Fall
2017

Vol. 52 No. 4

Designed and published specifically for waterfront property owners and enthusiasts

THE MICHIGAN RIPARIAN

www.mi-riparian.org

DEVOTED TO THE MANAGEMENT AND WISE USE OF MICHIGAN'S LAKES AND STREAMS Published Quarterly

EAGLE LAKE

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The Michigan Riparian (ISSN 0279-2524) is published quarterly for $6.25 per issue by the Michigan Lake and Stream Associations Inc., a Michigan non-profit corporation. Periodical postage is paid at Lansing, Michigan and additional mailing offices.

Postmaster:
Send address changes to:
The Michigan Riparian
300 N. State St., Suite A, Stanton, MI 48888

The Michigan Riparian is the only magazine devoted exclusively to the protection, preservation and improvement of Michigan waters and to the rights of riparian owners to enjoy their water-front property.

The Michigan Riparian magazine is published quarterly and is mailed to subscribers in the Spring, Summer, Fall and Winter each year.

The Michigan Riparian
PUBLISHING OFFICE
300 N. State St., Suite A
Stanton, MI 48888

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SUBSCRIPTION RATES (4 issues/year)
Individual annual subscription: $25
Lake association quantity subscriptions: $12

ADVERTISING RATES
Advertising rates sent upon request or available on website.

DEADLINES: February 15 for Spring issue
May 15 for Summer issue
August 15 for Fall issue
November 15 for Winter issue

Printed by Spartan Printing, Lansing, Michigan

From The Publisher

News Around the State

Eagle Lake in Cass County is this issue's cover story. Their early history, the formation of their lake association and the challenges they have met and overcome are a fascinating read. We think you will love it!

In the last issue of *The Michigan Riparian*, we ran an article about the Lakeville Lump. Scott Brown, ML&SA's Executive Director has an interesting follow-up on that subject. See the Marl Lake article on page 30.

We strive to keep you in the loop on the latest happenings around the state regarding lake concerns. This issue includes several topics that are currently in the news. See the Attorney Writes article on page 11 regarding two recent court of appeals decisions. An important article concerning gas and oil pipelines that are running through Freedom Township (and perhaps in your area) on the east side of the state is a 'must read'.

We receive many calls and emails about wake boats, so Cliff Bloom has covered that topic on page 41. Have you been wondering if/what the state of Michigan is doing about invasive species? See the article on page 35 for the latest information.

Thanks for a great response to our request for pictures, contact information and stories about islands. I will be following up on them in the near future. In the meantime, keep sending me information about Michigan inland lake island living including lots and lots of pictures. And you know we always welcome stories about your lake, special events, and interesting characters.

Here's to a wonderful autumn season.

-publisher, Sharon Wagner
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Eagle Lake, located in southwest Michigan, in Cass County has a number of qualities in common with other residential lakes in Michigan. What makes it unique makes it very special to those who live here and its many visitors. Eagle is a lake with contrasts that bring pleasure and enjoyment but comes with substantial challenges .

By: Lori Mroczek

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EAGLE LAKE

Lady Kayakers
Photo Credit: Dave Hanichak

THE LAKE

Eagle Lake is 380 acres resting in an area of farmlands stretching from east to west. It is the headwaters for the "Four Lakes" which includes Eagle, Christiana, Juno and Painter Lakes. The lake was naturally formed from glaciers and has a number of underground springs providing its water source. It is a moderately shallow lake with few areas that are over 10 feet in depth. There are multiple man-made canals throughout the lake. On the east end is a weir that maintains a legal consistent water level and directs water into the adjoining three lakes. There are no steep drop-offs and its maximum depth is approximately 35 feet, located in a small section in the western quadrant of the lake. The lake is highly developed with mostly hardscape shorelines and very few undeveloped areas.

But even though highly developed, the lake is part of a network of wetlands that fosters a rich array of frequent visiting wildlife. You can spot swallows, assorted songbirds, migrating hummingbirds, red tailed hawks and, of course, the thrilling bald eagles. The great blue heron, green heron and sandhill crane fish the shorelines and can be seen atop boat-lifts and docks. The migrating coot, grebe and merganser dive to catch a good meal; and you see Canadian geese, noisy seagulls, mallards, aggressive mute swans and an occasional Wood Duck. A healthy population of painted and spiny soft-shell turtles lives in the waters.

WELL LOVED AND USED BY MANY

The lake is centrally located for visitors and part-time residents from Illinois, Indiana and Michigan with heavy year-round use and significant congestion at peak times. It is located five miles from the Village of Edwardsburg, Michigan in the southwest corner of the state in Cass County. The lake has been long regarded as a fine fishing venue with fishing in all four seasons. Crappie, Bluegill, Largemouth Bass, Lake Perch, Catfish and lots of Northern Pike are all found in Eagle Lake. Often you can see a fly-fisherman wading on the east end of the lake.

4th Of July 2016
Photo Credit: Barbara Slok

Seasonal boating activities on Eagle Lake range from wakeboard, ski boats, personal watercraft, pontoons, windsurfers, iceboats, standup paddle-boards and many kayakers. A group of women gather once a week during warm temperatures to venture out on the water to kayak or paddle-board, sometimes ignoring bothersome weather.

The Eagle Lake Sailing Club began to evolve unofficially in 1935 and was incorporated as The Eagle Lake Yacht Club in the state of Michigan in July 1945. Since that time, it has hosted weekly regattas throughout the summer.

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INVASIVE SPECIES

Eagle Lake unfortunately also provides an ideal environment for another set of visitors that are never welcome. Eagle Lake has long had the dubious distinction of being first in Michigan for the emergence of a number of aquatic invasive species. Boats from other lakes introduce aquatic invasives to Eagle Lake by bringing "weed hitchhikers" on boats, trailers, anchors and in bait containers. Eagle Lake's size and shallow depth then provide a conducive environment for the growth of these intrusive weeds. Invasive species that have been introduced to Eagle Lake are Eurasian Watermilfoil, Hybrid Eurasian Watermilfoil, Curly-Leaf Pondweed and Starry Stonewort. Invasive Zebra Mussels have been in Eagle Lake for over a decade.

EAGLE LAKE IMPROVEMENT ASSOCIATION (ELIA)

For over 50 years the Eagle Lake Improvement Association (ELIA) has worked to provide lake stewardship. ELIA's mission *"To Improve, Promote and Preserve the quality of Lake Life in the Eagle Lake area"* has led to ELIA championing the building of a sewer system, assuming leadership in the monitoring/maintaining lake water quality and vigilantly supporting only responsible development of lake properties and lake use. In 2016 we continued a tradition of high membership percentages with a Member's Directory that is one of our best ever. We now have a sparkling new web site that meets the needs of our membership and an ELIA Facebook page that is growing in views.

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"So how to balance the needs for access and enjoyment with the health and quality of the Lake?"

Great catch by Jimmy Forlenza
Photo Credit: Mike Mroczek

Captain America (Steve Huddleson) and Liberty Lady (Jenna Huddleson) July 4, 2016
Photo Credit: Sue Auranz

American Coots in November 2016
Photo Credit: Lori Mroczek

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Two Sandhill Cranes searching for a nesting or fishing spot
Photo Credit: Elizabeth Loring

The weir on the east end of the lake to help maintain water levels.
Photo Credit: Lori Mroczek

Spring Sunrise
Photo Credit: Lori Mroczek

The sewer system was implemented in 2000 and has provided critical sanitation protection as well as improved property values. The ELIA Board, in conjunction with our local township, created a Special Assessment District (SAD) using assessments from all waterfront properties to fund professional surveys and treatment of aquatic invasive species. Eagle Lake's volunteer Water Quality Team is a model for all lakes. This team conducts weekly testing and reports data for statewide consolidation, surveys aquatic vegetation and monitors all results for trends and issues.

1956 COURT RULING VS. DEVELOPEMENT

Unique to Eagle Lake is the designation by the Michigan Supreme Court of public right of way on the east end of the lake along portions of Eagle Lake Road paralleling and adjoining the lake. For over 60 years, 800 feet of waterfront has been dedicated to public access for a multitude of recreational activities including parking, swimming, picnicking, lounging and occasionally launch a boat. In the last decade, there has been increasing pressure for development along the unique right of way at the east end of the lake, which has been committed to public access. ELIA has weighed in on both private and public proposed developments. In all expansion discussions, ELIA has consistently emphasized the need for compliance with local ordinances as well as anticipating consequences to lake ecosystems, aquatic vegetation, boat congestion, and broad public access to the lake. As we go to press, ELIA is working to modify a proposed DNR Boating Access Site that would, if implemented as currently proposed, limit public access and fill in nearly one-half acre of Eagle Lake.

WATER QUALITY CHALLENGES

The waters of Eagle Lake are classified as "mesotrophic". It is commonly clear in the spring and early summer with beds of submerged aquatic plant and medium levels of nutrients. The Eagle Lake Improvement Association (ELIA) is a member of Michigan Lake and Stream Associations, which allows members to enroll in the Cooperative Lakes Monitoring Program (CLMP). Citizen volunteers measure secchi disk transparency from late spring to the end of the summer to achieve 18 weekly measurements. Additional parameters measured by volunteers are Phosphorus, Chlorophyll a, Dissolved Oxygen and Temperature, Aquatic Plant Mapping, Aquatic Plant Watch, DNA and, most recently, Score the Shore.

Eagle Lake volunteers have been involved with this program since 1974, which was the beginning of documentation within the CLMP database. For more than a decade volunteers have consistently monitored the lake discovering the good and the bad. Long-term trends indicate that Eagle Lake's trophic status parameters

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have not changed beyond minor year-to-year variations since monitoring began in 1974. What has changed is the discovery of Aquatic Invasive Species, Invasive Plants and Invasive Zebra Mussels.

HISTORICAL EAGLE LAKE

French's Hotel was developed by Henry French along with an orchard, farmland and cottages. It had a mystique which made residents for generations remember it as an important part of their lake life. Built by Henry and his wife Myrtle in 1906, the hotel had a turn-of-the century resort style of architecture. Sitting along the wooded property to make the most of the cool southerly breezes as they travel across the lake, the white clapboard structure provided seating and a gathering place on its screened and open porches. The guest rooms were upstairs. A long hallway extended end to end with 12 to 15 rooms opening from it. That year, the French's platted 17 lots on the lakeshore east of the hotel on Oak Beach. The access road was named Hillsdale Avenue. Later it became North Lakeshore Drive. Then sometime after 1948 the "lake" was dropped.

In the early years of the century, young son Ford French teamed up with his good friend Norm Booth whose parents built a cottage in 1907. The two drove a horse and carriage to the railway station in Edwardsburg to meet guests arriving from Chicago. They would load the steamer trunks and other baggage, return to the hotel and act as bellhops for the guests. With the arrival of the automobile, the "greeters" drove to the train station with a motorcar or parked those of the patrons at the hotel.

In the winter, blocks of ice were cut from the frozen lake and packed in straw filling the entire icehouse. The cook stove burned wood. On one side was a deep well where water was heated for baths and washing dishes. Kerosene lamps illuminated the rooms.

The beach across the road was framed by rows of narrow wooden walkways extending into the water. These walkways enabled the fisherman to have access to double-pointed green wooden boats. Children who were accomplished swimmers were allowed to use the raft--an excellent incentive for learning to swim. The fishing was said to be great.

Ultimately, the Grande Dame of resorts came to an ignominious end when the rooms were made into apartments, which were not maintained. Residents cheered while firemen stalled when the structure burned to the ground in April of 1987.

Culver's Resort was a popular and busy summer recreation area all during the 1930's, 40's and 50's. It was owned and operated by Margaret (Culver) and Chick Caruthers. Margaret

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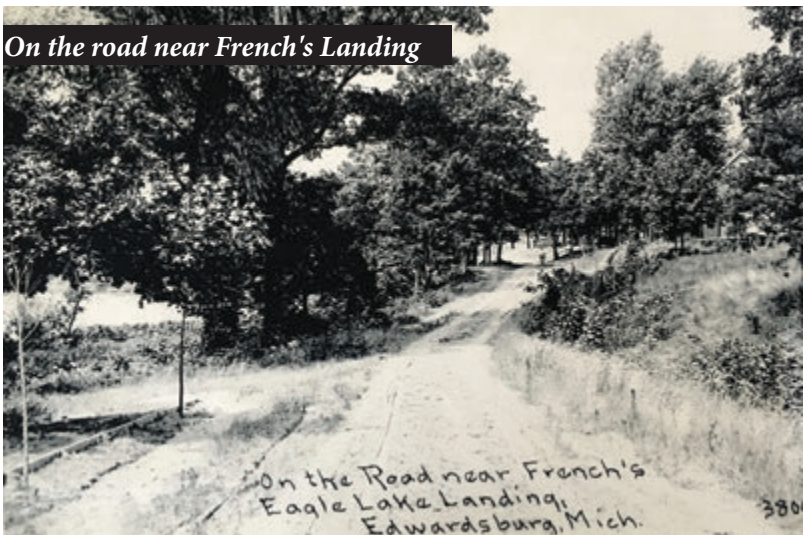
Sailboats in many past years

French's Hotel in early 1900



On the road near French's Landing

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Two Interesting Recent Michigan Court of Appeals Decisions Regarding Riparian Issues

By Clifford H. Bloom, Esq.
Bloom Slugget, PC
Grand Rapids, Michigan
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There are generally four levels of courts in Michigan. The lowest level is the district court, which handles civil lawsuits under a certain dollar amount, most landlord/tenant matters and lesser criminal offenses. The general trial courts are the circuit and probate courts. The next level is the Michigan Court of Appeals. Finally, the highest appellate court is the Michigan Supreme Court.

The Michigan Court of Appeals issues two different types of decisions or opinions – published and unpublished opinions. Published opinions are binding precedent throughout Michigan. Unpublished opinions are not precedent and only bind the parties to the lawsuit. However, some unpublished opinions can be persuasive and can predict how the Court of Appeals might address the same or a similar issue in future cases.

On May 23, 2017, the Michigan Court of Appeals issued its unpublished opinion in *McEwan v Guthrie* (Case No. 331845; 2017 WL 2262882). That case involved a platted private road end at Patterson Lake in Livingston County, Michigan. For the first major issue in the case, the Court of Appeals held that the dedication language ("to the use of the lot owners") was unambiguous and does not allow permanent or seasonal boat mooring, docking or storage at the road end. Given the lack of ambiguity in the dedication language, the Court of Appeals held that the trial court committed error when it allowed evidence of historical usage to determine the meaning of the plat dedication. However, the Court of Appeals agreed with the trial court that the backlot property owners could install one dock for day use only. All of these holdings by the Michigan Court of Appeals in *McEwan* are consistent with past precedent.

With regard to the second major issue in *McEwan v Guthrie*, a split of opinion has emerged between different panels of the Michigan Court of Appeals. In *McEwan*, the Court of Appeals held that although permanent or seasonal boat moorage was not allowed in the first instance pursuant to the plat dedication easement, the backlot owners had expanded their usage rights to the road end easement to include permanent or seasonal boat moorage given that those activities had occurred for much longer than 15 years (i.e., since approximately the 1940s), the statute of limitations for establishing a prescriptive easement. However, in other opinions, the Michigan Court of Appeals has held that usage rights for an express easement generally cannot be expanded by prescription. See *O'Neill, et al. v. Moses, et al.*, unpublished opinion per curiam of the Court of Appeals (decided on October 25, 2016; Case Nos. 329227, 329475, 330527 and 330529; 2016 WL 6269360); *O'Brien v Hicks*, unpublished opinion per curiam of the Court of Appeals, entered November 20, 2012 (Docket No. 307332); and *Chauvette v Owczarek*, unpublished opinion per curiam of the Court of Appeals, entered October 26, 2006 (Docket No. 262473). It will be interesting to observe how the Court of Appeals eventually resolves those conflicting decisions.

On May 23, 2017, the Michigan Court of Appeals decided a groundwater extraction case. In the unpublished decision in *Kowalchuk v City of Jackson* (Case No. 330463; 2017 WL 2262876), the adjoining or nearby property owners sued the City of Jackson regarding groundwater extraction via wells for the city's water system. The property owners asserted that the right to groundwater is exclusive as to the owner of the land's surface above the aquifer. The Michigan Court of Appeals disagreed. The Court of Appeals held that Michigan does not recognize the rule of some other states that the owner of the surface of the ground has exclusive ownership of the groundwater below. Accordingly, Michigan has rejected the rule of "absolute ownership" developed under English common law. However, with regard to groundwater extraction, Michigan law does not apply the traditional reasonable use test. Instead, Michigan law regarding groundwater use applies a "reasonable use balancing test." Pursuant to the reasonable use balancing test, a court must look at six different factors as follows:

1. The purpose of the use.
2. The suitability of the use to the location.
3. The extent and amount of the harm.
4. The benefits of use.
5. The necessity of the amount and manner of the water use.
6. Any other factor that may bear on the reasonableness of the use.

This court decision is consistent with the earlier appellate decision in *Michigan Citizens for Water Conservation v Nestlé Waters North America, Inc.*, 269 Mich App 25; 709 NW 2d 174 (2005); affirmed in part and reversed in part, 479 Mich 280 (2007), which involved the extraction of spring water from the ground for Nestle's bottled water products.

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Pontoons at east end beach
Photo Credit: Makenzie Brown

Penzenik family during poker run
Photo Credit: Sally Cox (photo left)

and Chick lived in the old family farm house just adjacent to the resort. The resort hosted family reunions and company picnics all summer long. A number of small one bedroom rental cabins as well as a large beach and picnic area composed the resort property. In addition, a large dance hall was located on the south side of the road and was a popular beer "hangout" for locals. On weekends, a live orchestra played for dancing, bringing in large crowds from the surrounding communities. On warm summer nights the music would echo around the lake. The Eagle Lake Yacht Club (now Eagle Lake Sailing Club) purchased all of the lake frontage area from Culvers to build the present day club house and large boat storage yard.

SOCIAL ACTIVITIES

Eagle Lake Improvement Association is an active social organization and has provided decades of activities for enjoyment of the lake and for fostering the sense of community.

The ELIA traditional social season officially kicks off each May when association volunteers provide many hands to clean up the land and shoreline area around Eagle Lake. The association has added water clean out this spring to remove unwanted and dangerous debris submerged in the water. The ELIA Annual Meeting typically occurs the last Saturday in May to update and ready our members for summer.

One of the most enduring traditions sponsored by ELIA is the lake-wide Wine and Cheese Party. It is hosted by individual members each year and has grown to include a first-class silent art auction featuring lake and area artists. What summer season on the lake wouldn't be complete without 4th of July fireworks? There is not enough undeveloped lakeshore to safely shoot off fireworks; ELIA's fireworks display is launched from a barge in the middle of the lake. It is a lovely sight to watch-- the fireworks rising from the surface of the lake. Individual displays around the lake following the main show provide the impressive finishing flourishes to another 4th of July on Eagle Lake.

ELIA's Poker Run is now 10 years old and has become a highly popular event. The day on the water leads boaters to five participating piers followed by the "poker" game. Finally, boats gather at Eagle Lake's east end for music and camaraderie.

On an informal basis, pontoon boats congregate frequently at the east end of the lake for water get-togethers, which have become a staple of community-building fun. A notable scene to observe is when flotillas of pontoons drift homeward at sunset.

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Ice skating in a winter wonderland on Eagle Lake
Photo Credit: Dave Hanichak

Ice skating in 1941

EAGLE LAKE MARINA

Eagle Lake Marina was first started in the 1940s. Originally owned by Joe Zimmer, the Marina changed hands four or five times before Tony Nasco purchased the marina in August 1981. Tony and his partner, Ray Hamilton, had no idea on how to run a marina but thought it might be fun. The wives, Sally Nasco and Georgia Hamilton would run the office. When the business was first purchased, snowmobiles were sold as well as boats. Tony's daughter, Charmayne, would have to keep the wood stove stoked in order to try and warm the building. Charmayne turned 21, and she took over the office and ran it by herself. Later, Charmayne, who married Don Daly, purchased the marina and carries on the tradition of service and sales. As the marina grew, additional property was purchased including the "little store". People who grew up on the lake probably remember buying candy and other goods from the storehouse. It was one of the original Convenience stores.

Since 2009, the Eagle Lake Marina has hosted the Eagle Lake Triathlon that draws up to 400 triathletes from all over the area. Roger Antineau, Paula Turk and Charmayne Daly started it. The triathlon has become more and more popular each year. It now has a children's non-competitive triathlon, assorted vendors and music with a DJ. It is a community effort whose proceeds benefit Life Treatment Center in South Bend, IN. It takes many volunteers to man and promote the triathlon and the good citizens of Eagle Lake come through every year in support of the event.

COMMUNITY AND STEWARDSHIP

ELIA's continuing challenge is to provide balance to fulfill its mission. There are serious issues but enjoying the lake with family and friends is priceless. Homeowners of Eagle Lake are diverse. There are year-round as well as part-time residents, young families and senior citizens, modest cottages and large homes. What all have in common is that for generations, Eagle Lakers have balanced their love and enjoyment for Eagle Lake with a dedication of stewardship and responsibility. The importance of friends and neighbors will always remain as fond memories for those who have lived on a lake. We realize how lucky we are and plan to keep this lovely lake a treasure for future generations.

EAGLE LAKE

THOSE WERE THE DAYS!

By N.R. (Dick) Booth | Eagle Lake resident

Photo Credit: Pat Makielski

My parents, sister and I moved from South Bend, Indiana to Eagle Lake in the year of 1937. We moved into a house on North Shore Drive that was built circa 1906. It had newspaper for insulation and an oil space heater on the first floor. To heat the upstairs, dad cut a hole in the first floor ceiling just above the heater and eventually the heat would find itself to the second floor. On chilly mornings, we'd grab clothes, run downstairs and gather around the heater. We probably looked like a band of Indians doing a dance.

Before a kitchen and indoor bathroom were added on, we had an outdoor privy discretely attached to the garage. The privy had electricity (to read by) and a small electric heater. My father had cut out a picture of Father Hesburgh and pasted it to the inside of the privy door at eye level. Those were the days!

On the north side of the lake stood French's Hotel. It stood there for years and years until fire destroyed it in 1987. While sad to see it go, it was time. It was a place to gather and meet young and old. The only gas pump on Eagle Lake was in the gravel driveway at the hotel. To get gas you first had to fill the glass globe on the top of the pump. This was done by moving a handle back and forth (maximum 10 gallons) and when the globe was full, you'd place the hose in the car's gas tank and the gas would flow by gravity into the car. The cost of gasoline was maybe 25 cents per gallon. Those were the days!

I would be remiss if I didn't mention old-time friend and life-long resident of Eagle Lake, Jack Myers. Fortunately the statute of limitations has run on some of our escapades. On one occasion, a self appointed caretaker at the old French's Hotel got after Jack and me for whatever reason. As I recall, his name was "Ted". Jack and I did not take too kindly to Ted's chasing us. We found a week-old catfish in the lake and, under the cover of darkness, gently placed the dead catfish on top of the engine in Ted's old Hudson car. After driving a block or so the fish baked onto the top of the engine resulting in Ted driving the rest of the summer with all the windows down. Yeah, Baby, those were the days!!

While Eagle Lake is a relatively small lake of some 375 acres, the concerns and dedication of the Eagle Lake Improvement Association board members is HUGE!! We, as members of the association, are most fortunate to have the leadership that we have. The lake is in excellent condition, weed control is closely monitored and fund raising is TOP NOTCH! Boy, do they know how to throw a party.

These are the days!!

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☐ **I am not ready to join yet. Please send me more information.**

MICHIGAN WATERFRONT ALLIANCE
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www.mwai.org

Dear Riparians,

The Michigan Waterways Commission and DNR policy toward Michigan's inland lakes must be changed. It is very evident that they both have more interest in public access (arising from a legal definition of public trust on the navigational surface of waters that have public access) than the wise use and stewardship of Michigan's Inland Lakes. It appears to me that they are quite willing to put at risk the lakes themselves to further a policy of public access that promotes overuse and the introduction of invasive species.

We ask Michigan Waterways Commission and DNR:

1 - Please explain the current approach of the state/DNR to the ever-growing threat of aquatic invasive species (AIS) on Michigan inland lakes. Riparians continue to feel we shoulder a disproportionate share of the burden, and that the problem continues to be compounded by state policy encouraging expansion of access without regard to first considering lake carrying capacity or more efficient usage of current infrastructure/access.

2 – We propose a moratorium on state funding of new public launch sites until the DNR conducts and publishes a carrying capacity study on the effect additional launch sites would have on a particular lake. We strongly believe that the DNR should prioritize funding first towards improvement of existing launch sites and infrastructure rather than continual expansion without regard to traffic, riparian rights, and the spread of AIS.

3 – Consider successful AIS management policies adopted in some our neighboring states that directly combat AIS on our lakes and by providing state resources and assistance supporting management and eradication at the local level in cooperation with riparians and lake associations.

4 – We ask why there is no representation on the Michigan Waterways Commission from Michigan Riparians and Michigan Riparian organizations.

Your Michigan Waterfront Alliance will be meeting with DNR leadership this fall to convey these and other growing concerns from riparians. We believe, by working together, that we can promote sound public policy that protects both riparian property rights and the world-class quality of Michigan inland lakes and streams.

Sincerely,
Bob Fry, President
Michigan Waterfront Alliance

Invasive Red Swamp Crayfish

RECENTLY DETECTED WITHIN THE WATERS OF MICHIGAN

By Scott Brown
Michigan Lake and Stream Associations
Executive Director

Extraordinarily abundant in the biologically diverse and highly productive marshes and swamps of the freshwater inundated Mississippi River delta region, red swamp crayfish have been serving as the miniature lobster-like "guests of honor" at south Louisiana "crawdad" boils for well over two centuries. The native distribution range of the red swamp crayfish stretches from the Gulf of Mexico coastal plain that extends from the Florida panhandle to northeast Mexico, and northward from the southern Mississippi River drainage area to Illinois and southwest Indiana (Nagy *et al.*, 2015). Most abundant in the marshes and swamps of south central Louisiana (commonly referred to as bayous in southern Louisiana) (Hobbs, 1989, Taylor *et al.*, 2007), the red swamp crayfish that have long since become a widely recognized symbol of Cajun-style cuisine have officially been introduced to the waters of Michigan. Michigan Department of Natural Resources (MDNR) aquatic biologists recently confirmed the presence of the rapidly reproducing and often destructive invasive crayfish in Sunset Lake located near Vicksburg on the state's west side, and in a retention pond located within the southeast Michigan City of Novi. Recent detections of the highly invasive red swamp crayfish in Michigan follows a July 2015 MDNR report that some anglers had illegally purchased the alien crayfish from food markets for use as live bait, and of the detection of several dead specimens of the wayward crayfish in Ottawa County's Lake Macatawa.

Photo Credit: United States Geological Survey

These 4 dead red swamp crayfish were found June 26 at Kollen Park in Holland.

Photo Credit: Kelley Smith, Michigan State University

Frequently achieving extremely high density populations, crayfish are considered to be the largest and longest living of invertebrates that inhabit temperate freshwater environments (Gherardi and Acquistapace, 2007). Red swamp crayfish, scientific name *Procambarus clarkii*, are deep red in color and feature bright red raised spots that appear on their body and claws. Contributing to the ability of aquatic biologists and natural resource practitioners to positively identify "Louisiana mudbugs" in the field, red swamp crayfish are also endowed with a distinctive wedge-shaped black stripe on the top of their abdomen. Red swamp crayfish are voracious omnivores that readily and continuously feed upon fish eggs, aquatic plants, dead fish, and decaying organisms of all type. Ranging in overall length from two to five inches, red swamp crayfish are known to achieve body weights of just under two ounces

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Invasive Red Swamp Crayfish

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in as little as three to five months from the time they hatch (Hentonnen and Huner, 1999).

Capable of flourishing in a wide range of freshwater habitats including swamps, marshes, wetlands, rivers, streams, ponds, lakes, and ditches hosting substrates consisting of soft sediments that are rich in organic debris (Huner and Barr, 1991), red swamp crayfish are capable of expeditiously altering or destroying the ecologically sensitive nearshore habitats that many native aquatic species depend upon for sustenance and survival (Gherardi, 2006). The red swamp crayfish is considered a highly effective ecosystem engineer due to their often noted ability to significantly modify surrounding physical habitat by building burrows in areas hosting fine sediments near the water's edge. Consisting of a single opening and a tunnel that may extend 15 to 35 inches to the underlying water table, and that gradually expands into a larger "living" chamber (Correia and Ferreira, 1995; Huner and Barr, 1991), the self-constructed burrows of red swamp crayfish serve to protect the highly adept shellfish from intense mid-day sunlight, high air temperatures, and periods of extended drought (Ingle, 1997). The existence of physical habitat created by dense near-shore macrophyte growth, fallen logs, and/or other forms of woody structure may serve to increase the overall population density, and thus the foraging and burrowing activity of the notoriously disruptive freshwater crustacean (Correia and Ferreira, 1995).

The burrowing and foraging activities of the highly invasive Mississippi delta crayfish are also known to increase the likelihood and frequency of cyanobacteria blooms (Geiger *et al.*, 2005; Yamamoto, 2010). The intensive burrowing activity of red swamp crayfish may have a negative impact on the water quality of the lakes, rivers, ponds, or reservoirs that they often colonize by causing the resuspension of large volumes of fine particulate matter, therefore significantly reducing water clarity and the amount of sunlight that is available to support native submerged aquatic plants and a myriad of co-occurring native organisms that rely on aquatic plants for sustenance and survival (Rodríguez *et al.*, 2005). Constructed in nearshore habitat areas hosting fine organic sediments, the abandoned burrows of the red swamp crayfish are known to cause the eventual collapse of river banks and other earthen structures (Barbaresi *et al.*, 2004). In areas that are prone to significant water level fluctuations such as dams, levees, or irrigation systems, extensive networks of red swamp crayfish burrows are likely to damage the highly vulnerable structures through bank destabilization.

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The History of Polk's Land

by Cynthia Polk Muller

From Magician Lake Association Website www.magicianlake.org. Magician Lake is located in Cass and VanBuren Counties.

Grandfather Edmund Richard Polk and Grandmother Agnes Mary Little Polk raised a family of five children – Wesley, Arthur, Robert, Mary, and Edna. The children were born in LaGrange, Illinois, in a large, rambling house, which is still in use and remains painted the original yellow. Grandfather was an entrepreneur who dealt in horses, real estate, and various other business ventures. Both he and Grandmother owned property in Illinois and Michigan, and Grandfather liked to trade, and sell, his plots of land. Prior to summering at Magician Lake, the family would travel to Muskegon, to a tract of land called Idlewild, on Lake Michigan. Many family photographs record their happy times there.

On June 23, 1910, E.R. Polk purchased the Magician Lake property from Mary H. Southwick for a sum of $3,460. The property was a grain farm prior to the sale; the land was left fallow under Edmond's ownership. The Polk's, with the help of their sons and daughters, developed a summer resort, providing rental cottages for the season. Of eight original cottages, built one per year, beginning in 1911, seven are still in use as summer homes. The cottages had no electricity, and were supplied with blocks of ice cut out of the lake in the winter and stored in the ice-house. As a child I remember when all the oak ice-boxes were dumped to make way for the new Frigidaire's. Oh, to have all those old ice-boxes now!

Behind the original eight cottages there was a swamp that sported beautiful, bright yellow cowslips each spring. The fields behind the family cottage, where the old white house stands now, were blanketed with waving, yellow daisies. What a treasure to discover one solitary cowslip plant at the edge of the channel last spring (2006) where the swamp once was!

On April 19, 1930, Edmund and Agnes gave the Magician Lake property and business to their son, Arthur Eugene Polk. A quit-claim deed was filed for the sum of one dollar. Edmond R. Polk passed away in December 1936 and Agnes in October 1950.

The love of the land by magical Magician Lake has spanned many years, and new generations of Polk's and other families near and far. Many changes have taken place over the years, many faces have come and gone, and still others return, year after year, to enjoy the peace and tranquility of Magician Lake.

After completion of the mile-long "Polk Channel dig" in October 1959, Arthur E. Polk, Sr. made a deal with the Cass County Road Commission to purchase the Sumnerville, Michigan single-lane bridge (called a "pony" bridge) which was scheduled for replacement after 31 years of service. The Road Commission sold the Sumnerville Bridge for "scrap," for $250. Mr. Polk, Sr. and his son Arthur Polk, Jr., poured concrete abutments in preparation for installation. Following Thanksgiving 1959, the bridge was lifted from over the Dowagiac River in Sumnerville and was moved, by house-movers, 22 miles to its current location on Polk Road; it remained in service for another 45 years.

In 2005, concern arose regarding the condition of the wooden planking on the bridge as well as its inability to carry heavy load limits such as fire trucks, cement trucks, and waste management vehicles. Consultation with an engineering firm produced a plan to construct a new bridge that would accommodate heavy weight limits and also continue to allow for watercraft passage along the entire length of the channel (detractors wished to fill in the road to eliminate the need of a bridge). In the dead-of-winter, January 2006, forms were built, concrete poured, supports put in place, and the road-bed laid. By the end of two weeks, our new bridge was a reality!

Polk Island and Bridges in Dowagiac

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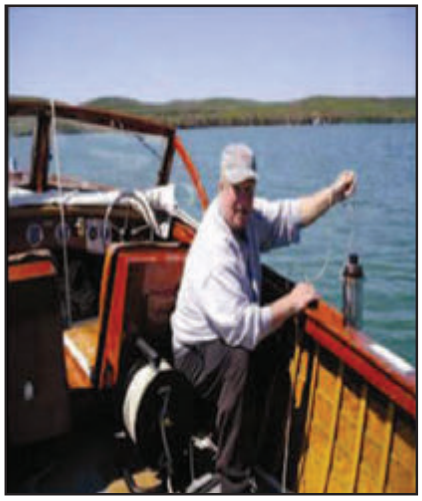

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Invasive Red Swamp Crayfish

(Continued from page 18)

Due to their steadily increasing popularity as reasonably priced offerings on restaurant menus throughout Europe, red swamp crayfish have long since been the focus of aquaculture on the continent and currently represent approximately 90% of the total crayfish production in Europe (Perez *et al.*, 1997; Ackefors, 1999). Since the 1950s, red swamp crayfish have also been intentionally introduced to over 25 countries around the world including several African nations where they have been the focus of commercial cultivation (Gherardi *et al.*, 1999). In locations where the rapidly reproducing North American crustacean has been accidentally or intentionally introduced, red swamp crayfish have succeeded in creating sustainable breeding populations (Gherardi *et al.*, 2007). Freshwater ecosystems that have been successfully colonized by the species are also known have experienced bio-diversity loss and severe habitat degradation (Gherardi, 2006). The rapidly expanding invasive range of the destructive crayfish in south-central Europe, for example, has contributed to decreasing rates of bio-diversity and habitat degradation in a steadily increasing number of freshwater systems that have undergone colonization (Gherardi, 2006).

The Michigan Department of Natural Resources asks that residents and visitors to the Sunset Lake area try to capture any red swamp crayfish they find and place them in a container in the freezer, then report the location of the find to the DNR at 269-685-6851, ext. 0, or by email to herbsts1@michigan.gov. Sightings of red swamp crayfish in the Novi area or elsewhere in Michigan should be photographed and reported with the date and location of the find to herbsts1@michigan.gov.

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MARL LAKES:
Michigan's Under Appreciated Jewels

By Scott Brown
ML&SA Executive Director

Aptly described by 19th century geologists Blatchley and Ashley (1900) "as the brightest gems in the corona" due to their shimmering clear blue-green waters, marl lakes are broadly defined as lakes whose ecosystems possess unique physical, chemical and biological characteristics that may be directly attributed to the fact that their basins are embedded in and surrounded by significant deposits of calcium carbonate rich glacial drift material. Long-standing subscribers to *The Michigan Riparian* magazine will recall that most of Michigan's 11,000 inland lakes, as well as many of our state's diverse topographical features, were created by the advance and retreat of the immense glaciers of the most recent ice age. Although marl lakes are distributed throughout much of Michigan with the exception of the western Upper Peninsula, the largest concentration of the calcium carbonate rich inland lakes are located in a glacial till inundated area that extends from southeast Michigan into northeast Indiana.

Embedded in the landscape of temperate and boreal regions of the northern hemisphere during the retreat of the glaciers of the last ice age, marl lakes are limited to glaciated calcium carbonate-laden terrains that are widely distributed throughout northern Europe, the United Kingdom, the Himalayas, and North America (Otsuki and Wetzel, 1970; Treese and Wilkinson, 1982). Due to the fact that marl production is dependent upon waters achieving a state of calcium carbonate saturation that occurs only in warm waters, Kindle (1929) observed that marl lakes are restricted to altitudes below 1,500 meters, and to northern hemisphere latitudes not exceeding 60° N that are capable of achieving water temperature stratification, and the formation of at least a thin layer of relatively warm water. The vast majority of the marl lakes in North America are located in the Laurentian Great Lakes states of Michigan, New York, Indiana, and Minnesota (Treese and Owen, 1981).

While marl lakes are distributed with moderate frequency throughout the entire Laurentian Great Lakes region (Rich *et al.*, 1971), the largest concentration of the unique hard water lakes occurs in the 'great' glacial drift inundated inter-lobate moraines that are situated between the former boundaries of the Michigan, Saginaw, and Erie ice lobes (Blatchley and Ashley, 1900). Extending from Lapeer County in a southwesterly direction through the Oakland, Livingstone, Washtenaw, Jackson, Lenawee, Hillsdale, and Branch counties 'lakes region', and terminating in marl lake inundated Lagrange County, Indiana, the inter-lobate moraine inundated area serves as the headwaters of numerous watershed areas, and hosts hundreds of wetlands and inland lakes. The inland lake rich inter-lobate moraine area is located in Level III Ecoregion 56 – the Southern Michigan/Northern Indiana Drift Plains (Omernik, 1987), an expansive area bordered by Lake Michigan to the west, and characterized by numerous landforms, soil types, and textures that hosts a wide variety of land-cover/use types, including agriculture, forests, marshes, wetlands, and large urban areas (Fuller and Minnerick, 2008). Embedded in deep layers of calcium carbonate-laden glacial till overlaying limestone bedrock formations (Wehrly, Hayes, and Wills, 2015), marl lakes are often characterized by irregularly shaped basins that often feature one or more deep areas, large, gradually sloping littoral areas, and waters of good clarity whose long-term ecological stability have been reinforced by their size, depth, and the significant buffering capacity provided by a beneficial array of submerged macrophytes, including calcium carbonate dependent Characeae species (Scheffer *et al.*, 1993).

Ghostly white in appearance, marl contains high concentrations of calcite, the purest form of calcium carbonate. A basic explanation of the relatively complex bio-chemical processes associated with marl formation has been proposed by Blatchley and Ashley (1900) and Treese and Wilkinson (1982) who indicate that marl is formed most frequently in lakes as deep layers of glacial drift within their basin are fed by subterranean ground water springs, resulting from the fact that much higher concentrations of soluble calcium bi-carbonate are capable of being stored in cold water than in warm water, a fraction of the dissolved inorganic calcium carbonate is precipitated in the form of fine grain calcite (marl) as cold calcium bi-carbonate saturated ground waters inflow to the lake and mixes with significantly warmer waters (Blatchley and Ashley, 1900; Wetzel, 1960; Wetzel, 2001). Blatchley and Ashley (1900) have suggested that the most significant marl deposits to occur in glacial lakes exist in areas of the lake's basin hosting high volume influx of cold ground water. Marl deposition in lakes that are embedded in deep glacial drift may also occur as a result of calcite precipitation that is facilitated by phytoplankton and submerged macrophytes that are capable of utilizing and becoming saturated with calcium carbonate during periods of intense photosynthesis, and in particular by calcium carbonate dependent Characeae species such as *Chara vulgaris* (Wetzel, 1960). It is important to note that Blatchley and Ashley (1900) and Treese and Wilkinson (1982) have suggested that a combination of inorganic marl deposition induced by the inflow of cold calcium bi-carbonate saturated ground waters, and deposition of marl precipitated as a result of macrophyte photosynthesis, in addition to the deposition of their calcite encrusted vegetative structures, all contribute to the accumulation of marl within inland lake basins.

Many of the important physical, biological, and chemical characteristics of a large number of inland lakes that are located primarily in the southern half of the Lower Peninsula of Michigan are defined by the presence of marl formations and/or calcium carbonate rich waters. Most of these high quality inland lakes are characterized by basins hosting unique physical features, stable moderately productive ecosystems, and relatively clear waters that are able support a diverse array of native pondweeds, native Characeae species, and many other highly beneficial submerged aquatic plants. We regret to have to point out, however, that a large number of marl laden, and/or calcium carbonate rich inland lakes located in the Lower Peninsula of Michigan have experienced or are highly vulnerable to colonization by Starry stonewort and/or zebra mussels, extremely invasive freshwater species that are dependent upon calcium carbonate rich environments to sustain their growth and reproductive processes.

Representing "mementos of those mighty ice sheets which, in the misty past" (Blatchley and Ashley, 1900) covered most of the North American Laurentian Great Lakes region and

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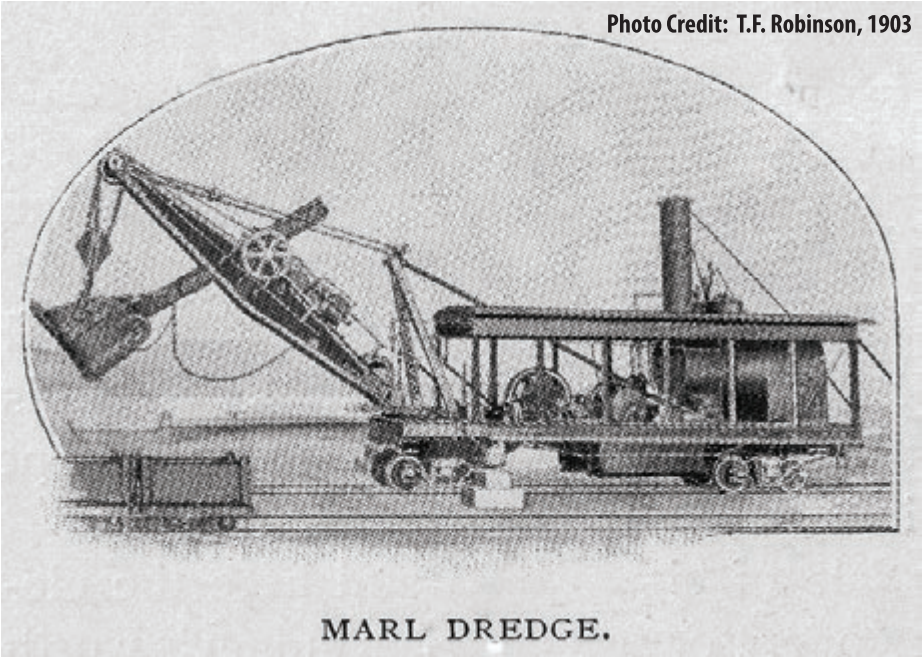
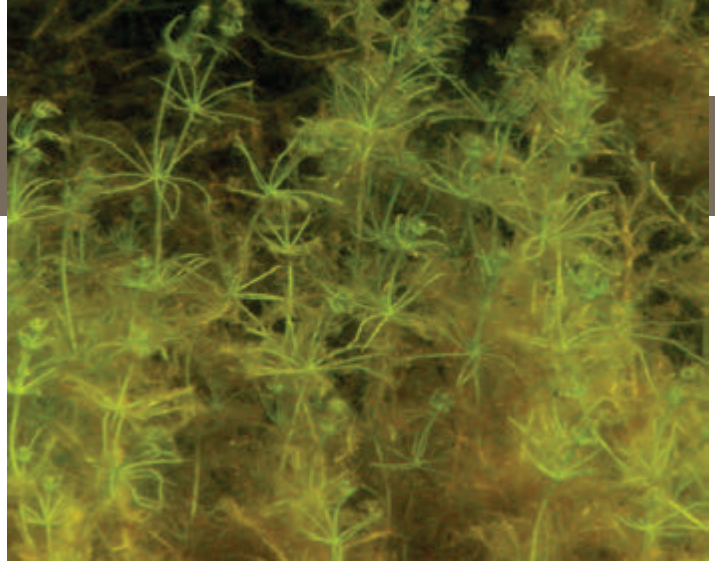
MARL LAKES (Continued from page 23)

northern Europe, marl lakes located in areas of glacial drift are characterized by thick deposits of marl that often form shallow flat-topped 'benches' of up to 80 feet in width that extend lakeward and that encompasses the entire lake perimeter, and lake mounts that arise from the lake's deep basin (Blatchley and Ashley, 1900; Wetzel, 1970; Treese and Wilkinson, 1982). In some marl lakes, the 'bench' may be sub-divided into two distinct segments - a relatively flat landward sloping platform, and a steeply sloping Chara spp. colonized bench that is inclined toward the center of the lake (Murphy & Wilkinson, 1980). Water depths over the landward bench in these lakes rarely exceeds five feet while the steeply sloping lake ward bench often extends lakeward to near the deeper center of the lake (Treese and Wilkinson, 1982). Marl lakes may also feature the existence of 'marl islands' (Blatchely and Ashley, 1900), or 'lake mounts' (Wetzel, 1970) that may abruptly arise from deeper areas of the lake's basin to just above or below the surface. Murphy and Wilkinson (1980) have described lake mounts as barely emergent flat-topped islands that are fringed by marl benches identical to those found along the main lake margins. Isolated from marl formations occurring near the shoreline perimeter of such lakes, Wetzel (1970) hypothesized that lake mounts may have been created "by some irregular deposit in the glacial ice block, resulting in a conformation that served as the nucleus for continued deposition" of marl. Geologists Blatchely and Ashley (1900), on the other hand, suggested that lake mounts may have been formed as a result of significant marl deposition that occurred just above and surrounding the orifice of a former large sub-aqueous spring that 'bubbled-up' large volumes of calcium bi-carbonate rich ground water from the bottom of the lake.

In a late 19th century assessment of marl deposits that exist within the glacial lakes of northeast Indiana, Blatchley and Ashley (1900) reported that the majority of marl deposits exceeded twenty feet in thickness, and in some instances, the accumulations exceeded forty five feet. The authors also suggested that 80% of the marl in existence today was likely deposited in calcareous lakes during the first half of their existence. In their often cited treatise entitled *The Lakes of Northern Indiana and their Associated Marl Deposits* geologists Blatchley and Ashley (1900) indicated that significant marl formations were highly prized in the late 19th century and early decades of the 20th century due to the fact that the calcium carbonate rich 'earthy' substance had many agricultural and industrial uses. Numerous marl excavating businesses that were in operation during the period earned handsome profits from the increasing demand for marl that was then widely used to help restore calcium deficient soils, as a means of improving the condition of soils, as a calcium rich food source in poultry and egg production, as limestone in processing sugar beets, and as a key ingredient in the manufacture of cement, lime, and industrial polishing powder (Blatchley and Ashley, 1900). Operating in places like Union City and Cement City, Michigan, for example, marl excavating and/or cement manufacturing companies such as Peerless Portland Cement Company often owned thousand acres of land hosting abundant marl beds that were actively dredged for marl well into the 20th century (Robinson, 1903).

A direct reflection of their glacial origins, calcium carbonate laden basins, and moderately productive trophic status, the submerged floral communities of marl lakes distributed across northern Europe and throughout the North American Laurentian Great Lakes region exhibit an astounding degree of similarity. The floral communities of marl lakes located in northern Europe are highlighted by several species of native Potamogeton, native *Myriophyllum spicatum*, and a diverse array of calciphile members of the Characeae family, including *C. aculeolata, C. intermedia, C. vulgaris, C. globularis*, and *N. obtusa* (Pentecost, 2009). Mirroring the composition of their northern European counterparts, marl lakes within





Marl lakes support a diverse abundance of species from the Characeae family, such as Chara vulgaris (pictured) .
Photo Credit: S. Brown

the Laurentian Great Lakes region also exhibit luxuriant vascular submerged macrophyte communities that are often dominated by Potamogeton species (Rich *et al.*, 1971), including widespread abundant occurrences of the exotic invasive *Potamogeton crispus* (curly-leaf pondweed) (Borman *et al.*, 2014). Moreover, the vast majority of moderately productive inland lakes in the region also continue to host abundant infestations of the now ubiquitous exotic invasive *Myriophyllum spicatum* (Eurasian water milfoil) (Smith and Barko, 1990; Madsen, 1998). Reflecting the level of Characeae species diversity found in their northern European analogues, the 'Chara' lakes of the North American Laurentian Great Lakes region are also unique in their exceptional ability to support and sustain the growth of *Chara spp., Nitella spp.*, and other native members of the Characeae family (Rich *et al.*, 1971). In addition to the commonly observed and often abundant *Chara vulgaris*, other less frequently occurring native members of the Characeae family that appear within the marl lakes of the Great Lakes region include *C. globularis, C. braunii, C. contraria, C. brittonii, C. foliolosa, C. aspera, Lychnothamnus barbatus*, members of the tribe Nitelleae including *Nitella flexilis, Nitella mucronata*, and *Nitella furcate* (Skawinski, 2014), and increasingly over the course of the past thirty years, exotic invasive *Nitellopsis obtusa*.

The important role of calcium carbonate dependent submerged macrophytes, and in particular Characeae species in fostering and stabilizing moderately productive conditions, and facilitating increases in water clarity dependent light penetration within host inland lakes is widely recognized by the international limnologic community (Blindlow, 1992; Scheffer *et al.*, 1993; van den Berg *et al.*, 1998). Luxuriant meadows of Characeae species that frequently occur in marl lakes of glacial origin are capable of encumbering the bio-availability of inorganic phosphorus, a highly beneficial function that helps buffer lakes from harmful influences of excess nutrient loading that often leads to eutrophication (Scheffer *et al.*, 1993; van den Berg *et al.*, 1998). Based on their extensive observation of the marl lakes of Poland that are known to often support abundant growth of Characeae species, Pelechaty *et al.* (2014) concluded that the internal community equilibrium that is often established in marl lakes is capable of remaining stable until external human influences such as excess nutrient loading, and/or destruction of critical near shore habitat interrupts the delicate ecological balance. Wiik (2012) suggests that in the absence of physical habitat destruction and excess nutrient enrichment, marl lakes are capable of thriving for long periods in a stable state of clear-water equilibria that is primarily attributed to the self-sustaining positive feedback mechanisms that are derived from a diverse and abundant array of calcium carbonate Characeae species.

While the presence of abundant growth of Characeae species such as *Chara vulgaris*, certain native vascular aquatic plants such as Potamogeton (pondweed) species, and relatively clear blue-green waters that are rich in calcium carbonate represent tell-tale signs that your lake may be hosting marl

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MARL LAKES *(Continued from page 25)*

Michigan Department of Conservation Institute of Fisheries Research, 1951

formations, the only way to know with a high degree of certainty is to have your lakes basin sediments evaluated by a lake sciences company. If your lake is one of the 2,700 inland lakes whose basins were extensively evaluated by Michigan Conservation Department Institute for Fisheries Research personnel during the decades of the mid-20th century, a map revealing the composition of your lake's substrates may be available to you by visiting the Michigan Department of Natural Resources Inland Lake Maps by County on-line site available at http://www.michigan.gov/dnr/0,4570,7-153-10364_52261-67498--,00.html.

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Send us your lake association newsletter or special announcements electronically. We love hearing from your lake. We will continue to use and spread the interesting and informative things happening on your lake in The Michigan Riparian. Please send your lake association newsletter to: swagner@mlswa.org.

The Turtle Log

Excerpts from "The Laker" (Home page www.northlaker.org and newsletter excepts from 2016 and 2017)

North Lake Protection Association is located in Washtenaw County

As you approach the Sauer Drive shore on your cruise around the lake, everyone looks to the "turtle log", floating in the lily pads to see how many of the reptiles (not amphibians) are perched there, soaking up a few rays.

You may see three or more dozen individuals and up to five species sharing the log. Michigan is home to nine species, but some are rarely seen at North Lake. The Snapping Turtle, Musk Turtle, Blanding's Turtle and Map Turtle are hard shell species found in lakes in this area. The Spiney Soft Shell Turtle is also found here.

The best times to view turtles are in the spring and fall, when turtles sun the most. All boaters are asked to stay away from the Turtle Log. Boat props harm both the turtle habitat and the turtles themselves.

Turtle Log

This public safety focused article is being reprinted in order to remind waterfront residents and the leadership of their respective property owners associations of the potential danger that may lurk just below the surface of your favorite lake, pond, stream, or marsh. We believe it is important for everyone to be aware of the location and status of the energy distribution related pipelines in their area, to have a well thought out plan on how to deal with possible leaks, spills, or other potentially dangerous situations that might arise, and to make sure you communicate with the pipeline owner/operator as well as fire departments and other public safety entities in your area to make sure that they have a plan--just in case! Awareness, cooperation, and coordination before an emergency occurs can pay big dividends for you and your community! This article was written by a local reporter following her attendance at the December 2016 Community Techniques for Protecting Water Quality seminar that was held in southeast lower Michigan, a collaborative event that was organized by Freedom Township, the Pleasant Lake Property Owners Association, Citizens Respecting Our Waters (CROW), Huron River Watershed Council, Michigan State University Extension, Michigan Lake and Stream Associations, Washtenaw County Water Resource Commission, and Washtenaw County Emergency Management team. Michigan Lake and Stream Associations frequently hosts, and/or collaborates with various organizations in holding regional or community-based events of this type that are planned and organized to enhance water resources protection efforts, and/or public awareness of the important water resources related issues of the day.

Scott Brown
ML&SA
Executive Director

High concentration of gas and oil pipelines running through Freedom Township an increased risk for residents

By Sara Swanson

Sara Swanson is an editor, writer and founder of the Manchester Mirror. She is on the Manchester Community Garden committee and CRC banquet auction committee, and is a founder and board member of the Manchester Ladies Society, and a Girl Scout leader.

Washtenaw County Emergency manager, Marc Breckenridge, says Freedom Township is a home to hidden danger. Neither the rolling green agricultural fields nor sparkling Pleasant Lake give any indication to the potential disaster just below the surface. While Sharon and Bridgewater Townships have three pipelines each running through them, Manchester Township has two, and others in Washtenaw County like Saline, York, Augusta and Webster only have one each, Freedom Township has six pipelines: Enbridge, Amoco, Marathon, Wolverine, Panhandle, Consumers Energy, and a soon-to-be seventh, the ET Rover pipeline. In addition, it houses a Consumers Energy natural gas compression station, next to Pleasant Lake. Does this

EPA's Response tothe Enbridge oil spill
Photo Credit: USEPA Enirovemental-Protection-Agency

high concentration of oil and gas lines create increased danger for Freedom Township residents? Breckenridge says yes, it does.

If one of the pipelines cracked or burst, whether due to natural causes like aging or man-made causes like terrorism, a natural gas line could potentially cause an explosion or an oil line could create an oil spill that would endanger the lives, property and livelihoods of homeowners, farmers and businesses in the area as well as impacting wells, wetlands, streams and the lake. Breckenridge says he finds the number of pipelines running through Freedom Township "concerning" and that while everyone needs to be aware of danger pipelines could potentially cause Freedom Township residents need a "heightened level of awareness" and need to know what to do and be prepared to act if they notice any warning signs.

Breckenridge recommends that residents familiarize themselves with the locations of the pipelines so they know where to keep an eye out for warning signs. First, find the location on the map, then locate it in the landscape. Every

(Continued on page 30)

Talmadge Creek bank oil removal
Photo Credit: USEPA Enirovemental-Protection-Agency

Extracting the Damaged Pipeline
Photo Credit: USEPA Enirovemental-Protection-Agency

High concentration of gas and oil pipelines

(Continued from page 29)

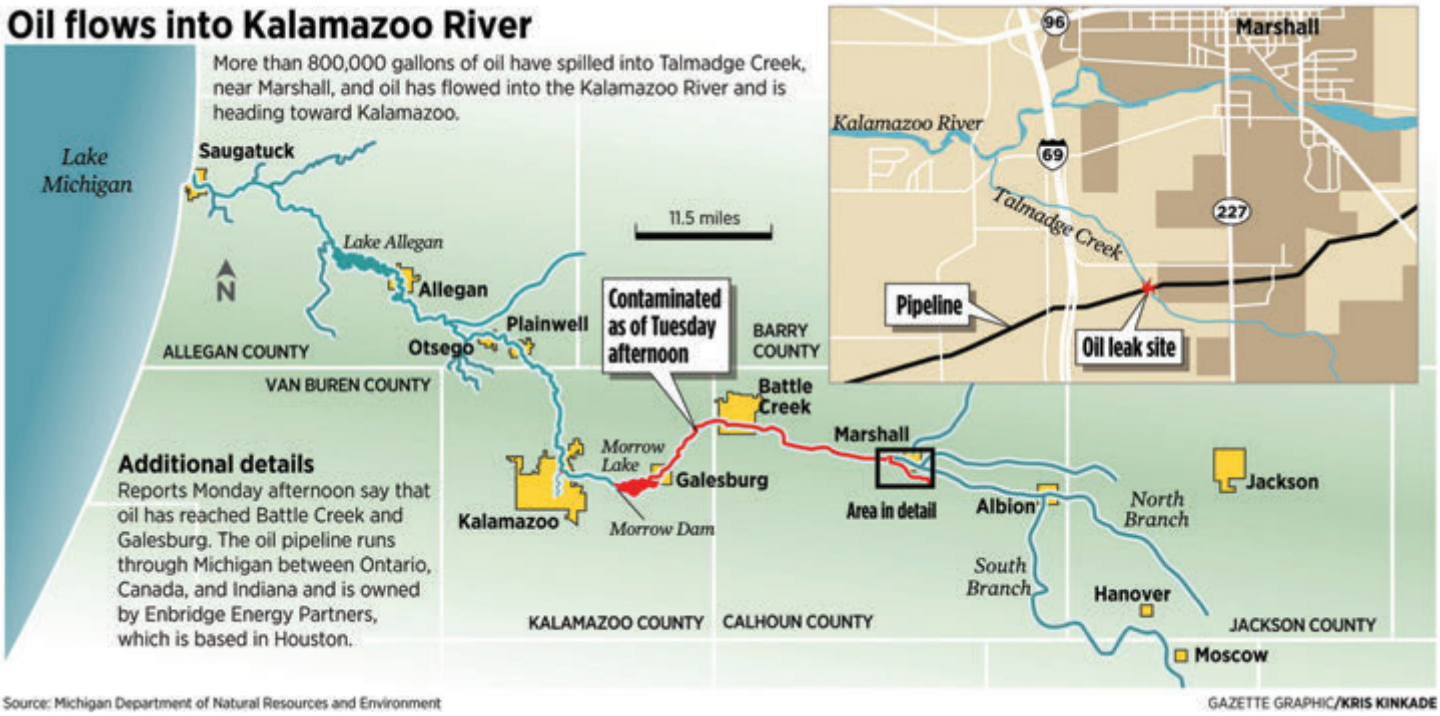
pipeline has line-of-sight markers on the surface, situated so that you can see the next markers in either direction from the one you have located, allowing you to determine the path of the pipeline.

Manchester Township's Fire Department serves as first responders for all emergency calls in Freedom Township. Fire Chief Bill Scully stated that when dealing when gas and pipeline leaks, the most important issue is early detection, and starting the 911 system operating. He enumerated some the warning signs to watch out for: "Besides the obvious signs of leakage – hissing, bubbles in the water, they should look for dead grass, odors of gas or a sulfur like smell, pooling of oil, or oil floating on water. If anyone sees or smells a potential leak, they should evacuate the area and immediately call 911."

The Manchester Township Fire Department has received training from the pipeline companies, as well as Consumers Energy, on pipeline safety and what to do if a leak occurs. Scully said that training is held yearly with the gas companies, fire departments, and excavators. "We receive updated information on new lines in the area, as well as contacts if there is a problem with a pipeline. All of the pipeline companies have crews and their own teams that would work with us to prevent further damage and mitigate the situation as quickly as possible."

He explained what would happen in the case of a pipeline leak. "If we were dispatched to a reported oil or gas leak, we would respond to the area from an uphill upwind direction. We would evaluate the situation for hazards, and if a leak was confirmed we would attempt to locate a pipeline marker to obtain the correct contact number for the owner of the line. If it is a gas leak, we would perform evacuations as needed to keep the public safe. If there was a fire involved we would still evacuate the public, and then attempt to protect structures and property that are being threatened. If it were a gas leak, we would attempt to dike the leak to prevent further damage to the environment."

Scully reports that since he's been with the Manchester Fire Department, they've only had to respond to one pipeline leak but that large pipelines aren't the only risk or possibly even the biggest personal risk, where gas is concerned. "In my time with the fire department, there has only been one pipeline rupture in our area," he stated, "It was located in Freedom Township near the Consumers Energy facility. It was an old line that was not marked on a map and was struck during excavation. We assisted the gas company in securing



the area until the line could be shut down. In the same time period, there have been multiple natural gas line leaks in town due to the homeowner digging and hitting the line."

While gas line ruptures can cause fires and explosions, oil pipelines are likely to cause more environmental damage. One of the largest inland oil spills in US history happened less than an hour west of us in Marshall, Michigan in the summer of 2010. A six-foot rupture in the 30-inch 6B pipeline operated by "Enbridge" dumped more than one million gallons of heavy crude oil into the Talmadge Creek, a tributary of the Kalamazoo River. Close to fifty households were evacuated and almost 100 households couldn't drink their water. Thirty-five miles of river were contaminated and the river was closed for clean up for almost two years. The "Enbridge Clean Water Act Settlement" states that oil spills are known to "cause both immediate and long-term harm to human health and ecosystems" including limiting oxygen in water, suffocating wildlife, destroying algae and other plankton, killing birds, contaminating food sources, reducing animal and plant reproduction and contaminating nesting habitats. The report reads, "Oil spills can cause long-term effects years later even if the oil remains in the environment for a relatively short period of time." A settlement was reached last summer and Enbridge has agreed to pay $177 million.

Scully explained that whether or not you live in Freedom Township or near a large pipeline, you need to be aware of the potential danger near you. "There is a high concentration of large gas and oil pipelines running through Freedom Township, but all of western Washtenaw County has its fair share of pipelines, not including the natural gas lines in the cities and villages that deliver gas to our homes." He explained, "The smaller gas lines that come to our homes are just as dangerous, and they are not marked. We have had considerably more calls to deal with homeowners who have been digging or working around the meter and have struck and ruptured the gas line. Natural gas is lighter than air, so if it is not trapped in a confined space, such as a home, it dissipates rapidly into the air, reducing the danger of traveling and reaching an ignition point. Liquid propane gas (LPG) that is used by many homeowners who do not have access to natural gas, is far more dangerous if a leak occurs. LPG is heavier than air, so it will seek out a low spot and flow to it." He would like to remind readers, "Before anyone digs, they need to contact the 'one call' system (811). This is a free service that will send someone to their location and mark the location of any underground lines near their planned excavation."

It is important to remember that under our country's current energy systems, pipelines are a necessity and that there are practical and economic benefits from pipelines and gas operations. So long as they are needed and run through Washtenaw, oil and gas pipelines are going to continue to be routed through the less populated areas of our county, like Freedom Township, and residents will bear more risk of explosion, fire, and environmental contamination from the pipelines then our neighbors to the east. However, everyone needs to be vigilant, as Scully states: "All residents, not only the Freedom Township residents, need to be aware of pipelines that run under or near their property. Normally they won't cause a problem, but we all should be aware of something out of the ordinary."

(Continued on page 34)

A Fond Farwell

MR. ART ROBELL,
LONG SERVING VOLUNTEER AND ML&SA BOARD MEMBER

The Officers, Directors and staff members of Michigan Lake and Stream Associations family would like to take this opportunity to extend a heart-felt note of appreciation to Mr. Art Robell for all of his many years of dedicated volunteer service to our organization. While we are delighted to report that Art is still very much with us and will continue to volunteer in support of our annual conference, he surprised us all at a recent Board of Directors meeting by announcing that he would immediately step down from his long held position on the Board. Readers of The Michigan Riparian who attend the ML&SA annual conference on a perennial basis may know Art as the always affable though not easily ignored gentleman who has organized the annual conference 50-50 raffle on behalf of ML&SA for many years. Art began his volunteer career with ML&SA in the years following his retirement from a twenty year career with the Lincoln Park Police Department and subsequent relocation to the LeRoy, Michigan area by serving as Vice-Chair of ML&SA Region 8, a lake rich region lying just to the east of the Huron-Manistee National Forests area. Married to the same lovely lady for almost sixty years, Mary Sandra "Sandie" and Art married following her graduation from Hillsdale College in the spring of 1954, and remained in the area until Art also graduated from Hillsdale College in 1957. Thank you for your many years of dedicated service to ML&SA Art, we're all wishing you well and looking forward to seeing you again at our 57th annual conference in the spring of 2018!

e NEWSLETTER

Are you receiving your FREE

Michigan Lake and Stream Associations E-Newsletter?

If not or if your email address has changed, send your email address to: cmcvic@frontier.com.

Please note:
we DO NOT share email addresses.

High concentration of gas and oil pipelines

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HOW TO RECOGNIZE A LEAK

Pipeline leaks are unusual, but do occur. The most common cause of pipeline incidents is excavation-related activities. We encourage everyone to be familiar with where pipelines are located, understand the signs and conditions of a possible leak, and know what actions to take.

Natural gas is a flammable, colorless, odorless, lighter-than-air, non-toxic substance. Sometimes local utilities add an odorant to help consumers smell gas should a leak occur. However, it's important to remember that you may not always be able to detect a gas leak by smell.

Natural Gas Liquids (NGLs) are naturally occurring elements found in natural gas and are extracted from the gas stream during processing. These liquids include propane, butane, ethane, iso-butane and natural gas condensate.

Crude Oil is a mixture of hydrocarbons that exists in liquid form in underground pools or reservoirs. Crude oil varies in composition and can contain small amounts of organic compounds like nitrogen, oxygen and sulfur.

Refined Products are produced from the processing of crude oil and other liquids, and include multiple grades of gasoline and middle distillates, such as jet fuel, heating oil, and diesel fuel.

BY SIGHT

Dust blowing from a hole in the ground.
Continuous bubbling in wet or flooded areas.
Dead or discolored vegetation in an otherwise green area.
Ice around leak.
A vapor cloud or mist.
Flames, if the leak has ignited.
A rainbow sheen on water.
Petroleum product pooling on the ground.

BY SOUND

Blowing or hissing sound.

BY SMELL

An unusual smell or gaseous odor.
If you become aware of a leak, notify the pipeline company immediately.
Emergency phone numbers are listed on all pipeline markers.

WHAT TO DO IF A LEAK OCCURS

Leave the area immediately on foot and warn others to stay away
Abandon any equipment being used in or near the area
Avoid any open flame or other sources of ignition
Call 911 or local law enforcement
Notify the pipeline company immediately
Do not attempt to extinguish a natural gas fire, and do not attempt to operate pipeline valves

PIPELINE COMPANIES IN MICHIGAN/ EMERGENCY CALL NUMBERS

Amoco Oil Co.-1-800-548-6482

Buckeye Partners, L.P.-1-800-331-4115

Enbridge Energy, L.P.-1 800-858-5253

Kinder Morgan Cochin, LLC
1-866-762-8442

Marathon Pipe Line, LLC
1-800-537-6644

Plains All American Pipeline, L.P.
1-800-708-5071

Sunoco Pipeline, L.P./Energy Transfer Partners-1-800-786-7440

Wolverine Pipeline Co.-1-888-357-5004

ENVIRONMENTAL EMERGENCIES

DEQ - Report Environmental Emergencies
Environmental Emergency
24-hour Pollution Emergency Alerting System (PEAS) 1-800-292-4706

State of Michigan Efforts to Address Aquatic Invasive Species in Inland Lakes

by Kevin Walters, Aquatic Biologist
Michigan Dept. of Environmental Quality, Water Resources Division

Parrot feather infestation from Wayne County in 2014 prior to DNR treatments

Michigan is a state defined by our natural resources, including more than 11,000 inland lakes. Our economy, environment and, in limited instances, human health, are being negatively impacted by aquatic invasive species (AIS). While AIS are not a new issue in Michigan as evidenced by species such as Eurasian watermilfoil and starry stonewort having been in the state for decades, management momentum has been building exponentially in recent years.

At the state level, Michigan's Invasive Species Program is a joint effort of Michigan's Quality of Life (QOL) departments: Agriculture and Rural Development (MDARD), Environmental Quality (DEQ) and Natural Resources (DNR). The departments share responsibility for invasive species policy, legislation, regulation, education, monitoring, assessment, management and control, and work collaboratively to implement Michigan's AIS State Management Plan (SMP). The four overarching goals of the SMP are

1) Prevent new introductions of AIS into Michigan waters;

2) Limit the dispersal of established populations of AIS throughout Michigan waters;

3) Develop a statewide interagency early detection and response program to address new invasions of AIS; and

4) Manage and control AIS to minimize the harmful environmental, economic, and public health effects resulting from established populations.

In 2014, Michigan's governor and the Legislature designated $5 million in ongoing funding, beginning in fiscal year 2015, to combat invasive species. These state funds along with federal grant funds, in particular funds through the Great Lakes Restoration Initiative, are being used to implement Michigan's Invasive Species Program and SMP through a variety of efforts.

MICHIGAN INVASIVE SPECIES GRANT PROGRAM (MISGP)

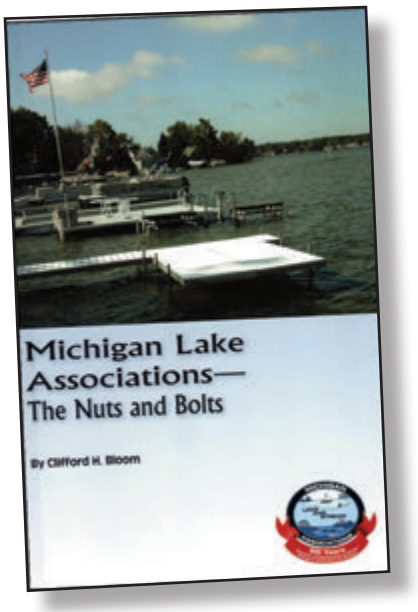
One of the most notable efforts for the program has been the creation of the MISGP which has funded projects from partners and collaborators with approximately $3.6 million annually since the program's inception in 2014 (Table 1).

Table 1. Examples of MISGP grants benefiting Michigan's inland lakes.

Year Funded	Recipient	Description
2014 & 2016	Michigan Lake and Stream Associations	Expand and enhance regional collaboration and implementation of the Clean Boats, Clean Waters program that empowers local entities to educate boaters about steps they can take for preventing the introduction and spread of AIS.
2014	Michigan Technological University	Seeks innovative and multifaceted control of Eurasian and hybrid watermilfoil using integrative pest management principles
2014	Central Michigan University and The Nature Conservancy	Evaluate existing treatments and investigate new methods for managing aquatic invasive plants such as starry stonewort, Eurasian watermilfoil, and Carolina fanwort in inland lakes.
2015	Loyola University	Novel approaches to advance efforts to detect and control European frogbit by developing reliable, cost-effective methods to remotely detect frogbit.
2015	Michigan Nursery and Landscape Association	Preventing the spread of invasive plant species through education and outreach to the nursery and landscape industry; national shoreline professionals; master gardeners, gardeners and consumers.
2014-2016	Multiple projects	Management of invasive Phragmites and site restoration in riparian and wetland areas
2016	Benzie Conservation District	Public outreach using mobile boat washes to raise awareness and prevent the spread of AIS in Benzie, Leelanau, and Manistee counties.

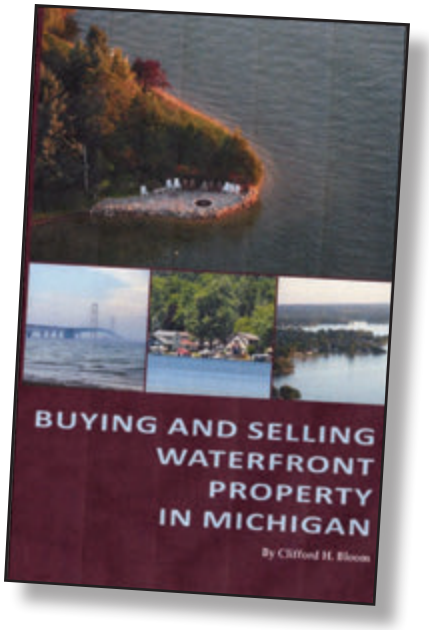
(Continued on page 37)

Two Books Written by Clifford H. Bloom and Published by ML&SA to Benefit Lakefront Property Owners In Michigan!



Are you and your lakefront neighbors pondering the creation of a lake association? Would you like to improve an existing lake association? Are you wondering about the legal ramifications of forming a lake association in Michigan? If so, this book will provide you with every detail and answer every question you may have regarding lake associations!

Nuts and Bolts
Price $15.50 plus S/H
(Quantity discounts available)



Considering the sale of an existing lakefront property? Are you looking to buy lakefront property in Michigan? Do you understand the legal ramifications and common pitfalls that you may confront? The purchase of this book could save you tens of thousands of dollars and/or the grief and headache of regretting your lakefront property transaction decisions.

Buying and Selling Waterfront Property
$20 plus S/H
(Quantity discounts available)

To purchase these books, contact ML&SA Central Office Manager Sharon Wagner at swagner@mlswa.org or visit our website at www.mymlsa.org

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Stanton, MI 48888

State of Michigan Efforts to Address Aquatic Invasive Species in Inland Lakes *(Continued from page 35)*

In addition to the examples above, MISGP has also helped fund Cooperative Invasive Species Management Areas (CISMAs) as local resources for invasive species expertise on preventing, identifying, reporting and managing invasive species. CISMAs have been established in most areas of the state and are available to provide assistance to private and public landowners. Visit the "Local Resources" tab at www.michigan.gov/invasives to find your local CISMA and learn how you can connect with others in your community taking action on invasive species issues.

MICHIGAN'S WATCH LIST

Some invasive species have been identified as being an immediate or potentially significant threat to Michigan's economy, environment or human health and represent Michigan's Invasive Species Watch List. These species have either never been confirmed in the wild in Michigan or have a limited known distribution. Early detection and timely reporting of these species increases the likelihood of preventing establishment and limiting negative effects. To date, there have been multiple responses to new detections of Watch List species by the State of Michigan and partners. Examples of responses include:

- Ongoing monitoring and treatments to remove European frogbit from multiple waterbodies in Kent County
- Local eradication of parrot feather from a detention basin in Wayne County and ongoing monitoring and treatments for the only other known infestations of parrot feather in Michigan from Washtenaw and Jackson Counties
- Ongoing survey and removal efforts for the first detected infestations of invasive red swamp crayfish in Michigan

DEQ's mobile boat wash in operation at Sleepy Hollow State Park

To learn more about these and other early detection and response efforts, visit the DEQ/DNR's online AIS Response and Monitoring Efforts story map.

CALLING ALL CITIZENS

Citizen involvement plays an important role in detecting new locations of invasive species. The Midwest Invasive Species Information Network (MISIN) is a MISGP funded web- and app-based invasive species identification and reporting tool to aid in early detection and response. The smartphone app can be used by experts or citizens in the field to identify, photograph and report the location of nearly 350 different invasive plants, animals and insects. Any reports of Watch List species are immediately directed to technical experts in Michigan's Invasive Species Program and the QOL Response Plan for AIS is enacted.

EXOTIC AQUATIC PLANT WATCH

The DEQ-funded Exotic Aquatic Plant Watch (EAPW) component of the Cooperative Lakes Monitoring Program is an opportunity for volunteer citizens, lake associations and others to be "early detectors". The EAPW empowers volunteers with free training on how to identify, locate and report invasive plants that pose the highest risk to Michigan's inland lakes. More than 75 lakes in Michigan have already benefited from the watchful eyes of over 100 Exotic Aquatic Plant Watch volunteers. To learn more or enroll your lake in the program, visit https://micorps.net/lake-monitoring/.

MOBILE BOAT WASH

Since 2014, the DEQ has partnered with Michigan State University (MSU) and the U.S. Forest Service to deliver face-to-face outreach and boat washing for AIS decontamination at boat ramps, fishing tournaments and other events around the state using two DEQ-owned mobile boat wash units and student field crews. The partnership has reached more than 6,000 boaters and anglers and nearly 1,000 boats have been washed during 140 separate deployments around the state. Partners and local hosts have included lake associations and other organizations that plan cooperative events when possible.

AIS LANDING BLITZ

Similarly, Michigan's AIS Landing Blitz is an event coordinated by the invasive species program annually over the 4th of July holiday period at boat launches around the state. Local volunteers receive messaging and materials to teach boaters about compliance with AIS-related regulations and other recommended actions that help keep AIS from

(Continued on page 40)

ASK THE EXPERTS

If you have a question about water related issues, riparian rights, and/or lakes and streams, etc., let us know by email or snail mail.

Email: swagner@mlswa.org
Mail: The Michigan Riparian
300 N. State St., Suite A,
Stanton, MI 48888

Question: Has there been any progress on banning the wake enhancing devices? We've got more on our lake and they are causing damage to the shoreline.
Thanks,
Greg

Answer: Hi Greg,

The Michigan Boating Industries Association (MBIA) is a very powerful lobbying group in Lansing. To view their organizational website, you may visit www.mbia.org. Michigan Lake and Stream Associations has shared our mounting concerns with both the DNR and the Department of Environmental Quality on several different occasions.

We are suggesting that folks get video or photos of these wake enhancing boats and the damage they are causing to our lakefront properties and natural shorelines. It may also be a good idea to get the MC number of the boat, time and date of the event, local weather conditions, waves, etc.

You might also want to contact your state representative or senator about this largely unresolved problem. For more information about this important subject, please refer to Attorney Cliff Bloom's article on wake boards in this issue of *The Michigan Riparian* magazine.

Scott Brown
ML&SA
Executive Director

* * * * * *

Our experts include our riparian attorney, a biologist, a limnologist, an engineer, a college professor and a state agency official. They look forward to responding to your question.

The Practical Guide to Lakefront Living:

Enjoying and Conserving Your Lake

Lake ecology, natural shorelines, swimmers itch, fishing with conservation in mind, e-coli bacteria, dock placement, riparian rights, algae blooms, Michigan boating law, watershed management, aquatic invasive species and Special Assessment Districts are just a few examples of the important topics that are covered in this unique guidebook that was written and published by ML&SA with Michigan lakefront home owners in mind!

The new guide book may be purchased by visiting the Books and Publications purchase page on the ML&SA website available at www.mymlsa.org, or by contacting ML&SA Central Office Manager Sharon Wagner at swagner@mlswa.org.

Purchase it now for $20 shipping included

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Volunteers meet with boaters during the AIS Landing Blitz

State of Michigan Efforts to Address Aquatic Invasive Species in Inland Lakes

(Continued from page 37)

spreading from lake to lake on watercraft, trailers and other recreational gear. Thousands of boaters have been reached each year through the Landing Blitz at over 100 different boat ramps since the inaugural event in 2014.

ORGANISMS IN TRADE

While boating, angling and water recreation can be important pathways by which AIS can spread from lake to lake, AIS in trade also pose a risk. Efforts to prevent violations of the state's Natural Resources and Environmental Protection Act include annual compliance inspections to ensure that prohibited and restricted species are not traded or sold in Michigan. In 2016, MDARD staff inspected 1,033 plant dealers and 1,321 plant growers while DNR law enforcement staff conducted 386 inspections of retail and wholesale pet, bait and aquaculture outlets. Additionally, MISGP funded the creation and implementation of the RIPPLE (Reduce Invasive Pet and Plant Escapes) outreach campaign statewide to prevent AIS introductions via the aquarium and pond trades.

Continued involvement and support from inland lake communities and land owners will be required to keep momentum moving forward on AIS management. While there is more work to be done both at the state and local level, a plethora of resources exist to help deal with the threat of AIS in Michigan's inland lakes. For more information about Michigan's Invasive Species Program and any of the efforts shown above, please visit www.michigan.gov/invasives. You can also stay up to date with the latest news and information from the program by clicking the red "subscribe" envelope on the homepage.

The Killer Bees Appear to be Winning

AN UPDATE REGARDING WAKE BOATS/BLADDER BOATS

By Clifford H. Bloom, Esq.
Bloom Slugget, PC | Grand Rapids, Michigan | www.BloomSluggett.com

The watercraft commonly known as wakeboard boats, bladder boats, ballast boats or wave boats (hereinafter, "wake boats") are increasingly becoming a big problem on inland lakes throughout Michigan. Wake boats are not simply a different type of boat, and the problems they create are not just a matter of degree. The problems caused by wake boats are geometrically worse than conventional speed boats. This article will update my earlier Attorney Writes column on wake boats from the Fall 2013 issue of the Riparian Magazine called "Of Mosquitoes and Killer Bees."

As wakeboarding has steadily increased in popularity over the past decade, statewide sales of recreational boats designed to create large, high energy wakes have also increased dramatically. Intense competition among wake boat manufacturers has led to the development of new technologies to improve the ability of their boats to create increasingly high energy wakes. Variable, high volume ballast systems, as well as specially designed hulls, propellers and powertrains, have all led to significant improvement in the performance of wake boats in recent years. The potential for collateral damage to docks, hoists, moored boats and other shoreline equipment as well as the potential for shoreline erosion increases with wake boat displacement, engine and hull size, and speed. Ballast-laden wake boats operating at even moderate speeds are capable of producing surface and near-surface wake related energy levels that substantially exceeds the energy created by even the largest of waves induced by intense summer thunderstorms and/or high winds on inland lakes.

Why are wake boats such a problem on Michigan inland lakes? There are generally at least three problems associated with such watercraft. First, they are having significant negative environmental impacts on lakes. Why? Wake boats are designed not only to throw a larger wake or wave than conventional boats, but their propulsion system and deep wakes disturb the bottomlands of the lake involved to a much greater depth and degree than other boats. Given such boats' hyper-wave effect, they tend to keep lake waters churned up (and murky) as well as continually disturbing the bottomlands of the shallower lakes, which imperils natural aquatic plants, insects, fish and microscopic life. Many of the adverse environmental impacts remain unknown and untested at this time.

Second, wake boats are destroying natural shorelines, seawalls and other shoreline protective structures throughout the state. Waves created by wake boats are not only larger and more intense than waves created by conventional boats, they also slam into shorelines and seawalls with much greater force and velocity. Many riparian landowners have reported that seawalls and shorelines, which have for years been able to withstand conventional boating activity, are being destroyed or disrupted in relatively short periods of time by the large waves from wake boats. In many instances, the operators of wake boats are destroying the private property of others.

Finally, wake boats present significant safely hazards to other boaters, swimmers and even people resting or sitting on or in moored boats, swim rafts and docks. It is not uncommon for the wave from a wake boat to cause a person to fall down on or fall off of a dock or moored boat, or even break boat mooring lines.

Unfortunately, on a relatively small lake, just a few wake boats operated irresponsibly (and even sometimes, operated in a normal fashion) can destroy many of the attributes that make lake living attractive.

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The Killer Bees Appear to be Winning

AN UPDATE REGARDING WAKE BOATS/BLADDER BOATS

What can be done to resolve the problems associated with wake boats? Sadly, in Michigan, the options appear to be limited. Some of the possible solutions are as follows:

A. More vigorous enforcement of existing Michigan boating laws.

Existing Michigan laws already make it illegal to operate a boat at a wake producing speed within a certain distance of the shore, a dock, a swim raft, a swimmer, a fisherman or sailboats. Furthermore, the improper use of a wake boat could constitute careless or even reckless boating in a given situation. More vigorous enforcement of these laws as to wake boats could make a difference.

B. Special watercraft rules.

Pursuant to MCL 324.80108 *et seq.*, the Michigan Department of Natural Resources (the "DNR"), in conjunction with a local municipality, can adopt one or more special watercraft rules for a given inland lake. The special watercraft rules include no wake areas, no wake lakes, a limitation on hours for high speed boating and waterskiing and similar restrictions. Unfortunately, however, the statute does not allow the adoption of a special watercraft rule to ban or regulate certain types of boats, such as wake boats. Furthermore, the DNR generally will not agree to adopt a special watercraft rule unless there is a demonstrated safety problem with the lake involved.

C. The possibility of a municipality adopting its own local ordinance regarding wake boats.

Theoretically, a Michigan township, city or village could adopt a local ordinance (without DNR involvement) to regulate or potentially even ban wake boats on some or all lakes within the municipality. *Miller v Fabius Township Board*, 366 Mich 250 (1962). However, it is also possible that any such regulations are preempted by either state or federal law. Preemption occurs where either the federal or state government has taken away (or severely curtailed) the ability of a local government to regulate a particular area. Michigan courts have not yet ruled regarding whether the special watercraft rule procedure found in MCL 324.80108 *et seq.* preempts the ability of local municipalities to regulate on-water activities on their own.

D. State legislation.

The Michigan legislature has full power to regulate or even ban wake boats on Michigan inland lakes. However, due to the lobbying power of the boating industry, such regulations are not likely to be enacted. Nevertheless, it should also be pointed out that even if the sale and use of wake boats were prohibited or significantly regulated, it likely would not adversely affect commerce or the boating industry for the simple fact that almost all of the people who would purchase wake boats would buy other conventional boats as an alternative.

One common sense legislative proposal would be for the Michigan Legislature to adopt a law or statute that prohibits wake boats from being used on inland lakes under a certain size (for example, 2,000 acres) and to forbid wake boats from being used (or at least their bladders or mega-wave capabilities from being used) within so many feet of the shoreline (for example, 1,000 feet). Such regulations could help minimize the adverse safety, environmental and property damage effects of wake boats.

E. Private civil damages lawsuits.

If a wake boat damages a riparian's dock, swim raft, seawall or other property, that riparian might have the ability to pursue a damages lawsuit against the operator of the wake boat involved. However, such lawsuits would likely be not only expensive, but could potentially be difficult to win. Damage to seawalls and other property is often cumulative and may not be caused simply by one wake boat.

F. A riparian rights lawsuit.

In Michigan, a lakefront or riparian property owner can only use his or her lake frontage and the surface of the water of the lake in a reasonable fashion. See *Thompson v Enz*, 379 Mich 667; 154 NW2d 473 (1967); *Three Lakes Assn v Kessler*, 91 Mich App 371; 285 NW2d 300 (1979); *Pierce v Riley*, 81 Mich App 39; 264 NW2d 110 (1978); *West Michigan & Market Corp v Lakeland Investments*, 210 Mich App 505; 534 NW2d 212 (1995), and *Square Lake Hills Condo Assn v Bloomfield Twp*, 437 Mich 310; 471 NW2d 321 (1991). On a given lake (particularly a smaller inland lake), one or more riparian property owners could theoretically pursue a lawsuit against the operator of a wake boat for unreasonably interfering with the riparian rights of others. To the extent that the wake boat damages a riparian's lake bottomlands, seawall or other property, or effectively "crowds out" other riparians from using the lake, that could potentially be actionable via a civil lawsuit. The idea is somewhat novel, but could potentially evolve into court sanctioned litigation.

Many of the problems created by wake boats are a result of operators not being thoughtful of their neighbors and fellow riparians. Following the Golden Rule would likely cut down significantly on the problems caused by wake boats.

Should you feel strongly regarding this matter, please contact your local Michigan senator or representative. You can also contact the Michigan Waterfront Alliance at (989) 821-6661 or at www.mwai.org.

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www.mi-riparian.org

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300 N. State Street, Suite A
Stanton, MI 48888

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