIATION SECRETARY

I have to admit, I love a good meeting. Every time I tell someone this, I am met with confused faces and disbelief but it is true. I attribute this reaction to all the bad meetings people have endured in their lives. I have been involved with many types of organizations and meetings run by all sorts of people. Some meetings had an official parliamentarian overseeing the process; the best. Other meetings had no agenda and a lot of people who just wanted to complain about their personal issues; not the best. My enthusiasm for good meetings comes from the positive energy of a group of people coming together with a common interest and purpose. If there is one thing I've learned from working with my lake association all these years, it is that a well-run meeting is possible. There are a few factors that make a meeting flow smoothly and allow participants to come away with a sense of accomplishment.

WHEN IS OUR NEXT MEETING?

Make it part of your board process every year to set all the meetings for the following year in advance. If everyone has all the meetings for 2022 on their calendars now, they will be more likely to keep those dates and plan around them when booking other meetings and family activities. Our Association meets April through October, and at the October meeting we set the calendar for the following year, including the full membership meetings, social events, and other priorities. If we are unsure about an activity, we put in tentative dates so we can revisit those events as soon as possible, likely at the April meeting. Provide the calendar in a few different ways to help people store the information in a way that works for them. Some people like a paper copy; we publish ours in our association newsletter and have it on the back of meeting agendas. We send

board members a calendar invitation so they can see it in their calendar app. Additionally, we email everyone the calendar if they want to print it out for their fridge or save it to a folder on their computer.

ARE WE MEETING ONLINE OR IN PERSON?

As for where and how to participate, we have found that moving forward from pandemic life we have mixed interest in virtual as well as in-person meetings. Your group may need to discuss which format is right for you and how to execute those options. We are looking into a hybrid option to try to accommodate as many people as we can. Communication about how people can participate is most effective if it is consistent and also provided through various media: email, text groups, and Facebook are all methods we find useful.

WHAT'S ON THE AGENDA?

The agenda should drive the meeting. The more detailed and consistent the agenda, the better your group will be at accomplishing your goals. Our group uses a very traditional agenda format that does not change and works for all of our business needs. Your association may have different needs and priorities; if our format doesn't work for you, there is likely another you can find by searching online that is better suited.

(CONTINUED ON PAGE 10)

SAMPLE ASSOCIATION 2021 CALENDAR

Date	Event	Notes
Saturday, April 10, 2021	Board Meeting	
Saturday, April 17, 2021		
Saturday, April 24, 2021		
Saturday, May 1, 2021		MLSA Conference on Friday
Saturday, May 8, 2021	MLSA Region Meeting	Mother's Day weekend
Saturday, May 15, 2021	Board Meeting	
Saturday, May 22, 2021		
Saturday, May 29, 2021		Memorial Day weekend
Saturday, June 5, 2021		
Saturday, June 12, 2021	Membership Meeting	
Saturday, June 19, 2021	Community Garage Sale	Father's Day weekend
Saturday, June 26, 2021		
Saturday, July 3, 2021	4th of July	Observed Monday
Saturday, July 10, 2021	Board Meeting	
Saturday, July 17, 2021		
Saturday, July 24, 2021		
Saturday, July 31, 2021		
Saturday, August 7, 2021	Poker Run	
Saturday, August 14, 2021		
Saturday, August 21, 2021	Membership Meeting + Picnic (Tentative)	
Saturday, August 28, 2021		
Saturday, September 4, 2021		Labor Day weekend
Saturday, September 11, 2021	Board Meeting	
Saturday, September 18, 2021		
Saturday, September 25, 2021	MLSA Region Meeting	
Saturday, October 2, 2021		
Saturday, October 9, 2021	Board Meeting	Indigenious Peoples Day
Saturday, October 16, 2021	GL Fall Festival	
Saturday, October 23, 2021		
Saturday, October 30, 2021		Halloween

ARE YOU LOOKING FORWARD TO YOUR NEXT MEETING?

(CONTINUED FROM PAGE 9)

SAMPLE ASSOCIATION
BOARD OF TRUSTEES MEETING AGENDA
DATE

I. Opening Remarks

II. Roll Call

III. Approval of minutes

IV. Treasurer's Report

V. Officers' and Committee Reports
   - A. Secretary
   - B. Newsletter Editor
   - C. Internet Operations
   - D. Fundraising
   - E. Water Quality
   - F. AIS control

VI. Old Business
   - A. Item(s)

VII. New Business
   - A. Item(s)
   - B. Other new business
   - C. Next Board of Trustees meeting – date, location
   - D. Next Membership meeting - date, location

VIII. Announcements

IX. Adjournment

AM I SUPPOSED TO GIVE A REPORT?

Sometimes when you ask someone during a meeting to give a report they will speak off the top of their head because they didn't think about it before being called on. The report ends up being long-winded and maybe even unnecessary because there really wasn't anything to report after all. Asking people ahead of the meeting will help them give their report some thought. If there is nothing to report then you can save some time during the meeting by moving on to the next item on the agenda. It is also possible that reports can be provided in advance for participants to read on their own. In this way, meetings can be more focused on the questions or highlights that were in the report instead of rehashing everything in person. The drawback to this method is that not everyone reads the reports ahead of time. You should have open dialogue about this (put it on the agenda as a business item) so people can provide feedback on what is most effective for them. For example, the Gravel Lake Association had a discussion about this issue and decided that we do want to hear from all officers and committees in person, even if they don't have anything to report. The board decided that since we only meet once a month, we don't mind meeting a little longer than an hour to allow time to hear from all the committees.

DO WE HAVE TO USE ROBERT'S RULES OF ORDER?

The official answer is no; there are quite a few ways to lead a meeting. The important point is that the chair needs to actively lead the meeting. Many of the negative encounters you've had with meetings are likely situations where the chairperson is not taking charge of the discussion. If the chair is not keen to keep people on topic or give everyone an equal chance to speak, then the participants aren't going to feel empowered to speak up, or do their part either. Side conversations erupt, people who enjoy an audience will start getting off track, and that's when the chair needs to be willing to step up and bring the group back to order with or without a gavel; of course a gavel was created for a reason. When participants disregard the agenda it is the responsibility of the chair to remind them of the rules under which the group operates. Votes should be taken in a consistent manner and topics should be addressed with objectivity in order to uphold the integrity of the organization. If your association has not adopted a structure, then you will want to put that on your next meeting agenda, too.

As always, be sure to reach out to Michigan Lakes and Streams Association if you need help, and look for the companion newsletter for this issue of the magazine in your email inbox for additional resources. If you don't subscribe to our free monthly newsletter, please do so on our website, at mymlsa.org.

ASK THE EXPERTS

QUESTION: MY TOWNSHIP JUST PROPOSED A NEW ORDINANCE THAT OUR COMMUNITY DIDN'T KNOW ABOUT UNTIL THE LAST MINUTE. HOW CAN WE MAKE SURE WE KNOW WHAT'S GOING ON?

ANSWER: Though we live in an age where we have all manner of information at our fingertips, Michigan townships are not legally required to do more than publish in a local newspaper or post notifications in a handful of public places. Large and populous townships may have a listserv you can sign up for to stay informed but many of our lake and stream associations are in smaller and more rural communities without these advances in communication. You can read the legal requirements for township notifications here:

The following excerpt is from Michigan Compiled Laws Complete Through PA 46 of 2021. The full list of township regulations can be found at legislature.mi.gov.

> 42.8 Charter township board; monthly publication of proceedings; notices and ordinances; posting. Sec. 8.
>
> (1) The proceedings of the township board shall be published at least once each month. A publication of a synopsis of the proceedings, prepared by the township clerk and approved by the supervisor, showing the substance of each separate proceeding of the board is in compliance with this section.
>
> (2) The board shall determine the method of publication of all notices, ordinances, and proceedings for which the method of publication is not prescribed by law.
>
> (3) In making a determination under subsection (2), the board shall require one or both of the following: (a) That publication be made in a newspaper published and circulated in the township or, if no such newspaper exists, then in one published in the county in which the township is located. (b) That publication be made by posting in the office of the clerk and in five other public places in the township or by posting in the office of the clerk and on the township's website.
>
> (4) If publication is made by posting under subsection (3)(b), a notice of the posting describing the purpose or nature of the notice, ordinance, or proceeding posted and the location of the places where posted shall be published at least once in a newspaper as required under subsection (3)(a) within seven days of the posting.

What do you do if you don't read the newspaper or visit the post office regularly? The answer for concerned communities is to attend township meetings. Townships will have a set meeting schedule throughout the year, making it relatively easy to have a delegate from your association at each meeting in order to report back to the board and/or full membership. In addition to showing up, it would be even more impactful to have a member of your community on the board and/or planning commission to make sure the interests of your lake or stream are represented. Ordinances, zoning changes, and land use should all be of great concern to our lake and stream associations; all of these are controlled by the township. We assume that local governments, closest to us and part of our community, will understand our interests. However, communication is a two-way street and you need to take an active role in the exchange of information. When is your next township meeting?

Another way to keep your township informed about riparian issues is to put them on your association subscription list for *The Michigan Riparian* magazine so they can receive our content each quarter. The Michigan Lakes and Streams Association sends each issue of our magazine to all state representatives and senators, the governor, and the heads of the DNR and EGLE because we believe in keeping our elected officials and agencies informed. Our 2021 Riparian of the Year, Carol Kuesel of Spider Lake, even recommends emailing your township board members to highlight articles you think they should read when each magazine comes out. Thanks for that tip, Carol.

MELISSA DESIMONE | MLSA EXECUTIVE DIRECTOR
melissa.desimone@mymlsa.org

THANK YOU

FOR YOUR AMAZING SERVICE

We would like to thank John Wilks for his many years of dedication to the Michigan Lakes and Streams Association as Director and Vice President. We wish John and his wife, Nancy much happiness in their lives on Indian Lake in Vicksburg.

If you have interest in becoming more involved with Michigan Lakes and Streams Association, please reach out to us for future board of director and volunteer opportunities.

PHOTO CREDIT: AMY LYYSK
TRUMPETER SWAN 7J

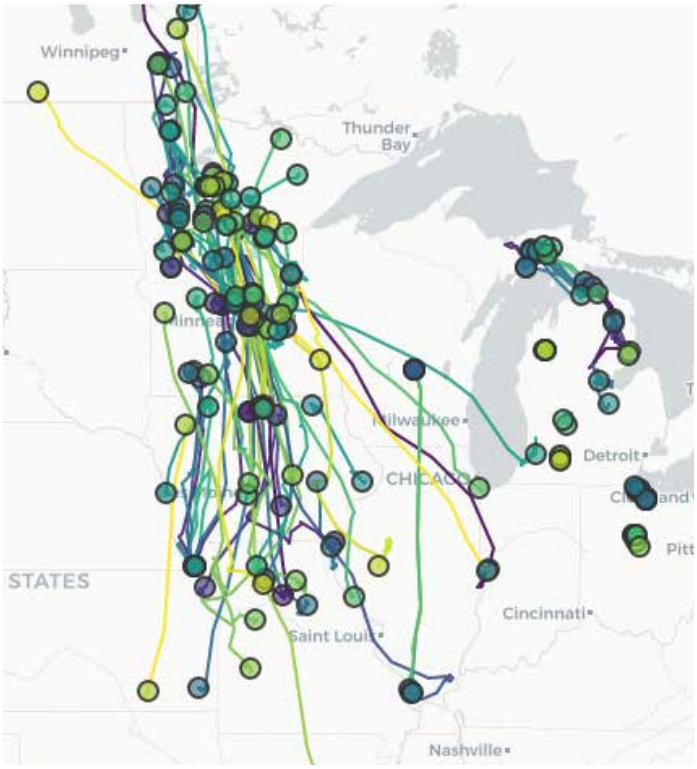
TRUMPETER SWANS OF THE MIDWEST

BRENDEN KOKX | AVIAN CARE SUPPORT TECHNICIAN FOR MSU'S W.K. KELLOGG BIRD SANCTUARY

Imagine you find yourself outdoors one autumn somewhere in the midwestern U.S. The brisk fall wind greets your face as you trek through the painted woods. Oak leaves are hanging onto branches overhead, fighting to find their final resting place on the forest floor. Bright yellow and vibrant red maple leaves create a mosaic rug as you gaze along the path before you. Nature's very own "red carpet" guides you to the end of the trail; an inland lake. As you stop to admire the beauty of the golden rays bathing the lake in a sort of glimmering dance, you are interrupted by the sound of wings beating through the air. "PHHUMMP PHHUMMP PHUMMP PHUMMP" and then finally "SPLASHHH". You shift your attention immediately to the lake, and are gifted with the sight of two beautiful, strong, large white birds. Within a few minutes of landing, the two begin an intense duet of battling bugles, as their heads vigorously bob up and down.

For any birder, this is the moment you know you are in the presence of one of the most charismatic waterfowl you can find, the Trumpeter swan (Cygnus buccinator). As you admire the striking white swans swimming against a backdrop of fall color, you might wonder, "Where do these swans go in the winter? I know geese migrate, but do swans?" Luckily, some extremely dedicated scientists partnered throughout the Midwest to answer that question, along with others, in a study called "Interior Population Trumpeter Swan Migration Ecology and Conservation."

Trumpeter swans are native to the United States, and now have breeding populations throughout the Midwest, including the states of Michigan, Minnesota, Iowa, Ohio, and Wisconsin. However, it was not long ago when an autumn walk by a midwestern lake would've been much quieter. In the 1960s, the breeding population along the Mississippi and Atlantic flyways, which the study refers to as the interior population, was estimated at less than 3,800 individuals. With extremely hard work by countless dedicated people, the Mississippi and Atlantic flyways have slowly been restored to an estimated 27,000 individuals, as of data produced in 2015.



MIGRATION PATTERNS OF TRUMPETER SWANS IN THE MIDWEST

What does the study of the Trumpeter swans interior population tell us about where they go in the winter? Will they migrate to Florida for the winter like many Michiganders? Well…no. As it turns out, the swans collared in Michigan as a part of this study mostly stayed for the winter. Out of the twelve Trumpeter swans collared in Michigan, only two were tracked travelling more than 100km from their summer range. This is an interesting contrast to those in Minnesota, where five of the seven collared Trumpeter swans flew more than 100km from their summer habitat to winter in states like Missouri and Arkansas. A more detailed look at the Trumpeter swans' locations showed that many of the birds who stayed had the opportunity to winter on open waters, such as large rivers. Here at the W.K. Kellogg Bird Sanctuary, Wintergreen lake is outfitted with several aerators, which ensure our residents have open water all year round. This is likely one reason that we have so many Trumpeter swans visit us throughout the winter season.

GRAVEL LAKE

ANNA, LIZ, AND JIM MCGREAL | GRAVEL LAKE ASSOCIATION

There are a number of things that make Gravel Lake unique, but the one draw that keeps people coming back is the strong sense of community. You can't help but make lifelong friends at Gravel Lake. Neighbors check in on one another and watch each other's children grow up. We have a strong association and we care about lake health. We may not all agree on everything, but we all look forward to our time at the lake. Houses and cottages alike are packed full on weekends and summer holidays. We have various community activities planned each summer, a seaplane that loves to cruise around, taking off and landing on the water, and a retired U.S. Army Master Sergeant who plays Taps every night at sunset. We gather with friends and neighbors around bonfires in the evenings, swatting at mosquitoes, and roasting marshmallows. The kids get to grow up in a way reminiscent of days past, when you knew what time to go in by how dark it was outside. There are sparklers and friendly King of the Raft fights, fishing off the pier and catching fireflies, and of course, hours spent swimming in the clear, cool water. As we like to say at Gravel Lake, "Life is better at the lake".

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GRAVEL LAKE

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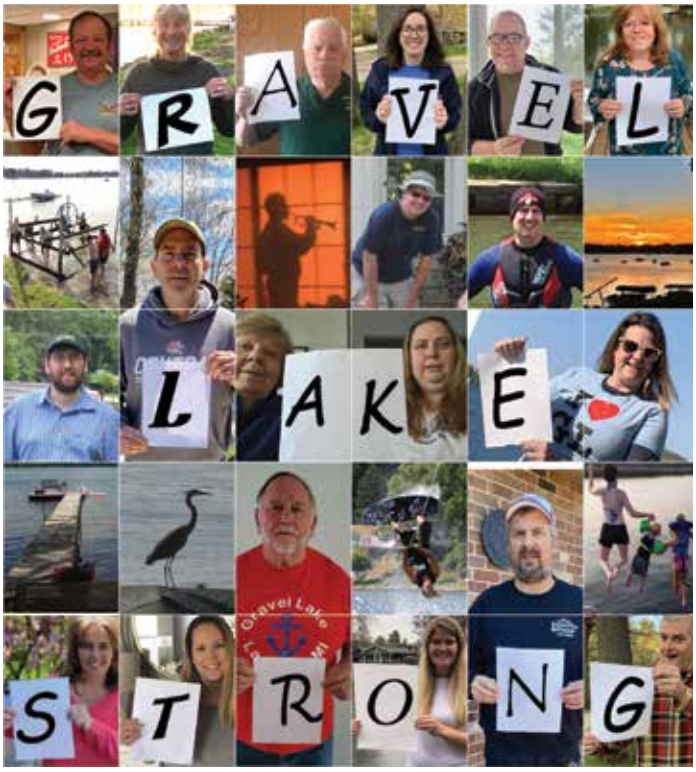
GRAVEL LAKE

Gravel Lake is a 296-acre, spring-fed, freshwater lake that is 51 feet deep at its deepest point. It is three miles around; the perfect distance for a morning walk. Located in southwest Michigan, Gravel Lake is a sanctuary to both weekend warriors and full-time residents. Despite its name, most of Gravel Lake has a firm, sandy bottom, not gravel. The lake has an outlet (spillway) which flows into Saddlebag, Big Fish, Finch, and Bunker Lakes before joining the Dowagiac River, then the St. Joseph River, which flows into Lake Michigan.

The lake and the surrounding area have embodied significance to the Pokagon Band of Potawatomi and many other Native American communities for countless generations. Ancient burial mounds adjacent to the lake serve as a reminder that Native Americans also once called this area home. A local archaeologist said they are between 1,500 and 3,000 years old. It is interesting to think back to what purpose the lake served for the Native Americans so long ago.

Gravel Lake has so much to offer, yet the lake itself is only part of the allure. It has a well-formed and active association whose main purpose is protection of the lake for future generations through information and education. The association maintains a regular, open dialogue with the Michigan DNR, Porter Township board, the Van Buren County Sheriff Marine Patrol, and is an active member of the Michigan Lakes and Streams Association. The Gravel Lake Association sponsors the Fourth of July activities, which include the Paddle Boat Regatta, the Fun Run/Walk, the Boat Parade, and the Kids Games. Other activities include the annual picnic, the Poker Run, and a Halloween Fall Festival for the kids. These events nurture the feeling of community and bring people together. There is also a newsletter, an active Facebook group, and a well-developed



> "Life is better at the Lake"

website for the lake. Additionally, new owners receive a basket full of Gravel Lake goodies as a welcome gift.

Gravel Lake's healthy ecosystem, in part due to installing a sewer system around the lake in 2010, promotes a variety of wildlife including turtles, frogs, crayfish, and various mammals such as muskrats and beavers. On any given day, there can be sightings of blue herons, sandhill cranes, swans, seagulls, Canada geese, ducks, and bald eagles, along with some resident ducks kept as pets. There is also a variety of fish, including largemouth bass, bluegill, yellow perch, yellow and brown bullhead, white sucker, bowfin, black crappie, hybrid sunfish, pumpkinseed and walleye, with a small percentage of northern pike, smallmouth bass, grass pickerel, green sunfish, and warmouth bass. A small sandbar reed bed and increasing number of natural shorelines have encouraged wildlife to make Gravel Lake home as homeowners learn to live in harmony with nature.

(CONTINUED ON PAGE 20)

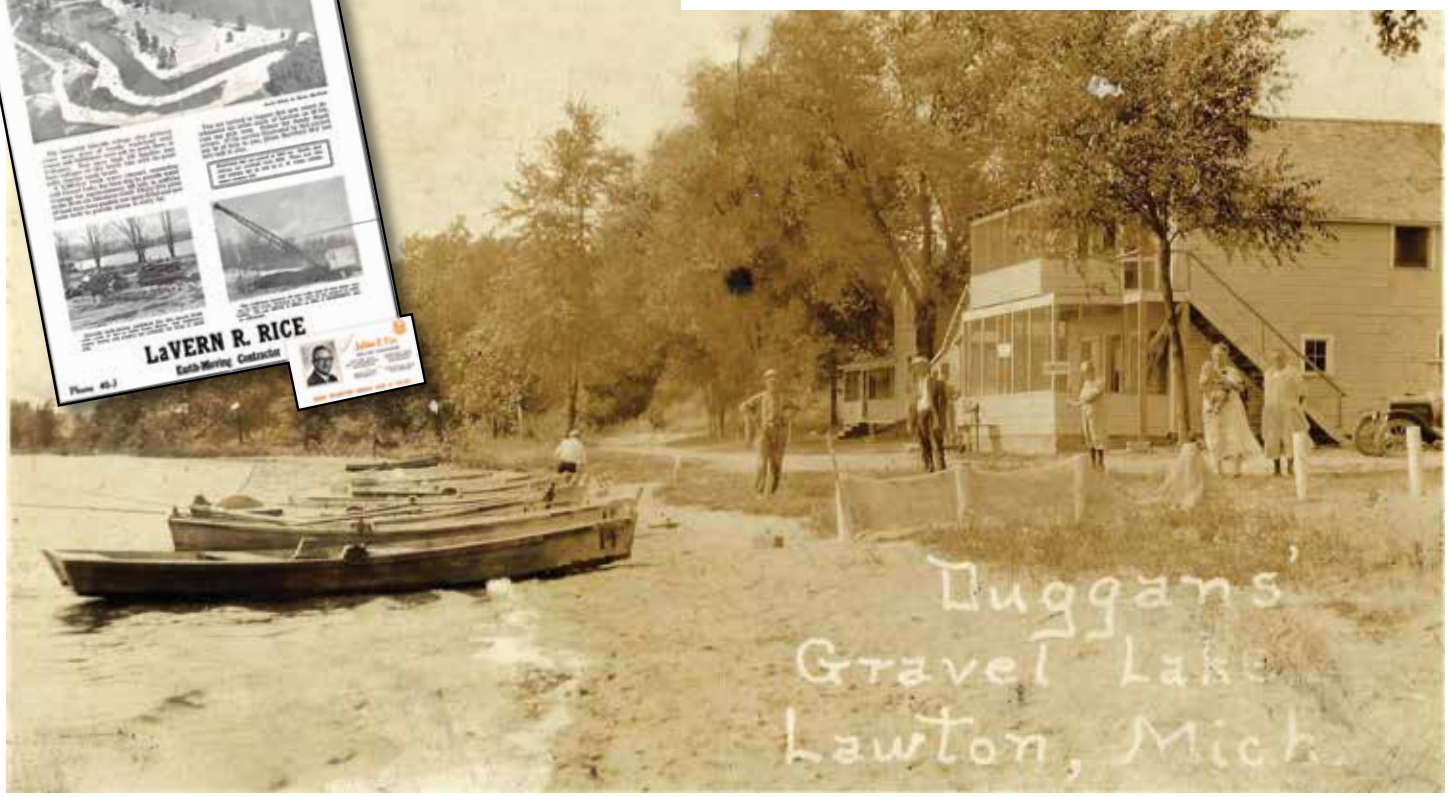
GRAVEL LAKE

(CONTINUED FROM PAGE 19)

THE HISTORY

Gravel Lake is highly developed and has been populated since the 1920s due to its proximity to Chicago, with several four or even five-generation families still residing on the lake. New families have discovered the lake from other parts of Michigan, Indiana, and Illinois, and rarely leave once they do. There are numerous stories of people who visited as guests, only to buy their own home at Gravel Lake as soon as the opportunity arose. There are approximately 320 homes around the lake between lakefront properties and backlots, with more residents staying year-round as families convert cottages into permanent lake houses to enjoy the winter at Gravel Lake.

Gravel Lake wasn't always densely populated. Roughly one hundred years ago there were only campgrounds and primitive fishing cottages with outhouses scattered sparsely around the lake. A two-story tavern with row boat rentals was also built on Dugan's Landing, along with an inn for loggers from Chicago to stay at named Pete's Chicago



Resort or Pete's Landing. Travel was a good six hours from Chicagoland, at a time without expressways, in a Model T Ford with a maximum speed of 40 miles an hour.

THE BEACHES OF GRAVEL LAKE

Gravel Lake is divided into ten distinct beaches, each with its own history and story of how its name came to be. While they have changed over time, the current beaches are Chamberlin Beach, Dugan's Landing, Gebhard Beach, Huff's Landing, Idle Ease Beach, Lewis Beach, Sandy Beach, Streeter Beach, Willow Beach, and Winkler Beach. On the Gravel Lake website (gravellake.org), history of the lake is captured with video interviews of residents who have lived here for many, many years. Some of our more "seasoned" Gravel Lake residents remember a time when there was an ice cream parlor, with a soda fountain in the back on what is now Streeter Beach. Hearing their stories and watching them take a trip down memory lane is always a treat. The following are anecdotes about several of the beaches.

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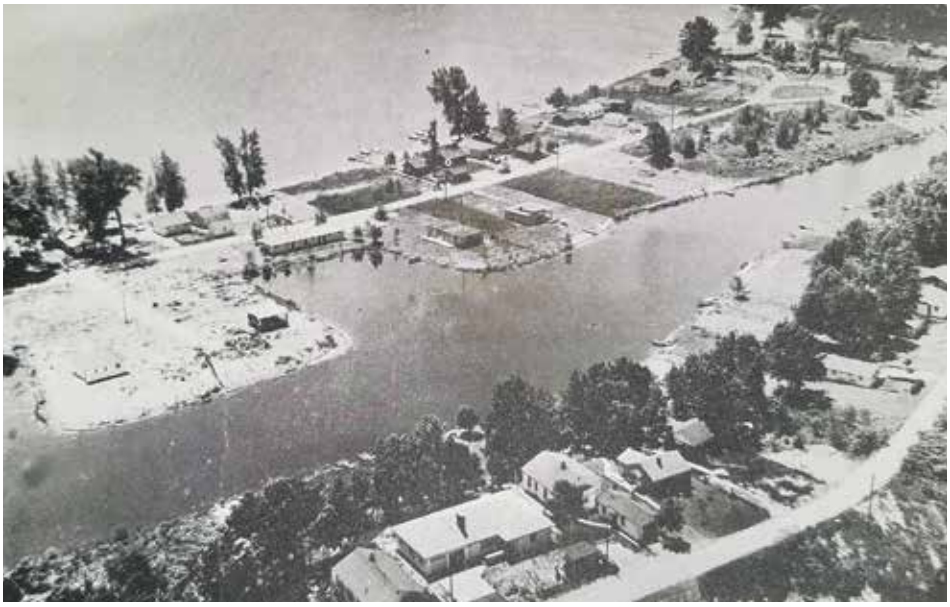
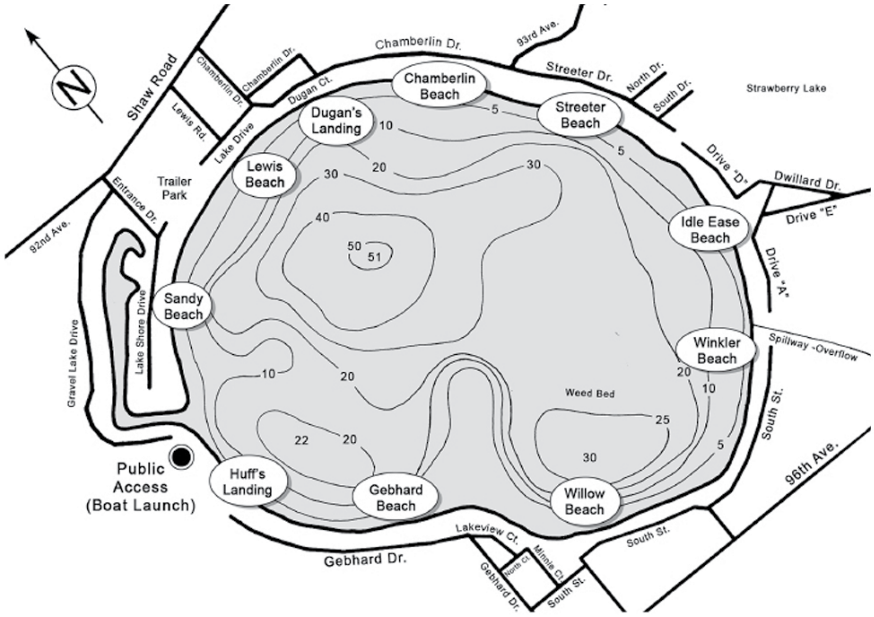




GRAVEL LAKE

(CONTINUED FROM PAGE 21)

Streeter Beach was named after Streeter Farm which was plotted all the way down to the lakeshore with cottonwood and poplar trees. The farmer rented out the extra cottage next door and had the luxuries of a tennis court and miniature golf. Early families who are still on the lake pass stories down of their ancestors bringing lumber for construction, and building their family homes on Gravel Lake as early as the 1920s.

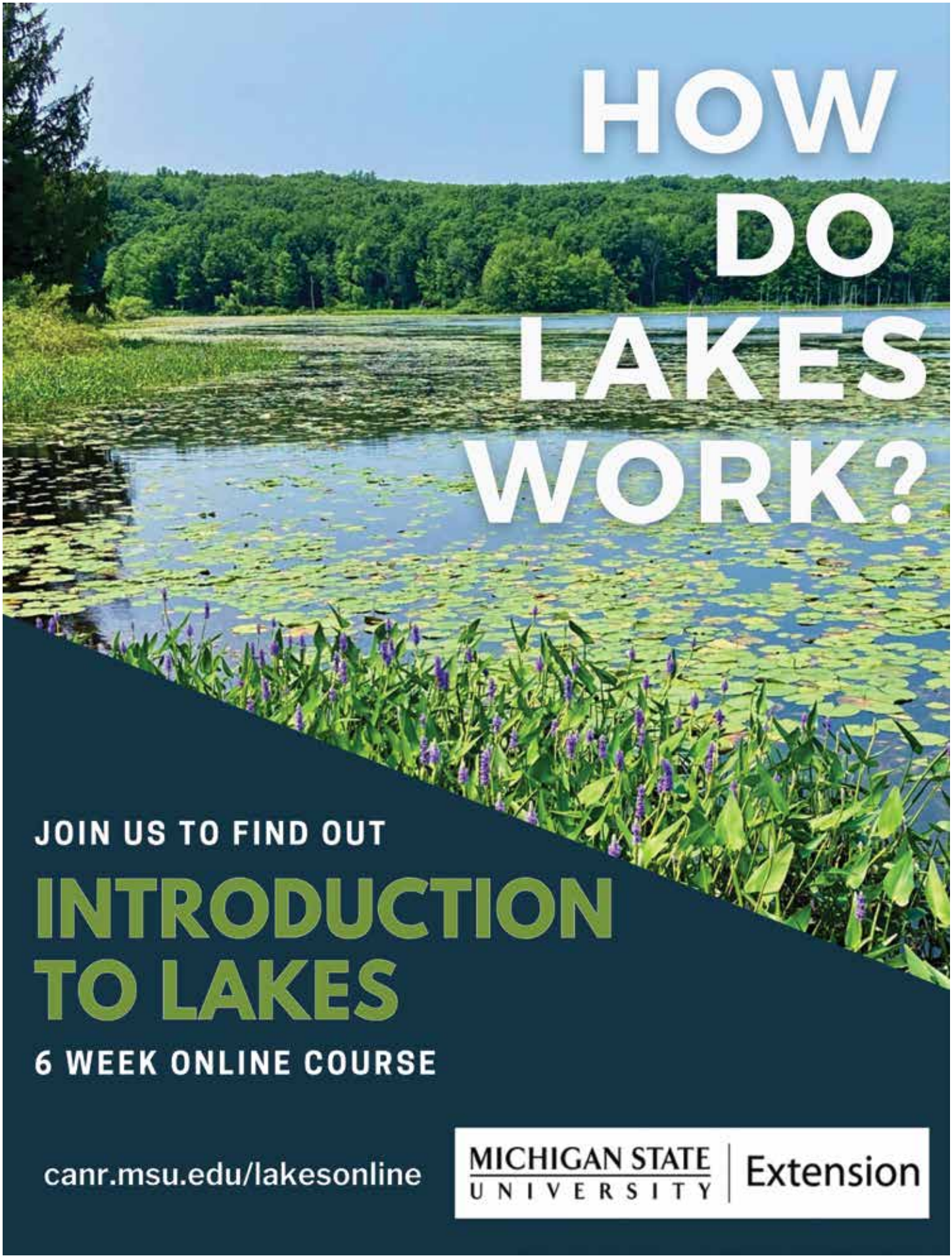
Oral legends speak of Freddie Winkler of Winkler Beach giving children hayrides in the 1930s on Friday nights into a local town for ice cream and a movie.

Sandy Beach was created in the late 1940s after World War II. A real estate developer orchestrated the creation of the 2500 ft. long man-made channel, and provided 100 lots with waterfront property, making this the only man-made beach on the lake. Each lot started at $550 and went up from there. The Sandy Beach real estate flyers read like the remnants of a different time. While today's Americans crave pristine, untouched nature and flock to national parks to see it, an article from the 1940s gives the credit and awe to human achievement over nature: "The beautiful lakeside cottage sites pictured above were acres of brushy wasteland until cranes and bulldozers were put to work there in February."

Willow Beach has been a gathering spot for the community for generations. Early reports speak of a "Chicago Retreat" for the gangsters and their wives and children when the weather got too hot in Chicago. A candy store located on Willow Beach in the past brought families by boat, bicycle, foot, and car to enjoy slushies, penny candy, and ice cream. The store closed only ten years ago.

GRAVEL LAKE OR BUST

The history, the community, the activities, the lake itself—there are so many ways to appreciate Gravel Lake. Ask any Gravel Laker and they will tell you that the place to be in the summer is the lake. We skip summer weddings and make up excuses to get out of other obligations, just to sneak in one more weekend at the lake. Some of our friends might grow irksome at this, but that's okay; we have more friends at the lake.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ALGAE IN OUR INLAND WATERS:
TYPES, ROLES, AND MANAGEMENT

DR. JENNIFER L. JERMALOWICZ-JONES, CLP | MLSA SCIENCE ADVISOR

INTRODUCTION

Algae come in many forms and were amongst the first organisms on our planet. Different classification groups of algae commonly found in freshwaters include the notorious Cyanophyta (blue-green algae), Chlorophyta (green algae), Bascillariophyta (salicaceous diatoms), Chrysophyta (golden algae), Rhodophyta (red algae), and the Pyrrophyta (dinoflagellates). The red algae are rare in freshwater ecosystems but approximately 180 species do exist (Guiry, 2012). The red algae genus *Batrachospermum* is occasionally found in freshwaters and prefers cooler temperatures (Graham and Wilcox, 2000). The blue-green algae have received abundant press in recent years due to substantial outbreaks (called blooms) that have been labelled as HABs (harmful algal blooms; figure 1) due to the presence of algal toxins that many species produce. Such toxins can be harmful to human and animal health, as well as to the aquatic ecosystem. Green algae have received less recent press but continue to be abundant in many nutrient-rich (eutrophic and hyper-eutrophic) lakes or even some lakes that are moderate in nutrients (mesotrophic). Additionally, green algae are usually the most abundant algae found in freshwater ecosystems and are present in filamentous, planktonic, epibenthic (on sediments), epilithic (on rocks) or epiphytic (attached to plants or other natural substrates) forms, many of which co-exist in most lakes and streams. While green algae do not form toxins, they are capable of growing to dense, nuisance levels and creating issues for lake recreation, navigation, and lake balance (figure 2). Some examples of their forms range from long filaments with coiled chloroplasts (i.e., *Spirogyra* sp.) to single rounded cells such as in *Chlorella* sp. (which has become a widely used nutritional supplement). *Spirogyra* has a very broad tolerance to different water quality parameters and thus is found in many different lake types (Hainz et al. 2009). *Cladophora* is a green algae common in Lake Michigan and other lakes, and has been found to increase when zebra mussels are abundant and increase water clarity, which increases the depth at which it can colonize (Higgins, 2004). Blue-green algae may also grow as single cells, colonies of cells, or filaments as in the green algae. Both the blue-green algae and green algae produce chlorophyll-a pigment, which is the primary growth pigment located in the chloroplasts where photosynthesis occurs and primary production happens. Additional information on the roles of common algal types and appropriate management are offered in the sections below.

FIGURE 1. A BLUE-GREEN ALGAL BLOOM ON AN INLAND LAKE

ROLES OF ALGAE IN AQUATIC ECOSYSTEMS

The primary role of algae in aquatic ecosystems is to provide food to zooplankton and other aquatic life that forms the base of the food chain. This is why algae are called *primary producers*. The algae use water and carbon dioxide to form sugars,

FIGURE 2. NUISANCE GREEN ALGAE IN AN INLAND LAKE

which allow the algae to grow and also produce valuable oxygen. The oceans, for example, provide oxygen to the atmosphere through abundant algal production. Thus, algae are critical for human life but may also negatively affect human life when over-abundant and capable of toxin production (such as the blue-greens). The blue-green algae have been on the earth for billions of years, and thus have evolved many mechanisms for enhanced and accelerated growth. They occupied the earth's biosphere for at least one billion years and produced the oxygen needed for life on our planet (Graham and Wilcox 2000). One such adaptive mechanism is called *programmed cell death*, where the algal communities can detect a stressor such as intensive ultraviolet radiation, heat, or algaecides, and program their population to decline prior to surging when environmental conditions improve. These algae have distinctive and abundant gas vacuoles that allow them to aggregate on the water surface and thus harness light energy for accelerated growth. After significant wind events they may dissipate but may quickly re-form when the lake waters calm. They are also capable of fixing their own nitrogen as a food source which allows them to use nitrogen for accelerated growth when a limiting nutrient, such as phosphorus, is not abundant. This gives them a competitive edge over green algae which do not have this capability. This process can be beneficial in some situations such as when blue-green algae grow within water fern tissues and contribute nitrogen for rice paddy production, which is a major global food source for humans. Diatoms (figure 3), although usually moderate in abundance may also produce "blooms" that usually impart a brownish color to the water; however, these blooms are more abundant in early spring and late fall, and often correspond with lake turnover events. The following section focuses on responsible management of

(CONTINUED ON PAGE 26)

ALGAE IN OUR INLAND WATERS:
TYPES, ROLES, AND MANAGEMENT

(CONTINUED FROM PAGE 25)

nuisance blue-green and green algal blooms, as they are the most prevalent in lakes and often require some degree of management. These blooms occur in nutrient-rich waters which includes large lakes such as Lake Erie, Grand Lake St. Marys in Ohio, and Lake St. Clair.

RESPONSIBLE MANAGEMENT OF NUISANCE ALGAE IN AQUATIC ECOSYSTEMS

All types of algae respond to increases in nutrients to waters, but blue-green and green algae can grow to nuisance levels with even brief exposure to increased light and water temperatures. The addition of nutrients to these conditions can result in excessively dense algal blooms. Blue-green algae such as *Microcystis aeruginosa* have been shown to be limited by nitrogen (Gerloff and Skoog, 1957) and thus reduction of nitrogen in some lakes could reduce the growth of that alga. Green algae has been shown to decline in oligotrophic (nutrient-poor) waters and thus reduction of phosphorus and nitrogen is key to reducing this algae. Any implemented management method should be ecologically responsible with minimum negative impact on the ecosystem health, and also economically efficient while yielding a high benefit to cost ratio or return on investment.

Copper-based algaecides have traditionally been used to reduce green algae, but bioaccumulation in lake sediments has become a concern to benthic biota. Thus, chelated-copper algae formulas were created for safer use. Newer experimentation with bioaugmentation to create a competitive environment for other favorable algae is also being conducted with some promising results. In smaller water bodies, the use of barley straw infusions or fountains may reduce the density and presence of green algae; however, shallow water depths are prone to higher water temperatures and exposure to light, and thus those environments facilitate greener algae growth. Filamentous algae usually forms during calm water periods after extensive warm periods, and planktonic green algal blooms usually form after intensive rainfall events that contribute pulses of nutrients. The treatment of planktonic green algae is usually not recommended, as these dissipate quickly and usually encompass vast areas of open water where product application may be harmful to the lake volume and would be temporary until the next rainfall event.

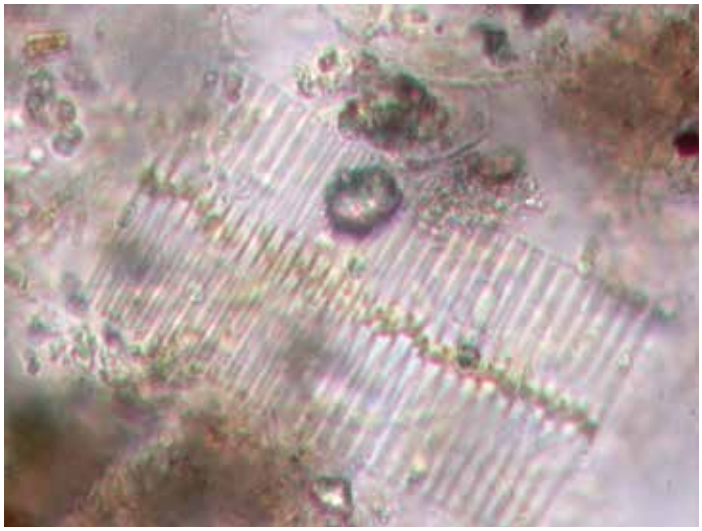

FIGURE 3. FRAGILARIA, A DIATOM

Treatment of blue-green algae is even more challenging due to the programmed cell death mechanism and ability of the blue-green algae to colonize the surface layer and reduce other algal types, thereby reducing competition from other algae. Treatment of blue-green algae with the use of copper-based algaecides is not recommended, as this can result in the release of cell toxins and is very short-lived. A product such as copper sulfate pentahydrate can be used to reduce the phosphorus in the water column while reducing dense green filamentous or blue-green algal blooms. Blue-green algae can also be successfully reduced with nutrient inactivation technology (such as alum or phosphorus inactivation products) or with the use of aeration, such as that used in drinking water reservoirs to reduce blue-green algae. Implementation of lake-wide sewer systems or proper maintenance of septic systems and drain fields also helps reduce nutrient loads to lakes, as well as proper maintenance of stormwater and drains that enter water bodies. This is especially true for lakes that have closed basins with long residence times where the lake water remains in the lake for long periods (years or greater) and thus most nutrients entering the system will be utilized by primary producers, such as algae and aquatic plants.

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WOE IS CANALS

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Although an increasing number of Michigan municipalities (i.e. cities, villages, and townships) have zoning regulations covering the waterfront and even ordinance provisions governing docks, boats, swim rafts, and other aquatic items, very few local governments regulate or prohibit the creation of new canals or channels from lakes and rivers (or the expansion of existing canals or channels). Aquatic canals and channels can be regulated or even prohibited via either amendments to a municipal zoning ordinance or through a separate police power regulatory ordinance. Such ordinance provisions can be important to Michigan lake communities, as state regulatory authorities theoretically have the authority to permit under certain circumstances the creation of a new canal or channel (or the expansion of existing ones).

Why are new or expanded canals or channels generally undesirable? There are at least four reasons. First, they are almost always environmentally unsound and problematic. They are not a natural part of the lake or river involved. Second, where water levels are low, they often exacerbate low water level problems given that they take away a significant volume of water from the natural lake or stream involved. Third, in cases where they are dug or expanded to give additional lots or parcels waterfront property, they are artificially creating riparian rights. Under the *Thompson v Enz* decision cited below, riparian rights normally cannot lawfully be created artificially. Finally, to the extent that canals or channels are used to give additional lots or parcels access to a river or lake, it leads to further overcrowding of the body of water involved with personal watercraft, power boats, etc.

Those who are familiar with the Michigan Supreme Court's decisions in *Thompson v Enz*, 379 Mich 667 (1967) and 385 Mich 103 (1971) might be surprised to learn that state regulators would allow new canals or channels to be built or existing ones to be expanded. The Supreme Court did hold in *Thompson v Enz* that riparian rights cannot be artificially created via new or expanded canals or channels. However, in order to enforce that decision, a private civil lawsuit would have to be commenced by an adjoining riparian property owner or a lake association. Regulating or prohibiting new or expanded canals or channels via local ordinance is much more decisive, efficient, and likely cost effective.

STEP BACK IN TIME

LAKESIDE LIVING... YESTERDAY & TODAY

FIRST APPEARED IN THE SPRING 1967
ISSUE OF *THE MICHIGAN RIPARIAN* MAGAZINE

(THIS ARTICLE WAS WRITTEN 54 YEARS AGO AND SHOULD BE READ WITH THAT CONTEXT)

HANS H. HAUGARD | EXTENSION NATURAL RESOURCES AGENT IN 1967

The limitless oceans are the earth's greatest antiseptic. The filth and ordure from the land is taken at shoreline, carried out to sea, and its infection destroyed. Our inland lakes are capable of no such miracle. Septic tanks with woefully inadequate drain fields are polluting most of southern Michigan's beautiful lakes.

The fad for frontage, with little or no control, is exploiting every body of water in and around the state of Michigan. The prevailing passion for water-connected recreational pursuits has even made it profitable to construct artificial lakes.

The settlement patterns of previous generations have set precedent and prejudice that are difficult to dispel. At first these lakes were just a summer retreat for the city dweller. The developer, then as now, made the lake lots as small as possible. Thousands of these lots are only 40 to 50 feet wide. The cottage, generally, was not large. The water supply and sanitary facilities were outside. Water was used sparingly. Effort and energy were required to pump water and carry it into the cottage. When the privy became obnoxious it was moved to a new location and the old spot was covered with fresh soil. In a relatively short time the multitude of biological inhabitants of the earth's crust had reclaimed the human waste and it had become just another fertile spot for plant growth.

Then began the change. Our transportation revolution got underway in earnest. Roads improved and the automobile became a reliable mode of transport. Instead of the fleeting weekends and all-too-short vacation periods at the lake, cottagers now could live at their lakeside paradise permanently and commute to their jobs.

The privy had been replaced by the flush toilet. Bathtubs and shower stalls were built into the dwelling. Automatic clothes washers and even dishwashers became commonplace household accessories.

To sustain these modernities, a septic tank and drain field had to be installed on this small lakeside lot. Neighbors, on similar small lots, craved the same creature comforts and so they also dumped all of the household wastes into their septic systems.

Shortly the sandy shallows in front of the cottage where the children played became rank weedbeds. The lake lot owner, in spite of Rachel Carson (author of The Silent Spring) had resorted to aquatic herbicides and pesticides to keep down the mosquitoes whose breeding grounds he helped to create.

Many of these older lakeside developments can rapidly deteriorate to slum conditions unless corrective measures are undertaken. The enormity of the problems and the seriousness of the mayhem committed to the lakes and the surrounding areas are not, at a casual glance, glaringly apparent. The water-happy prospective purchaser of frontage is so blinded by his own enthusiasm that any lot offering a view of the lake, regardless of size or soil structure, looks good. The developer, sensitive to the beat of the buying pulse, is no more generous with his lot sizes than necessary.

Unfortunately, our present methods of sewage treatment do not completely solve our disposal problems. Phosphates and nitrates contained in the effluent from disposal plants create weed-infested waters impeding water movement and a host of other undesirable conditions.

The sewage treatment plant for the resort town of Bijon, California discharged the effluent as a spray on the land. It is feared that this will eventually leach into Lake Tahoe and promote algae and weed growth to such an extent that it will drive away their tourist business. To prevent this from happening a new sewage treatment plant has been built. This plant is unique in that it will provide tertiary treatment to eliminate phosphates and nitrates, which foster the growth of aquatic vegetation. It is expected that this new tertiary treatment plant will produce an effluent of the quality of drinking water, and that the design information can be utilized for other plants.

This is a dream for the future, but we are forced to live in the present. Until this kind of sewage treatment becomes a reality and available to us, we must plan the land use around our lakes with such tools as we presently have. We cannot blame all of our lake problems directly to poor planning. Who could foresee the universal use of the horseless carriage and the ribbons of concrete that now span the continent from coast to coast? However, the crystal ball we have today is an improved version of the one we had even five years ago. Perhaps we should gaze into it more often.

SEASONAL ACTION ITEMS

01

IMPROVE ASSOCIATION MEETINGS

Create a template agenda for your association meetings and try it out. See if you can get your meeting time down a bit and conduct business more efficiently.

02

SET YOUR 2022 ASSOCIATION CALENDAR

Get the dates of your board and membership meetings on the calendar now so everyone can prioritize the important work of your organization before busy schedules take over. While you're at it, mark the date of MLSA's Annual Conference at Crystal Mountain Resort in Thompsonville, MI on Friday, May 6 and Saturday, May 7, 2022 so we can see you there, too!

03

LEAVE THE LEAVES

Many pollinators will over-winter in the leaf litter, so leaving this layer will help them to survive, protect your perennials, and give you less work to do in the fall. You can clean the leaves off your lawn and gardens in the spring when the temperature has started to consistently stay above 50 degrees at night.

04

CONSIDER GREENER BOAT WINTERIZING PRACTICES

Do not dispose of used oil in the trash. Instead, find a recycling program at a local marina or municipality. Use environmentally friendly soap or even just water to clean your boats before winterizing. When cleaning your boat, be sure to collect the debris and water that comes off so it doesn't end up back in the waterbody.

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