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THE MICHIGAN RIPARIAN

www.mi-riparian.org

RIPARIAN (ri-'pair-ee-en) adj. Relating to or living or located on the bank of a natural watercourse, such as a river, or of a lake or a tidewater.

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photo credit Joel Bull

It's Spring. Welcome home to the Loons!

Did you know that Loons return to the
same place each year to nest?

RIP road end battles? See pages 19 and 25

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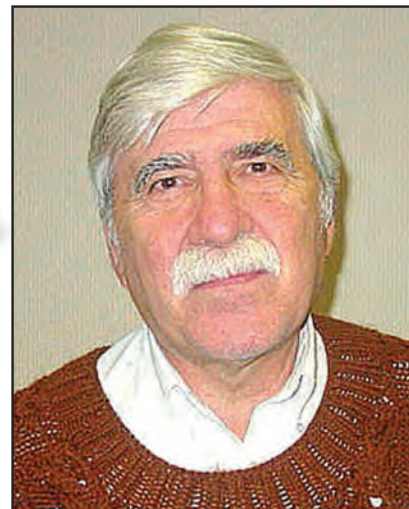
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FROM THE PUBLISHER

Thank You
Franz Mogdis



Effective January 1, 2012, Franz Mogdis retired as the publisher of this magazine. Franz is now the Publisher Emeritus and will continue to periodically contribute columns and articles to the magazine. All of us in the Michigan Riparian magazine family want to thank Franz for all of his years of service Michigan Lake & Stream Associations and The Michigan Riparian. We wish him and his family the very best in his semi-retirement. Franz will remain a busy person and very much in demand. He continues to serve as the Executive Director, Montcalm Alliance (the County's economic development function) as well as Chairman of Montcalm County Planning Commission and Administrator of Montcalm County Brownfield Authority as well as several organizations.

Like my predecessors, Don Winne and Franz, I share their love of lakes, and writing about the people and experiences of fellow riparians.

I am honored to have been named as the new publisher of the Michigan Riparian magazine. I love hearing and gathering stories from people fortunate enough to live on Michigan's inland lakes and streams. My goal is to follow in their footsteps by providing an entertaining, educational and people-connected magazine. Please continue to share your ideas, questions and stories with us. I am excited to be part of such a great and unique publication.

Sharon Wagner, Publisher

For Us All

By Joanne Williams,
State Coordinator
MLPA/ Michigan Loonwatch

As we gaze out over a field, a woodland or a lake, we realize that no matter how much we may or may not see, life is in that place; flourishing rich and full in so many different forms and all going about their own ways. It has so often been taught that animals other than ourselves have no emotions nor ability for direction of thought, no purpose but to mindlessly go about their shallow lives, led by instinct alone. But many who work closely with the creatures of this Earth realize that this is untrue; there is so much that we can perceive if we but allow ourselves to encompass realities beyond our own.

Every creature has its ways, its reason for being and its individual life; and as we share with them this space and time, to see them for themselves is a gift that is there for anyone to possess. It is easy to find this in our pets, with whom we spend so much of our time; but it is there also in the wild. And we know that in our animal companions the wild ancestry is ever-present.

We who work with the Loon see it as a special and exquisite bird, which indeed it truly is; and, as are all creatures of the Earth, it is perfect in its way. It has adapted over millennia to do what it must to survive, and every aspect of its behavior and its physical form is absolute perfection. We can observe this, seeing in every action the refinements that through

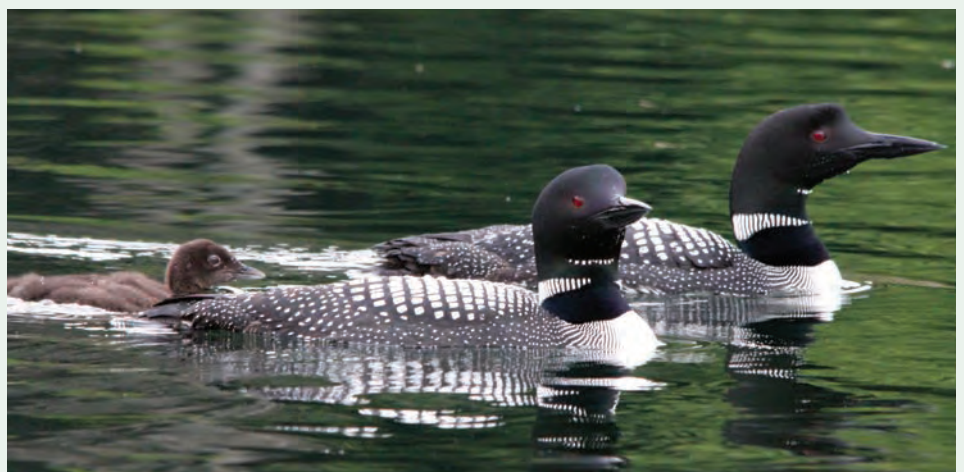
countless ages of adaptive changes, time and circumstance have brought to this present moment. But there is something else, too; something beautiful and mysterious, another world if you will, that we had not even known existed; a world that opens to us the realization of, as W.W. Gibson told with simple eloquence, "...the heart-break in the heart of things".

Well we know of heartbreak. It comes upon us without warning, and with that catching of the breath that seems to stop us where we stand. But heartbreak is not always from a deep sadness; it can be from an overwhelming joy as well, or from a knowing that touches us deeply at the most fragile and guarded places within. That is why tears are shed even at sudden moments of happiness as well as at those of pain. Over the years, so many stories encompassing these things have come to me from Loon Rangers: those who observe the wild day-to-day.

There have been desperate situations, when loon parents have come to the Rangers seeking help for a young one trapped or in trouble, guided the Ranger to the area and waited patiently closeby as their chick was

rescued. And there have been joyful times as proud new parents loudly announce their chicks' arrival; and then, calling, parade them around the entire lake past each cottage to show them off, much to everyone's delight. And, too, some stories can touch us in a way that we cannot forget, as when a chick was lost only a very short time after hatching and yet for a few days the mother still went through all the motions as though her little one were with her; her mate following protectively near as she went about upon the quiet water, hooting softly, guarding and guiding her baby that was not there.

Surely, there is more than instinct alone within these wild hearts. These stories touch our own hearts and lives, and in doing so tie us each together; for together we are, here in this moment of time. Perhaps the greatest gift that we can give ourselves, our fellow creatures and the Earth we share is to be aware of what is around us; to understand, and with kindness, that it is the same for us all, whether of need or joy or grief. The life of every animal is precious to its own self, and for its place in the world. To recognize and respect this truth enriches us all, as together we travel on.



Loons are Good Parents! Both adults feed, protect, and teach their chick(s) throughout the summer.
photo credit Joel Bull

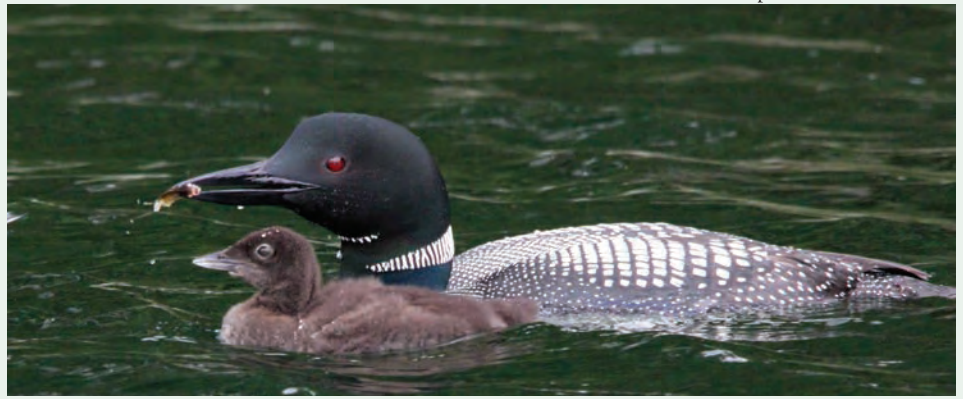
Loon Rangers and Area Coordinators:

Our Volunteers for Loon
Protection in Michigan
by Joanne C. Williams, State
Coordinator, MLPA/MLW

The foundation of our Michigan Loonwatch Program is the people who make it possible to carry on our work for the loons here in our state. They are the Loon Rangers and the Area Coordinators, volunteers who give unselfishly of their time and efforts to help ensure that the song of the loon will not disappear from Michigan.

Each year these dedicated people observe the loons on the lakes and report the information to us for entry into our Michigan Loonwatch database so we can have the most recent history as well as statistics in order to provide the best protection we can for the loons and their habitat. In addition, they provide on-the-spot protection efforts as well as educational efforts for people who use the lakes, whether for recreational purposes or just for a lake residence.

Our Rangers often help the Loons' story to be successful when it looks like all might fail. Last summer, the small floating island where the loons were nesting on a Clare County Lake began to break apart. The previous summer, the island had moved out of its cove during a summer storm, and the loons were terribly upset. The Rangers and lake residents got their boats, anchored onto the island, and



Good Fishin' for All! Loon nesting and feeding on your lake indicate a healthy aquatic ecosystem.

pulled it back into the cove. The loons returned to their nest and successfully hatched and raised one chick. This year, though, when the island broke apart, they abandoned the nest and the eggs were taken by predation. We received several calls from lake residents about the situation, asking what could be done. We assured them that we were going to try to help, and in October we went to the lake, pulled the parts of the island together, attaching the smaller parts to the larger section (on which we found the nest) and anchored it much like we would an artificial island. Everyone is eager to see how things will go this coming summer. They are all very concerned and want to keep the loons on their lake. We think that there is a very good chance that the loons will return to the little island and we will see chicks this summer, thanks to the concern and dedication of the Rangers and all the others who love the loons!

We presently have about 400 Loon Rangers and 16 Area Coordinators. Our program continues to grow, and we always welcome new Rangers and Coordinators. At the present time, we are looking for Area Coordinators for the following counties: Alcona, Iosco, Ogemaw and Oscoda. Also,

our Area Coordinator for Crawford, Otsego and Roscommon Counties would be pleased to have someone help out there.

If you are interested in helping with the Area Coordinator efforts and/or becoming a Loon Ranger, we would be happy to hear from you! We presently cover 47 Michigan counties and have 684 lakes in our database. Some lakes do not have Rangers, so if you live on or visit a lake that has loons, please consider being part of our Loon Ranger Program! We are making a difference for these beautiful birds, and it is well worth our efforts and very rewarding! We thank you, and the Loons do too!

Email: info@michiganloons.com

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2007 National Lakes Assessment – Michigan Results

In the summer of 2007 the Michigan Department of Environmental Quality (MDEQ) participated in the first-ever baseline study of the condition of the nation's lakes. The U.S. Environmental Protection Agency (EPA)-sponsored National Lakes Assessment (NLA) Survey examined ecological, water quality and recreational indicators in lakes across the country. Using a statistical survey design, lakes were selected at random to represent the condition of the larger population of lakes across the lower 48 states. A total of 1,028 lakes were sampled for the NLA, representing about 50,000 lakes nationwide. In Michigan, 50 lakes were sampled; representing approximately 6,600 lakes 10 acres or larger statewide (Fig. 1).

Field crews collected samples using the same methods at all lakes to ensure that results can be compared across the country, as well as statewide. MDEQ staff and U.S. EPA researchers analyzed thousands of measurements on the Michigan lakes, including water quality indicators such as nutrients, dissolved oxygen and chlorophylla; biological indicators such as phytoplankton and zooplankton; recreational indicators such as algal toxins and pathogens; and physical habitat indicators such as lakeshore and shallow water habitat cover.

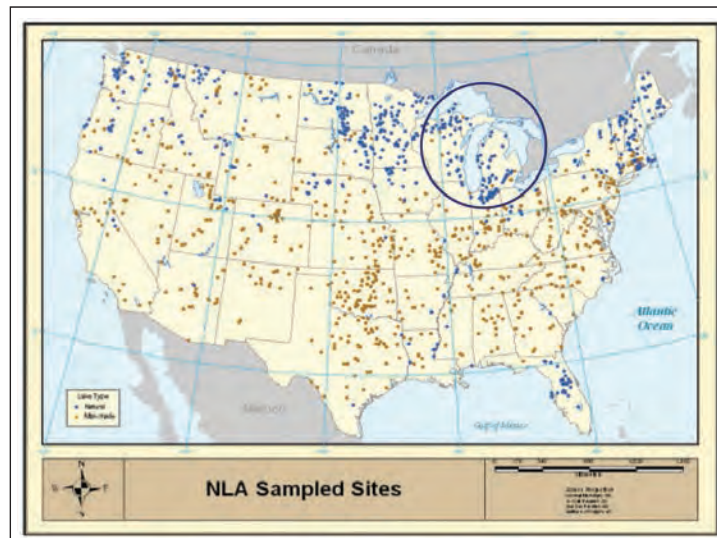


Figure 1. NLA Survey Lakes

What are the Key Findings of the NLA-Michigan?

Biological Health

The NLA-Michigan finds that 86% of Michigan's lakes support healthy communities when compared to least disturbed "reference" sites (Fig. 2). Another 10% of lakes are in fair condition, while only 3% are in poor biological condition. This rating is based on an index of phytoplankton and zooplankton taxa loss – the percentage of taxa observed (O) compared to those that are expected (E), based on conditions at least-disturbed "reference" lakes.

Lake Condition Stressors

The survey measured a set of key stressors to lake condition to determine their extent across the nation as well as statewide. Each lake stressor or indicator was

classified as either "good", "fair", or "poor" relative to the conditions found in the set of "reference" sites established for the NLA survey.

Similar to the national estimates, the most wide spread stressors measured in Michigan lakes are related to habitat. Figure 3 (page 7) shows the percentage of lakes in Michigan that assessed as poor (i.e. less than 5% of the low end of the NLA "reference" lakes distribution) for each of the key stressors measured during the NLA survey. Lakeshore habitat and physical lakeshore complexity are major stressors for Michigan lakes.

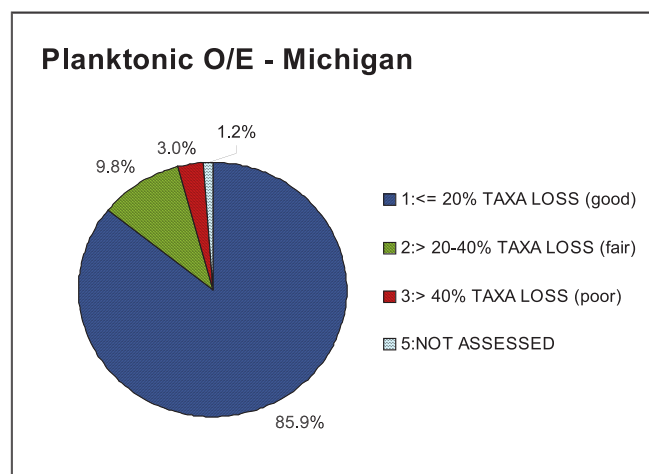


Figure 2. Biological Condition of Michigan Lakes

Nutrients and turbidity show lesser but significant impact, while salinity and conductivity, acid neutralizing capacity, and dissolved oxygen stressors as measured in the NLA did not account for poor conditions for these stressors in the Michigan lakes statewide.

Trophic Condition

Another approach the NLA used to assess the condition of lakes is in respect to their primary biological productivity, or trophic status. Figures 4 and 5 illustrate the trophic status distribution in Michigan lakes compared to lakes across the nation and lakes in the Upper Midwest (UMW) ecoregion based on chlorophyll-a and total phosphorus indicators. These results indicate that 83-84% of Michigan lakes are low (oligotrophic) to moderately (mesotrophic) productive and less than 4% exhibit excessive biological productivity (hypereutrophic).

Recreational Condition

An important aspect of lake health includes suitability for public use and recreation. As part of the NLA, three indicators of potential risk from harmful algae were evaluated, including microcystins, an algal toxin; cyanobacteria, a type of algae (bluegreen algae) that can produce algal toxins; and chlorophyll-a, a measure of all algae present.

Results for Michigan show that microcystins levels were present in about the same percent of lakes as they are nationally (approximately 30% for all lakes), But slightly greater than found in the UMW ecoregion lakes (Fig. 6).

However, for each of the indicators of risk, Michigan lakes showed a lower percentage of lakes in the moderate risk category when compared to the nation and UMW ecoregion results and no lakes in the high risk category.

The thresholds (low, moderate, and high risk) associated with each indicator of potential risk are based on the World Health Organization criteria as indicated in Table 1.

Chemical Condition

The chemical condition of Michigan and UMW ecoregion lakes is a consequence of their glacial origin and Great Lakes basin geology. The dominant limestone geology and thick glacial deposits in Michigan's Lower Peninsula and eastern

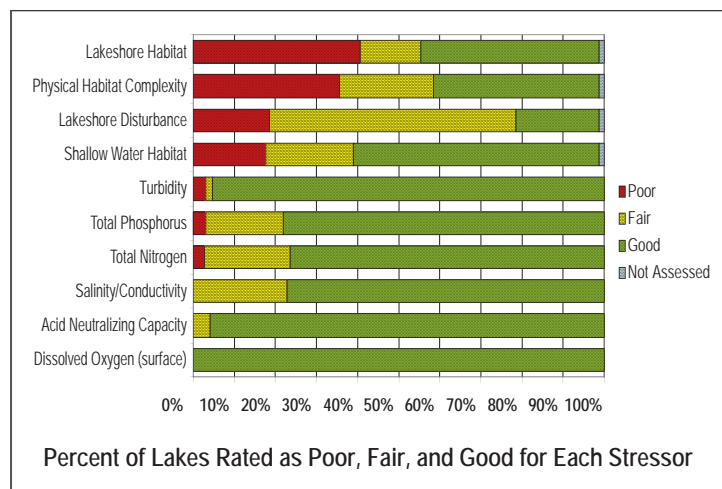
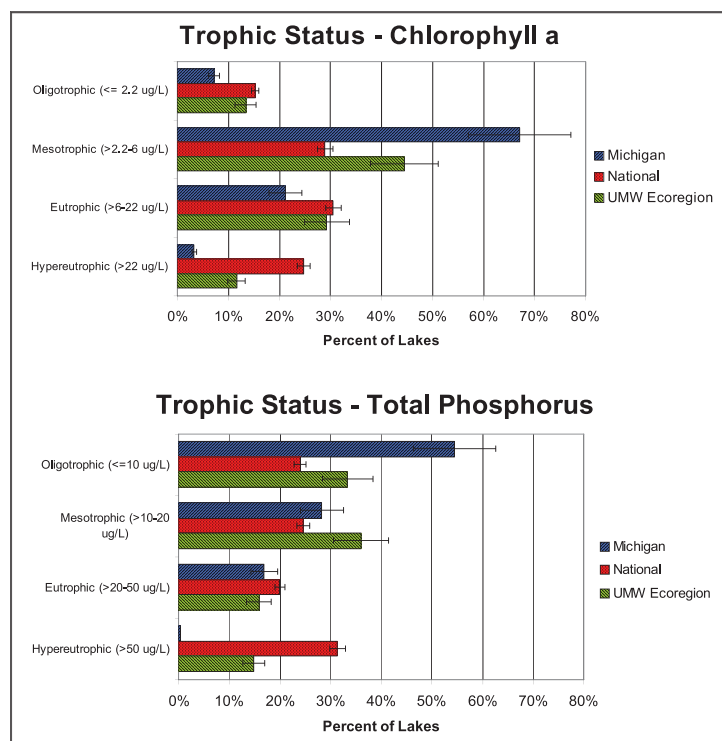


Figure 3. Extent of Stressors in Michigan Lakes



Figures 4 and 5. Trophic Condition of Michigan Lakes (Chlorophyll-a and Total Phosphorus indicators)

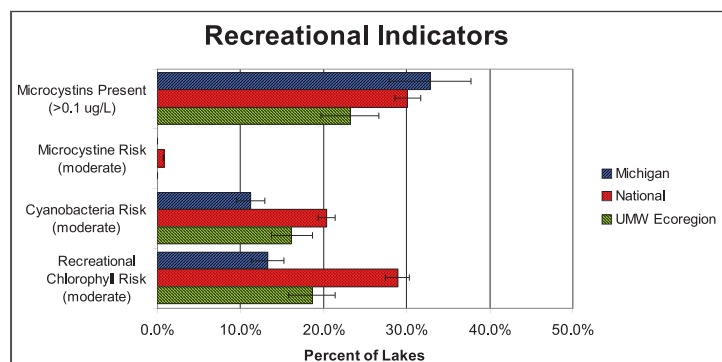


Figure 6. Recreational Condition (Harmful Algae Risk) of Michigan Lakes

(Continued on page 8)

2007 National Lakes Assessment – Michigan Results (Continued from page 7)

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Indicator (units)	Low Risk of Exposure	Moderate Risk of Exposure	High Risk of Exposure
Chlorophyll- <i>a</i> (ug/L)	< 10	10 - < 50	> 50
Cyanobacteria cell counts (#/L)	< 20,000	20,000 – < 100,000	≥ 100,000
Microcystin (ug/L)	< 10	10 - ≤ 20	> 20

Table 1. World Health Organization Thresholds of Risk Associated with Potential Exposure to Cyanotoxins.

Upper Peninsula establishes the base chemistry and buffering capacity for the mostly hard-water lakes in this region while the Canadian Shield igneous bedrock and sandstone geology of the western UP creates a much different water chemistry pattern with a greater percentage of soft-water lakes.

Water concentration of total phosphorus in Michigan lakes is low as compared to all UMW ecoregion lakes while total nitrogen concentration is similar. Chlorophyll-*a* levels are also lower for Michigan lakes as compared to all lakes in the UMW ecoregion. The relative phosphorus-rich to phosphorus-poor south to north lakes distribution pattern previously found for the Lower Peninsula is reinforced by the NLA results. Michigan's Upper Peninsula lakes show a more variable pattern for nutrients. These patterns are mirrored by the chlorophyll-*a* results.

Next Steps

The next round of the NLA Survey is scheduled for summer 2012. The MDEQ will again participate in the Survey and conduct a state-scale assessment to add to the 2007 NLA-Michigan findings.

For more information on the NLA Survey see: http://water.epa.gov/type/lakes/lakessurvey_index.cfm; and the Michigan National Lake Assessment Project: Summary of Results Project (Bednarz 2012)

Reported by Ralph Bednarz, Limnologist, Michigan Department of Environmental Quality (Retired)

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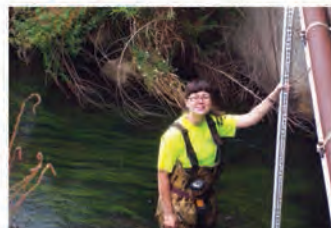


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"Armageddon!"

By Clifford H. Bloom, Esq.

*Law Weathers
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You have just purchased the cottage or house of your dreams on your favorite lake. Shortly after settling in, you receive word that a major housing development or marina is being proposed for the lakefront acreage next to you. Either type of development will ruin your relative solitude, lead to massive overcrowding of the portion of the lake near your property, and create a myriad of other problems and headaches. What do you do?

Some riparians would accept the proposed development as inevitable and do nothing. Others would attempt to sell their property. However, most riparians would fight (within the constraints of our legal system of course!). While most riparians are not against all lakefront development, they are against unreasonable development.

In general, there are five different fronts on which riparians should fight the anti-development war where an unreasonable development is proposed. Those areas are as follows:

- Zoning
- Other municipal ordinances
- State regulatory laws
- Bottomlands ownership
- The riparian rights doctrine

If a riparian, group of riparians, or lake association is serious about fighting a proposed development, one of the initial steps is to hire experienced legal counsel. Although such legal assistance usually does not come cheap, the attorney fees and costs can often be spread among multiple riparians or the members of the lake association involved via dues. Furthermore, the attorney should be hired early on in

the process since legal counsel may be unable to be effective if the development process has proceeded too far.

In many municipalities, a marina, housing project, or other development cannot occur (or an existing development be expanded) without complying with specific requirements of the local zoning ordinance. Although the overwhelming majority of municipalities (townships, cities, and villages) in Michigan have zoning regulations, a few rural townships do not. In some cases, the county has a zoning ordinance.

In some zoning ordinances, a marina or development is allowed "as of right" so long as certain regulations are met. In those cases, the local municipality has very little discretion regarding whether to approve the development. However, in many other municipalities, a developer must seek one or more discretionary zoning approvals (such as a special land use approval, planned unit development, rezoning, or variance) from the municipality. Oftentimes, riparians can successfully oppose a proposed unreasonable development by becoming actively involved in the municipality's zoning review process.

What if a riparian believes that a municipality is not following its own zoning regulations and is simply "rolling over" for the developer? That is where good legal counsel is invaluable. Furthermore, there are often ways of potentially forcing municipalities to enforce their zoning regulations via appeals to the zoning board of appeals, political pressure and other lawful means.

Some municipalities have ordinances separate and apart from their zoning regulations that govern marinas, dockage, boat moorings, and similar matters. Riparians should investigate whether any such ordinances exist and may be applicable.

In addition, any marina or multi-family or commercial development that utilizes the waterfront would typically need to obtain one or more permits from the Michigan Department of Environmental Quality (the "DEQ") or the Michigan Department of Natural Resources (the "DNR"). Such permits could include, but are not necessarily limited to, a marina permit (where two or more families share a dock or boat mooring or there is any commercial or business use of such a dock or boat mooring), dredging permit, permanent dock permit, or seawall permit. Sometimes, riparians can defeat a new marina or waterfront development by becoming actively involved in the state administrative review process. However, my experience has been that riparians are much more likely to successfully fight a proposed unreasonable marina or development through zoning or local ordinances than state agencies. Given the severe budgetary cuts at the state level, the DEQ and DNR are often toothless tigers when it comes to effectively reviewing and policing new marinas or waterfront developments.

Docks and boat moorings for a new marina or waterfront development cannot encroach on the bottomlands of adjoining or nearby riparians. Even if riparians cannot defeat a proposed marina

(Continued on page 12)

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MICHIGAN WATERFRONT ALLIANCE

P.O. Box 369

Fenton, Michigan 48430-0369

Dear Friends of Michigan's Lakes and Streams,

I want to thank everyone who contacted his or her senator or representative urging the passage of SB 778. On March 7, 2012 this bill was enrolled! I would also like to thank the Higgins Lake Property Owners Association and their lobbyist, Public Affairs Associates, the Walloon Lake Association and their lobbyist; Kelly Cawthorne Consulting; and the MWA lobbyist, Scofes and Associates. This is a great triumph for all who treasure Michigan's inland lakes.

I would also like to thank the Michigan Lake and Stream Associations for their generous contribution of \$1000 to the MWA in February 2012. They are aware of

the resources we have spent in our lobbying efforts to pass SB 778. They are also aware that our membership has not increased and that we are running out of money, despite our having great success not only in the passing of SB 778, but also in the following:

A \$100,000 line item being included in the then DNRE Budget came as a result of our legislators hearing the voices of our numbers loud and clear.

Our collective efforts resulted in legislation being passed that restricts use of phosphorus fertilizer on turf.

A favorable decision from the Supreme Court on the Baum vs a County government. MWA

shared this case and it resulted in a win for every lake front owner who has a road between their cottage and their water. The resulting favorable decision saved these owners grief, countless losses in property values and extensive legal expenses across our great state.

Only by having the necessary resources can we be effective in the effort to protect Michigan's lakes and streams.

Sincerely,

Bob Frye

President, MWA

"Armageddon!" (Continued from page 10)

or development, they should make sure that the docks and boat moorings for any such development will not encroach upon their bottomlands. In most cases, the riparian will have to hire a surveyor or engineer who is well-versed in trying to establish riparian boundary lines under the water in order to both ascertain whether there might be encroachment and to be able to present proof of the same to the developer or municipality. Of course, any such riparian survey is based only on the opinion of the surveyor or engineer involved and, absent court action, is not definitive. Such surveys can also prove helpful when attempting to persuade the DEQ that a permit application for docks or boat moorings for a marina or proposed development is encroaching on the bottomlands of others.

If all else fails (or potentially in conjunction with some of the other

techniques mentioned above), a riparian or group of riparians can sometimes pursue a successful "riparian rights doctrine" lawsuit against a proposed marina or development. Under the common law, a riparian landowner (in this type of situation, the owner or developer of a marina or development) cannot utilize his, her, or its lakefront and riparian lands in such a way that it would unreasonably interfere with the riparian rights of adjoining or nearby lakefront property owners. See *Thompson v Enz*, 379 Mich 667 (1967); *Three Lakes Ass'n v Kessler*, 91 Mich App 371 (1979) and *Pierce v Riley*, 81 Mich App 89 (1978). However, such lawsuits can be expensive and the results tend to be subjective based upon what the particular judge believes is a "reasonable" use of the lakefront area at issue. In addition, one or more expert witnesses will have to be hired to testify in court, and both the fees of those

witnesses and litigation costs in general can be expensive.

Should you be confronted with this situation, act quickly and decisively. Enlist other riparians and the lake association in your cause. Keep the faith. There have been many situations over the years where the plight of riparians initially looked bleak regarding a proposed unreasonable development, but subsequent events (which were often unforeseeable) intervened and caused the proposed marina or development to be scaled back or not occur at all.

For more information about this topic, please review my earlier article in the August 1999 issue of the Michigan Riparian magazine, which is available at: www.mi-riparian.org by clicking "Archive."

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The Michigan Natural Features Inventory **THE Source for Michigan Rare Species and Natural Community Information**

by Brian J. Klatt, Ph.D., Director, MNFI

Have you ever wondered; what a Kirtland's Warbler looks like, or Michigan's state wildflower, the dwarf lake iris?; if rare species occur in your area?; what the area you live in may have looked like before Michigan was settled by Europeans? Well, if you have, the Michigan Natural Features Inventory (MNFI) can help you.

MNFI is the designated "natural heritage program" for Michigan. As such, we are part of an international network of over 70 natural heritage programs and conservation data centers in the U.S., Canada and Latin America dedicated to the collection of information on biological diversity within the Western Hemisphere. We are the stewards of the most comprehensive database that records locations and numbers of endangered and threatened species, and other species of concern in Michigan. We also document threatened rare plant communities in the state. The database that we maintain, refine and constantly update is used by state and federal agencies, researchers, private companies and consultants to evaluate threats to Michigan's endangered and threatened species.

As a program of Michigan State University Extension, MNFI is committed to making sound, scientific information available to the public; especially to individuals and groups involved with conservation activities. Much of this information is free and available on our website (<http://web4.msue.msu.edu/mnfi/>). In fact, you can find the answers on our website to all of the questions posed earlier. For example, MNFI maintains over 300 abstracts on rare plants, animals, and natural communities native to Michigan. The abstracts include pictures of the species and communities (see what a Kirtland's Warbler looks like), information on their distribution across the state, descriptions of the habitats the species are found in, their life history characteristics, the best times to look for them, and how to look for them. Click on our county-by-county lists of rare species or peruse our "pre-settlement" vegetation maps for your area. MNFI also has a wide range of publications available, ranging from invasive species guides (identification and control) to tours de force of specific community types like, "Exploring the Prairie Fen Wetlands of Michigan".

However, if your conservation or natural resource needs are more than just a passing curiosity, MNFI fee-for-services may be just what you or your organization needs. As mentioned above, MNFI stewards the most comprehensive database available on the location of rare species and high quality natural communities in Michigan. If you are planning a project and need to know whether protected species are in your project area, MNFI can conduct a database search specific to your project area and do an assessment as to whether your proposed project may have impacts on rare species.

If you are land conservancy and are considering an area, MNFI can conduct various levels of biological inventory and assessment, customized to your needs. MNFI staff includes scientists with expertise in botany, zoology, aquatic ecology, and ecology, and are highly experienced in collecting information about Michigan's native plants, animals, aquatic animals and natural ecosystems. MNFI has conducted surveys by foot, kayak, canoe, and air, from interior forests and grasslands, Great Lakes shores to remote islands in search of information about Michigan's special plants, animals and plant communities.

Whatever your needs or interests are with respect to the natural world in Michigan, MNFI can provide you with reliable information. So, visit our website today and try some surfing that can inspire and inform.

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304 E. Main Street, Stanton, MI 48888

Question — Many lakes in Michigan have artificial canals or channels (collectively “canals”) that open into the main body of the lake. Such keyholing has provided many canal property owners with boat access to the main lake. What, if any, riparian rights do these canal property owners have? Are they riparians?

Answer — Technically, riparian rights cannot be artificially created. In theory, property owners along an artificially created canal that was dug to access a lake are not riparian property owners and probably do not have rights to access and use the lake via the canal. See *Thompson v Enz*, 379 Mich 667 (1967), a fractured opinion. Interestingly, however, once the Michigan Supreme Court decided in that case that riparian rights cannot be artificially created by new canals, the Court later refused to order the canals filled or to bar the property owners along those ways from utilizing Gun Lake because the parties who were opposed supposedly waited too long to take legal action. See *Thompson v Enz*, 385 Mich 103 (1971). Frankly, it appears that the members of the Michigan Supreme Court in 1971 were simply looking for an excuse not to bar lake access to the canal property owners. These two related Michigan Supreme Court cases stand for the proposition that if someone is about to dig a new or expanded canal, any opposing parties had better file a lawsuit immediately. Also, municipalities can adopt local ordinances to prohibit new or expanded canals.

What happens with regard to a canal that has already been created? Technically, the owners along those ways are probably not riparian. However, the Michigan appellate case law does not answer the question of whether or not they have the right to have docks and boats and to also access the lake involved by boat, and if so, what rights of usage they have to such lake.

Based on the general real estate statute of limitations in Michigan of 15 years, it is also possible that if a property owner along a canal uses the canal for dockage, boat moorage and access to the lake involved continuously for 15 years or more, thereafter, they might potentially be deemed to be a “riparian” property owner by the courts. However, the law in this area is very unclear.

An increasing number of municipalities have so-called anti-funneling or anti-keyholing regulations that would prevent the creation of new canals, as well as potentially any land divisions or lot splits along an existing canal.

With an existing canal, in most cases, the adjoining lot or parcel owners would usually own the bottomlands of the canal to the center thereof if the opposite side is owned by someone else.

—Cliff Bloom, Esq.
Grand Rapids, Michigan

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Exotic Mussels, Clams, and Snails: An Overview of Impacts on Lakes

By: Jennifer L. Jermalowicz-Jones

Water Resources Director, Lakeshore Environmental, Inc.

An exotic species is a non-native species that does not originate from a particular location. When international commerce and travel became prevalent, many of these species were transported to areas of the world where they did not originate. The larval forms of many organisms such as insects, plants, and shelled organisms (such as bivalves and univalves) may escape detection and be unknowingly transferred to unintended habitats. An essential ingredient to successful prevention of the unwanted transfer of exotic species to our inland lakes is awareness and education. The following summary introduces four major shelled nuisances that have been introduced into our inland lakes and have caused negative impacts to the ecosystems and to the surrounding Great Lakes.

Zebra Mussels (*Dreissena polymorpha*; Figure 1) are bivalves that were first discovered in Lake St. Clair in 1988 (Herbert et al. 1989) and likely arrived in ballast water or on shipping vessels from Europe (McMahon 1996). They are easily transferred to other lakes because they go through a larval (nearly microscopic) stage where they can easily avoid detection. The mussels then grow into the adult (shelled) form and attach to substrates (i.e. boats, rafts, docks, pipes, aquatic plants, and lake bottom sediments) with the use of byssal threads. The fecundity (reproductive rate) of female Zebra Mussels is high, with as many as 40,000 eggs laid per reproductive cycle and up to 1,000,000 in a single spawning season (Mackie and Schlosser 1996). Although the mussels only live 2-3 years, they are capable of great harm to aquatic environments. In particular, they have shown selective grazing capabilities by

feeding on the preferred zooplankton food source (green algae) and expulsion of the non-preferred blue green algae (cyanobacteria). Additionally, they may decrease the abundance of beneficial diatoms in aquatic ecosystems (Holland 1993). Such declines in favorable algae can decrease zooplankton populations and ultimately the biomass of planktivorous fish populations. Zebra Mussels are viewed by some as beneficial to lakes due to their filtration capabilities and subsequent contributions to increased water clarity. However, such water clarity may allow other photosynthetic aquatic plants to grow to nuisance levels (Skubinna et al. 1995).

Quagga Mussels (*Dreissena rostriformis bugensis*; Figure 2) are invasive bivalves that were introduced to North America in the early 1990's from the Dnieper River of Ukraine (U.S. Army Corps of Engineers, Engineer Research and Development Center). They closely resemble Zebra Mussels but are larger in size and also have a pale color near their hinge areas. Some of the biotypes present in the Great Lakes basin appear entirely white in color. A recent discovery of predation by Yellow Perch (*Perca flavescens*) on both the Quagga and Zebra Mussels has raised concerns of their apparent mortality which may be attributed to the ingestion of *Clostridium botulinum* bacteria spores that contain potent biotoxins (Yule et al., 2006). This process may indicate the negative implications of just one invasive species on the food chain of key lake biota such as fish.

The Asian Clam (*Corbicula fluminea*; Figure 3 page 17) is native to southern and eastern Asia, Australia, and Africa, but was first noted in North America

in the 1920's (Counts 1986). The bivalve is usually less than 3 cm in size, colonizes lake sediments, and feeds on organic matter. It has the ability to cross and self-fertilize which creates a high reproduction rate and colonization density of greater than 1000 m² (McMahon and Williams 1986) under some environmental conditions. Fortunately, the adult clams may only live for up to three years and are not likely to persist long if water quality conditions are less than ideal (i.e., low dissolved oxygen levels). Reproduction generally occurs when the water temperature is around 15°C (59°F), with more than one annual brood in the late spring and fall. Like Zebra Mussels, the Asian Clam, may also result in blue-green algae blooms

(Continued on page 17)



Figure 1. Photo courtesy of Michigan Sea Grant



Figure 2. A Quagga Mussel, photo courtesy of U.S. Geological Survey

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Exotic Mussels, Clams, and Snails (Continued from page 15)

because they compete with native clams for food by filtering favorable green algae from the water (along with the benthic organic matter) and this results in a disproportionate quantity of blue-green algae in the water column relative to green algae which results in a “bloom”. Such declines in favorable algae can decrease zooplankton populations and ultimately the biomass of planktivorous fish populations

The exotic Banded Mystery Snail (*Viviparus georgianus*; Figure 4) is a univalve which means that only one valve is present and the shell is not hinged. The snails are actually native to the southeastern United States and periodically appear in inland lakes in Michigan, often in great numbers. In the spring these snails give birth to fully developed snails, however; it is the adults that die off due to a rapid warming of the lake. The shells then wash ashore and rot, creating an unpleasant odor. The snails do not feed much on the aquatic vegetation or phytoplankton in a lake, but rather on the organic matter at the lake bottom. The snails blend in easily with other native snails and thus are often mistaken as a natural component of the lake biota.

Although many of exotic, invasive species discussed above already exist in many inland lakes, there are preventive measures that riparians can take to reduce the probability of new introductions. The recommended prevention protocols for introduction of all invasive clams and mussels includes steam-washing all boats, boat trailers, jet-skis, and floaters prior to placing them into any lake. Boat transom wells must always be steam-washed and emptied prior to entry into a lake because larval forms of the mussels and clams can reside in transom wells and remain undetected. Excessive waterfowl should also be discouraged from the lake since they are a natural transportation vector of the microscopic clam or mussel larvae or mature adults. Fishing poles, lures, and other equipment used in other lakes (and especially the Great Lakes) should also be thoroughly washed before use in each lake.

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Figure 3. An Asian Clam, photo courtesy of U.S. Geological survey



Figure 4. The Banded Mystery Snail, photo by Lakeshore Environmental, Inc.

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Franz Mogdis pictured in
Ann Arbor News (1971)

A Heartfelt Thank You, Farwell and Good Luck to Franz Mogdis

Written by Scott Brown, ML&SA Executive Director, on behalf of the Board of Directors and staffs of the Michigan Lakes and Streams Foundation and the Michigan Lake and Stream Associations.

By any stretch of the imagination, it is hard for us to fathom that over four years have passed since Franz Mogdis became the publisher of The Michigan Riparian Magazine and ten years since the establishment of the Michigan Lakes and Streams Foundation which he chaired from its beginning and three years since both joined Michigan Lake and Stream Associations in sharing a central office in the heart of Montcalm County-the city of Stanton. The past three years have been as challenging as they have been exciting - we've hired a highly skilled and people-oriented office manager as well as an enthusiastic and hardworking membership coordinator, and we've benefited immensely from the unwavering dedication and hard work of a new Program Administrator for the Cooperative Lakes Monitoring Program. Moreover, we've updated our on-line resources and information technology, drastically improved the overall look and content of The Michigan Riparian magazine and improved our organizational processes to better serve the needs of our members and of our external partners. Now, following four productive years, Franz has decided to step down as publisher of The Michigan Riparian and as chairman of the Michigan Lakes and Streams Foundation in order to dedicate more time and energy to his full-time position as Executive Director of the Montcalm Alliance.

Thanks primarily to the vision and resourcefulness of Franz Mogdis, our transition into the Stanton area has been a highly successful one that has allowed us to create a solid foundation upon which both of our organizations will flourish for many years to come. We have all benefited from Franz's wisdom and prolific experience as an executive level community planner and leader. Franz has dedicated his life to sharing his knowledge, wisdom and vision in helping to create more livable, viable and environmentally sustainable communities. While serving as a young executive for Bendix Aerospace in the mid- 1960's, he became the first chairman of Ann Arbor Tomorrow, a citizens group that worked to move downtown Ann Arbor towards a more vigorous cultural and economic life while preserving its historic character.

(Continued on page 19)

MICHIGAN LAKE & STREAM ASSOCIATIONS, INC.

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Farwell and Good Luck to Frank Mogdis

(Continued from page 18)

Franz later served on the Ann Arbor City Council and also spent many years serving on the Ann Arbor Planning Commission. In his current role as Executive Director of the Montcalm Alliance, he is responsible for developing and implementing plans and programs to promote economic and community development within the Montcalm region, a position for which he has been well prepared by a lifetime of experience in dealing with complex economic, community and political issues.

The Board of Directors and staffs of both the Michigan Lakes and Streams Foundation and the Michigan Lake and Stream Associations would like to extend a heartfelt thank you to Franz for his contributions to our organizations and wishes him all the best in his future endeavors.



Invasive Phragmites Rapidly Claiming Michigan Wetlands

Phragmites australis (common reed) is rapidly claiming Michigan's remaining wetland areas where it quickly crowds out native plants, degrades wildlife habitat and affects the hydrology of both the infested wetland and of nearby inland lakes. Left unmanaged, phragmites will form dense monocultures, leaving once biologically diverse areas devoid of native plants and wildlife. Ecologists have warned that once an area is fully claimed by phragmites, the chances of restoring natural wetland functions are slim. To learn more about this harmful invasive plant, visit www.leelanaucd.org.

Public Road Ends Legislation to Become Law in Michigan

Senate Bill 778 Overwhelmingly Passes the MI Senate and House

Written by Scott Brown

ML&SA Executive Director

The Michigan Senate and House have passed legislation that clearly defines and restricts the type of activities that may legally occur at the thousands of public road ends that terminate on Michigan's inland lakes and streams. The bill revises the [Natural Resources and Environmental Protection Public Act 451 of 1994](#) by adding a section that specifically addresses public road ends.

The language of Senate Bill 778 provides statewide legal codification of nearly twenty-year-old court rulings that limited public road ends to one public dock, forbids overnight mooring and the installation of boat hoists. The [Michigan Waterfront Alliance](#), [Michigan Lake and Stream Associations](#) and the [Higgins Lake Property Owners Association](#) have been pro-actively pursuing the introduction and passage of public road ends legislation for many years. Unregulated activity at public road ends has contributed to public road right of way hazards, promoted uncivil behavior, shoreline degradation and has created additional pathways for the introduction of aquatic invasive species into Michigan lakes and streams.

Here is the bill in its entirety:

Sec. 30111b.

- (1) A public road end shall not be used for any of the following unless a recorded deed, recorded easement, or other recorded dedication expressly provides otherwise:
 - (a) Construction, installation, maintenance, or use of boat hoists or boat anchorage devices.
 - (b) Mooring or docking of a vessel between 12 midnight and sunrise.
 - (c) Any activity that obstructs ingress to or egress from the inland lake or stream.
- (2) A public road end shall not be used for the construction, installation, maintenance, or use of a dock or wharf other than a single seasonal public dock or wharf that is authorized by the local unit of government,

(Continued on page 21)

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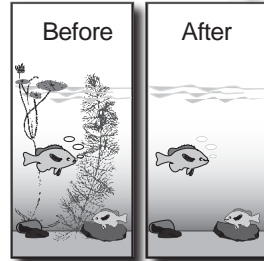
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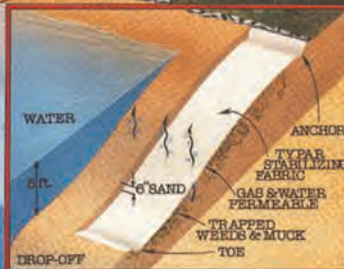


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Public Road End Bill is Almost Michigan Law *(Continued from page 19)*

subject to any permit required under this part. This subsection does not prohibit any use that is expressly authorized by a recorded deed, recorded easement, or other recorded dedication. This subsection does not permit any use that exceeds the uses authorized by a recorded deed, recorded easement, other recorded dedication, or a court order.

- (3) The local unit of government may prohibit a use of a public road end that violates this section.
- (4) A person who violates subsection (1) or (2) is guilty of a misdemeanor punishable by a fine of not more than \$500.00. Each 24-hour period in which a violation exists constitutes a separate violation of this section.
- (5) This section does not prohibit a person or agency from commencing a civil action for conduct that violates this section.

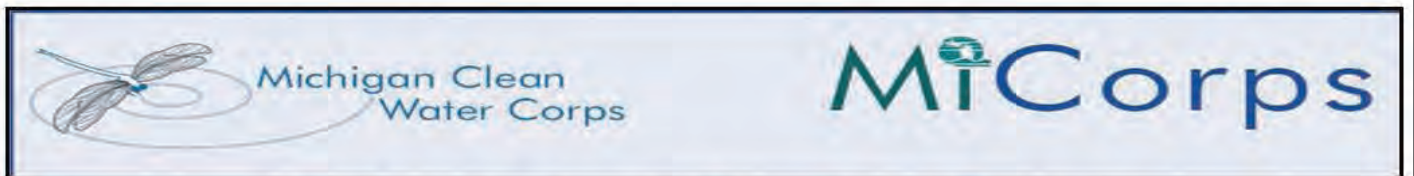
(6) As used in this section:

- (a) "Local unit of government" means the county, township, city, or village with jurisdiction over a public road.
- (b) "Public road" means a county road or a township, city, or village street that is open for use by the public.
- (c) "Public road end" means the terminus of a public road at an inland lake or stream.

BREAKING NEWS! After this article was written, Governor Snyder signed the road end legislation into law on March 21, 2012. Substitute Senate Bill No. 778 (at MCL 324.30111b) is now the law of Michigan!

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- Building a constituency of citizens to practice sound lake management at the local level and foster public support for lake quality protection.
- Providing a cost effective process for the MDEQ to increase baseline data for lakes state-wide.

To enroll in the Cooperative Lakes Monitoring Program for the 2012 season, contact Program Administrator Jean Roth at 989-257-3715 or e-mail jroth@mlswa.org.

www.micorps.net

HIGGINS LAKE

Environmental Report

By Rick Meeks

From Fall/Winter 2011 Water Lines,
Higgins Lake Property Owners
Association Publication

Boat Wash

Our experience in participating in a public/private partnership with the DNR to provide boat washing opportunities at both the North and South state parks has encouraged other lake associations to explore the idea of having boat washes available at the public launch sites on their lakes. We are being asked to share our experiences with the building and operation of our boat wash with some of these groups

In April, assisted by Anne Meeks, representing the Higgins Lake Foundation, we made a presentation at a work shop in Leelanau County on boat washing ideas and opportunities. The work shop was organized by Sara and Mike



Litch. The Litches have been involved with operating a boat wash on Glenn Lake for over a dozen years. In September, with the assistance of Vicki Springstead, representing the Higgins Lake Foundation, we lead a group visiting Higgins Lake from Paradise Lake on a tour of the North Park boat wash, the site of the future South Park boat wash and a side trip to see our new Eurasian Water Milfoil suction harvester. Kira Davis, from the environmental services office of the Little Traverse Bay Bands of Odawa Indians, had secured a grant for the construction of a boat wash on Paradise Lake. They hope to have their boat wash up and running by next summer. It is

a pleasure to associate with so many people who are fighting the introduction of invasive species into our inland lakes.

An Excerpt from President's Message

By Pat Springstead

South Higgins Lake State Park will be doing a total makeover of the entrance and launch area in 2012. The Higgins Lake Foundation will be funding a boat wash facility within the Park located conveniently near the launch area. This will give us the opportunity to lobby the DNR to use Higgins Lake as a pilot program mandating boat washing at State launch sites on Higgins Lake. With the rapid increase of invasive species, this is the best way to protect the lake from these threats.

Michigan Enacts Important Laws to Re-Vitalize Aquatic Invasive Species Management

Passage of Legislation Creates Aquatic Invasive Species Advisory Council in the MDEQ

By: Scott Brown ML&SA Executive Director

The Michigan state legislature has passed, and Governor Snyder has signed into law, an important suite of late session bills designed to re-vitalize the state's overall strategy in effectively responding to the onslaught of harmful aquatic invasive plants and animals that continues to occur in the waters of the State of Michigan and throughout the Great Lakes region.

Senate Bill 509, now Public Act 285, sponsored by State Senator Howard Walker, creates a Michigan Aquatic Invasive Species Advisory Council within the Department of Environmental Quality (DEQ). The new council will make recommendations to the DEQ on an update to Michigan's Aquatic Invasive Species Management Plan. The new advisory council is directed to submit timely recommendations to the governor and legislature on ways to fund the plan's implementation. Public Act 285 states that "(Michigan) can effectively address the threat posed by Aquatic Invasive Species by updating and implementing a comprehensive AIS management plan, developing and adopting model programs to address AIS, and working

cooperatively with other Great Lakes states and provinces to ensure a coordinated and consistent response to AIS."

Senate Bill 510, now Public Act 286, sponsored by State Senator Goeff Hansen, requires the advisory council to recommend rules or legislation that will prevent the introduction and spread of aquatic invasive species through trade. Public Act 286 mandates that "within 240 days after the effective date of the amendatory act that added this section, the council shall submit a report with recommendations for legislation or rules to prevent the introduction and spread of Aquatic Invasive Species through trade. The council shall submit the report to the governor, the senate majority leader, the speaker of the house of representatives, and the standing committees of the senate and house with primary responsibility for natural resources, conservation, agriculture, and commerce. In preparing the report, the council shall review the Aquatic Invasive Species laws of this state and other jurisdictions, including the other Great Lakes states."

Under Senate Bill 508, now Public Act 284, sponsored by State Senator Tom Casperson, the Aquatic Invasive Species Advisory Council will develop recommendations regarding Michigan's comments on the draft federal Vessel General Permit, including a proposed ballast water treatment standard. Public Act 284 states that "the council shall develop recommendations regarding this state's comments on the draft next vessel general permit and certification response to the draft next vessel general permit under Section 401 of Title IV of the Federal Water Pollution Control Act, 33 USC 1341, including a proposed ballast water treatment standard."

The Michigan Waterfront Alliance and Michigan Lake and Stream Associations wholeheartedly supports this long overdue action by the state legislature and are proud to have served an important role in encouraging statewide support for this key legislative action focused on developing, funding and implementing a broad and effective framework within which to manage Aquatic Invasive Species in the waters of the State of Michigan - a critical step in creating a vibrant and prosperous Great Lakes state!



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A NEW BOOK FROM THE MICHIGAN LAKE & STREAM ASSOCIATIONS, INC.

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AUTHORED BY GRAND RAPIDS ATTORNEY
CLIFFORD H. BLOOM

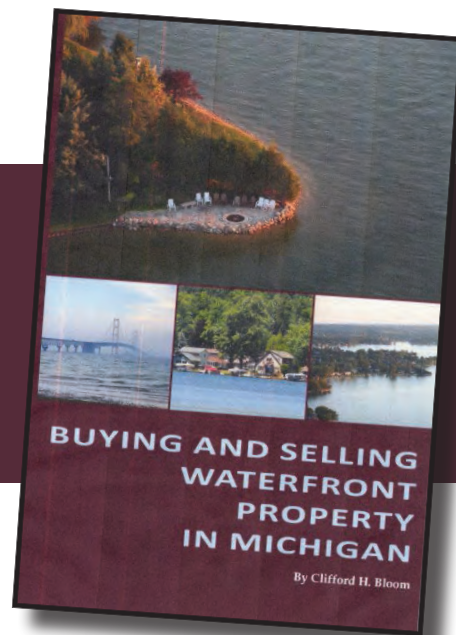
The Michigan Lake & Stream Associations, Inc. ("ML&SA") is pleased to announce its new book entitled *Buying and Selling Waterfront Property in Michigan* by Grand Rapids Attorney Clifford H. Bloom. This is the second book from ML&SA, the first being the 2009 book called *Michigan Lake Associations—The Nuts and Bolts* (also authored by Cliff Bloom).

This new book is a "must" for anyone who is interested in waterfront property in Michigan. The list of people who should purchase the book includes not only riparians (and would be riparians) but also realtors and real estate agents, attorneys, government officials, surveyors and teachers. This book is a "how to" publication that deals with numerous real estate and waterfront issues, including:

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The purchase/sales agreement
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The purchase price is \$20.00 plus postage. Bulk rates are available. The following is an order form that you can use to purchase one or more copies of the new book. If you are interested in obtaining pricing for group or bulk purchase



discounts, please use the form below or online at www.mymlsa.org.

Everyone at ML&SA is excited about *Buying and Selling Waterfront Property in Michigan*. The book will also make a good birthday, graduation, holiday or other event gift to anyone who is interested in waterfront issues in Michigan.

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Public Road End Bill is Almost Michigan Law

By Robert Frye, President of the Michigan Waterfront Alliance, and Clifford H. Bloom, attorney at law

It appears that the many decades-long battles at public road ends that have engulfed lakes throughout Michigan may finally be coming to an end! The Michigan Legislature has passed a bill that would outlaw private docks, piers, boat hoists, and similar items at public road ends at lakes, as well as the overnight mooring, storing, or anchoring of boats thereon. To date, there has been no indication that Governor Snyder will not sign the legislation into law.

The legislation would make it a criminal misdemeanor for any person to maintain a private dock, pier, boat cradle, or similar item, or moor, anchor, or store a boat or other watercraft overnight at a public road end at a lake or the bottomlands thereof. Any police officer could write an appearance ticket for a violation. Upon conviction, violators would be subject to up to a \$500 fine. Local municipalities could still adopt their own road-end ordinances and nearby riparians could still pursue private lawsuits for improper public road end uses. It would also be illegal to interfere with anyone who is properly using a public road end for ingress or egress to the body of water involved.

One exception contained in the legislation involves a relatively small number of public road ends; that is, public road ends that expressly allow dockage or boat moorage in their dedications or where a court order in the past has allowed dockage or boat moorage at the particular road end. It is estimated that those exceptions will apply to probably less than five percent (and perhaps as low as one percent) of all public road ends at lakes in existence in Michigan.

Finally, riparian property owners throughout Michigan (and anyone who respects the law) will have the benefit of strong legislation to end widespread flaunting of the rule of law. Riparians owe a debt of gratitude to the Michigan Waterfront Alliance, the Michigan Lake & Stream Associations, Inc., the Walloon Lake Association and the Higgins Lake Property Owners Association for their long battle in support of this type of legislation. In addition, the countless citizens who have contacted their legislators over the years to demand that this type of common sense legislation have also contributed to what will likely be a significant legislative victory.

The legislation creates a new statutory subsection, which is MCL 324.30111B. The language of the legislation passed by the Michigan Legislature states as follows:

The People of the State of Michigan Enact:

Sec. 30111B

- (1) A public road end shall not be used for any of the following unless a recorded deed, recorded easement, or other recorded dedication expressly provides otherwise:
 - (A) Construction, installation, maintenance, or use of boat hoists or boat anchorage devices.
 - (B) Mooring or docking of a vessel between 12 midnight and sunrise.
 - (C) Any activity that obstructs ingress to or egress from the inland lake or stream.
- (2) A public road end shall not be used for the construction, installation, maintenance, or use of a dock or wharf other than a single seasonal public dock or wharf that is authorized by the local unit of government, subject to any permit required under this part. This subsection does not prohibit any use that is expressly authorized by a recorded deed, recorded easement, or other recorded dedication. This subsection does not permit any use that exceeds the uses authorized by a recorded deed, recorded easement,



other recorded dedication, or a court order.

- (3) The local unit of government may prohibit a use of a public road end that violates this section.
- (4) A person who violates subsection (1) or (2) is guilty of a misdemeanor punishable by a fine of not more than \$500.00. Each 24-hour period in which a violation exists constitutes a separate violation of this Section. A peace officer may issue an appearance ticket as authorized by Sections 9C to 9G of Chapter IV of the Code of Criminal Procedure, 1927 PA 175, MCL 764.9C to 764.9G, to a person who violates subsection (1) or (2).
- (5) This section does not prohibit a person or agency from commencing a civil action for conduct that violates this section.
- (6) As used in this section:
 - (A) "Local Unit of Government" means the county, township, city, or village with jurisdiction over a public road.
 - (B) "Public Road" means a county road or a township, city, or village street that is open for use by the public.
 - (C) "Public Road End" means the terminus of a public road at an inland lake or stream.

Up to date information regarding this legislation can also be found on the web at www.mymlsa.org.

BREAKING NEWS! After this article was written, Governor Snyder signed the road end legislation into law on March 21, 2012. Substitute Senate Bill No. 778 (at MCL 324.30111b) is now the law of Michigan!

The Beachwalker Case—Some Seven Years Hence

By Clifford H. Bloom, Esq.
Grand Rapids, Michigan

The Michigan Supreme Court decided the so-called “Beachwalker Case” in 2005. See *Glass v Goeckel*, 473 Mich 667; 703 NW2d 58 (2005). That case held that with regard to any shoreline of the Great Lakes in Michigan, a public trust easement exists between the lake waters and the ordinary high water mark on the shore, within which any member of the public can walk freely. Prior to 2005, it was not clear under Michigan law whether members of the public could walk on the dry lands of a Great Lakes riparian property owner without permission, or could only stroll while in the water or wet sand. The Michigan Supreme Court held that any member of the public (even without the permission of the owner of the riparian property) can freely walk anywhere lakeward of the ordinary high water mark on the Great Lakes.

The Beachwalker Case has created some confusion, however, primarily in two areas. First, many laypeople believe that the case also applies to inland lakes in Michigan. That is incorrect. The public trust

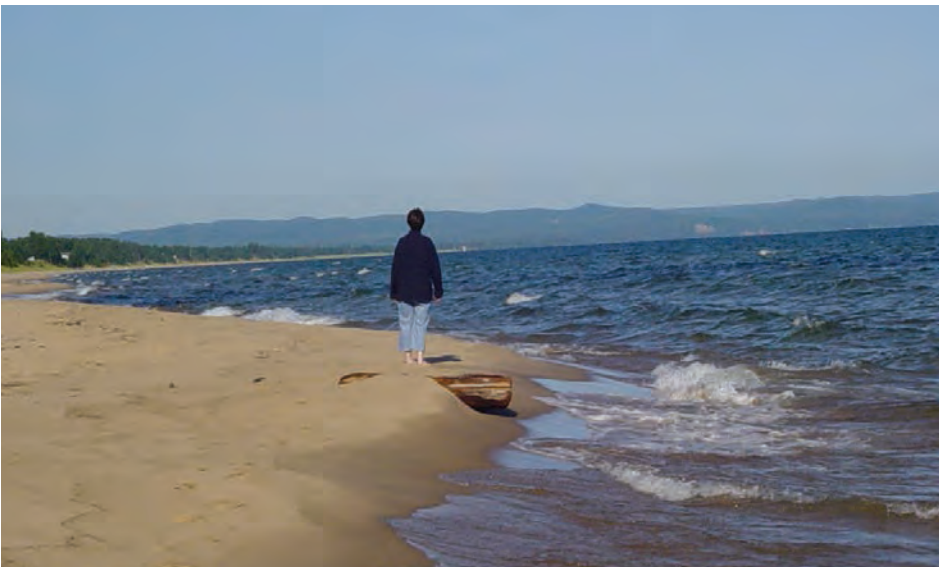
easement for public walking exists only along the shoreline of the Great Lakes touching Michigan. For most inland lakes, one cannot walk along the shore of the lake (or even on the bottomlands) without the permission of the riparian property owner involved. In a few cases, a member of the public can stroll along the shoreline of an inland lake due to the presence of a public walkway easement, public road right-of-way, or other dedicated area, but not based on the public trust easement doctrine.

The second general area of major confusion regarding the Beachwalker Case involves what activities (if any)—other than walking—members of the public can engage in along the shore of private Great Lakes riparian properties. The Beachwalker Case applied only to walking. Left unanswered are such questions as whether a person can bring their dog along while walking, ride a horse along the shoreline, sit down awhile if one tires of walking, or play games along the shore. Today, none of those issues have reached the level

of a Michigan appellate court.

On a broader scale, the Beachwalker Case decision seems to stand for the proposition that members of the public can only engage in navigable activities along the shoreline of the Great Lakes, lakeward of the ordinary high water mark. Travel is one aspect of navigability. Activities such as lounging, sunbathing, picnicking, or playing beach volleyball do not involve travel or navigability, and as such, are probably not protected by the public trust easement doctrine. However, uses associated with travel such as walking one’s dog, riding a horse, or temporarily resting while walking present more difficult questions.

Although only anecdotal evidence exists, the decision by the Michigan Supreme Court in the Beachwalker Case does not seem to have caused significant problems for riparian property owners over the past nearly seven years. At the time that the Beachwalker Case was decided in 2005, many riparians and riparian experts (including me) believe that the case would usher in an era of conflict between Great Lakes riparians and public pedestrians. There were concerns that significant numbers of people would misunderstand the case and engage in lounging, sunbathing, and picnicking on private Great Lakes beaches. There was also a concern that pedestrians would “flaunt” their newfound walking rights and would harass riparians by walking far upland, walking behind sunbathing landowners, and engaging in recreational activities all beyond the scope of the Court’s



decision. Happily, based on most reports to date, public pedestrians have generally behaved responsibly. One can only hope that such responsible behavior will continue.

Practically, several important matters must be kept in mind regarding the Beachwalker Case. First, pedestrians cannot walk on Great Lakes beaches “above” or landward of the ordinary high water mark without permission, or it constitutes a trespass. Unfortunately, the Michigan Supreme Court has defined “ordinary high water mark” in such a vague fashion that it is often difficult to determine where that line is on a given beach. Second, until and unless further refined, the Beachwalker Case rule only allows members of the public to walk on Great Lakes shoreline—there can be no lounging, sunbathing, picnicking, playing games, or similar nontravel activities, absent the permission of the riparian landowner involved. Finally, Great Lakes riparian landowners should not wrongfully attempt to prohibit members of the public from walking along the beach lakeside of the ordinary high water mark. Such interference, in and of itself, could constitute illegal activity.



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HIGH HOPES, LOW LAKE LEVELS

Article by Tip of the Mitt Watershed Council
www.watershedcouncil.org

Approximately 20 years ago, many residents along the Great Lakes shoreline, particularly along Lake Michigan and Lake Huron, had more lake water than they knew what to do with. As a result, flooding and erosion were primary concerns. Now many of the same residents, who once had water knocking on their doorstep, have a 300-foot walk or more from their house to reach the water's edge. The culprit is the changing water levels of the Great Lakes. Despite their vastness and ageless beauty, we often forget that the Great Lakes are a living system, an ever-changing ecological process, and, as part of that process, the tides have changed again.

From shoreline property owners and commercial freighters to recreational boaters and anglers, there is one common resounding question in the Great Lakes Basin – where has all the water gone? Recent drops in lakes levels are inciting concern throughout the region and the million (or realistically, multi-billion) dollar question is why; are the receding waters part of a natural stage or do they indicate a new trend or problem we must face?

Very simply, this article could end now – no one knows for sure. However, what we do know is that water levels in the Great Lakes are

currently low. Lake Superior has been at its lowest level since 1926; Lake Erie hasn't been as low since 1966; and Lakes Michigan and Huron are at their lowest since 1965. The lower lake levels are very noticeable now because lake levels have been above average for some time, with Lakes Michigan and Huron reaching record highs in 1986. It is important to note that the current low levels are still within the realm of historical low lake levels on Lakes Michigan and Huron. This means that even though lake levels are below the long-term averages, they still remain above record low levels.

As mentioned, the Great Lakes are a dynamic ecosystem, changing from one day to the next. Day-to-day fluctuations are caused by wind and wave action along the shore. Annual or seasonal fluctuations are based mainly on changes in precipitation and runoff; for example, low levels in winter when precipitation is locked up in ice, and high levels in summers after spring thaw. The Great Lakes also experience long-term periods corresponding to long-term trends in precipitation and temperature.

While theories on low (and high) lake levels abound in the Great Lakes, there are a few prevalent theories, including both natural occurrences

and man-made alterations. To begin, the most widely accepted theory is simply natural changes in climatic or weather conditions. After all, the Lakes are a natural phenomenon, formed over millions of years, due to glacial advancement and retreat during the Ice Age. Lake levels are largely determined by the weather. Very simply, water inflow (precipitation, run-off, and water from streams) minus water outflow (evaporation and water flowing out of the system) equals a change in lake water levels. In particular, Great Lakes water levels are especially influenced by winter: a hard winter, with above normal snowfall and bitter cold temperatures creating vast ice cover will cause lake levels to rise, whereas mild winters with higher temperatures and, subsequently, less ice cover and more evaporation will decrease lake levels.

Recent weather trends over the Great Lakes have included decreased precipitation, higher than usual air temperatures and less ice cover in

Interesting fact:

For each inch the water level drops, a freighter must reduce weight by anywhere from 71- 276 tons.

winter. A decade of warm winters with sporadic snowfall has resulted in a long-term trend of low water levels in the Great Lakes Basin. This unusually warm weather with little snow and ice cover will only serve to enhance the low water levels. According to the outlook generated by the Great Lakes Environmental Research Laboratory in February 2012, "Lake Superior and Michigan-Huron are expected to remain below the long-term mean." Their research is based on observed weather

(Continued on page 29)

patterns and Great Lakes water levels from 1948 to present, along with National Oceanic and Atmospheric Administration (NOAA) Climate Prediction Center's regional forecasts.

Low water levels impact our beloved boating experience and tradition. With low lake levels, our boating season can be cut short by four to six weeks. Additionally, boaters will become increasingly concentrated in certain areas, as lake levels drop. This could ultimately lead to an increase in accidents and damage to boats, as groundings become more common.

Likely the greater impact will come at a cost to marinas. As water levels recede, marinas have fewer slips to sell to boaters. The need to dredge boat slips, channels, and harbors will increase dramatically, costing millions. A report from the Michigan Boating Industries Association estimated that marinas in Michigan spent over \$11 million in 1999 alone, due to low lake levels. It is estimated that a drop of one foot below 1999 levels would cost marinas an additional \$41 million.

The Great Lakes have always fluctuated. It is difficult for us to realize that, because dramatic shifts in lake levels can take a long time to unfold. We can easily judge changes we see from season to season, but changes that happen decade to

decade are more difficult to grasp – especially as it is happening. Today, the citizens of the Great Lakes Basin are growing more and more concerned because the lakes remain in the midst of a low trend. The International Upper Great Lakes Study has many study teams, committees, work groups, and advisory groups that are examining systems from Lake Superior downstream through Lake Erie to determine changes in outflows, evaluate their impacts, and provide options and recommendations to the International Joint Commission.

Currently, low lake levels are likely the result of a combination of factors, such as climate change, weather fluctuations, dredging, or even lingering effects of glaciers! No matter the cause, we worry when it happens and our instinct is to do something about it, if possible.

While conclusions are that climate and weather changes affect lake levels far more than existing human influences, there is potential for human stressors to add pressure. Proposals for future diversions are subject to the Great Lakes Compact, but states are responsible for fully implementing the Compact, over time. If they do not, human factors could add to natural factors and combine to permanently change water levels.

While it is recognized that low water

levels can have a significant impact upon the environment and economy of the Great Lakes region, including millions of recreational boaters, it is again important to recognize what the Great Lakes are....a dynamic, living, evolving system. The shapes and sizes of the Great Lakes are not what they were 10,000 years ago, and they will not remain how they are today, centuries into the future. We choose to live and recreate on this magnificent resource and with that, we must understand that the Lakes undergo natural ecological processes..

Whatever conditions we face, we need to do what we can to protect and restore our beloved Great Lakes so they can be the cornerstone of our grandchildren's fondest memories, just as they were for us.

About Tip of the Mitt Watershed Council: Tip of the Mitt Watershed Council speaks for our members including full-time and seasonal residents, lake associations, and businesses. We work to maintain the environmental integrity and economic and aesthetic values of lakes, streams, wetlands, and ground water in Northern Michigan, as well as statewide and throughout the Great Lakes Basin. As the lead organization for water resources protection in Antrim, Charlevoix, Cheboygan, and Emmet Counties, the Watershed Council is working to preserve the heritage of Northern Michigan – a tradition built around our magnificent waters.

For additional info on lake levels visit: Great Lakes Environmental Research Laboratory <http://www.glerl.noaa.gov>

Great Lakes Web Cams <http://www.glerl.noaa.gov/webcams>

CoastWatch Satellite Data <http://coastwatch.glerl.noaa.gov>

US Army Corp of Engineers
Great Lakes Water Levels Page
<http://www.lre.usace.army.mil/greatlakes/hh/greatlakeswaterlevels/>

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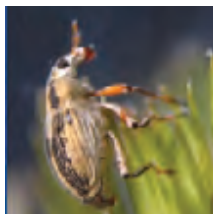
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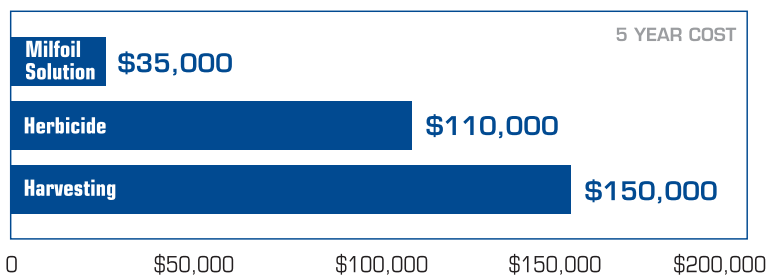


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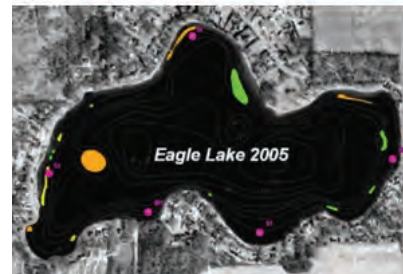
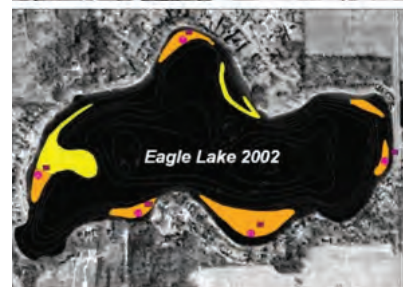


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— Chuck Cabbage, Eagle Lake, Van Buren County, Michigan

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