August 2008

THE MICHIGAN RIPARIAN

www.mi-riparian.org

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

Published Quarterly – February, May, August and November

RIPARIAN (r-'per-EE-n) 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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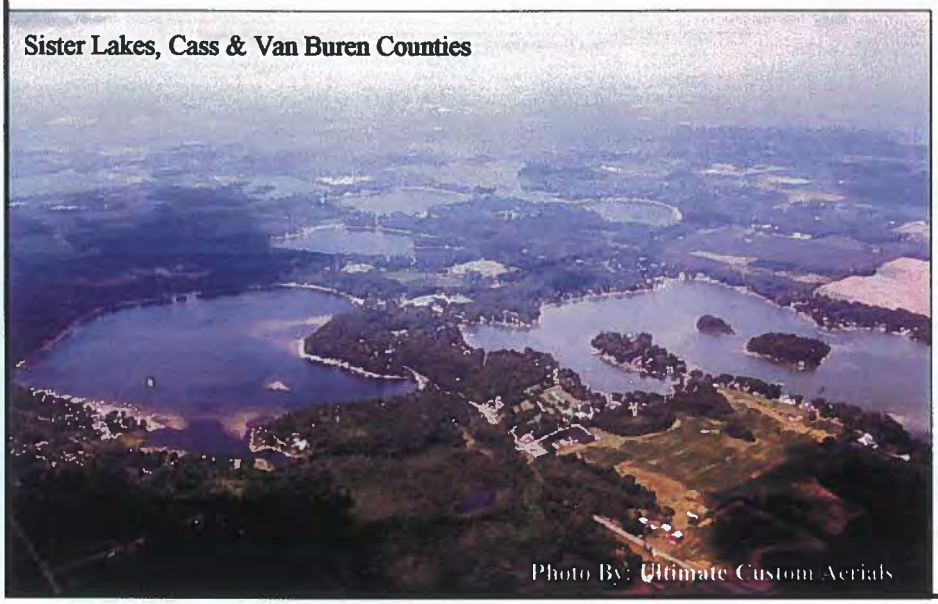

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The Michigan Lakes & Streams Foundation is a 501(c)(3) nonprofit, charitable organization established in 2004 by Michigan Lake & Stream Associations, Inc. (MLSA) to provide an endowed fund) for developing a stable and permanent financing source to help support MLSA's many programs and initiatives.

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An endowed fund ensures the principal from all gifts will always be there to help provide funding to MLSA. Only interest earned will be utilized. The principal will remain untouched.

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MLSA's membership consists of more than 300 Lakes & Streams Associations statewide, representing more than 100,000 members interested in protecting the future of Michigan's water resources. For 45 years, Michigan Lake & Stream Associations, Inc., has labored on your behalf – most likely without you even knowing about it. On a national, regional and state level, MLSA represents its members through involvement in a variety of programs and issues involving state waters. Some of the key issues MLSA is currently dealing with include:

• Riparian rights • Lake and stream water quality • Controlling invasive species • Lake/stream watershed management • Other MLSA activities – MLSA is actively supporting numerous programs; MLSA is also your voice in Lansing, representing you.

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Consult with your own attorney or accountant for further ideas on the most appropriate way to make your bequest. For more information, contact Franz Mogdis, President of the Board of Directors of the Foundation, at 989-831-5261; or Pearl Bonnell, Treasurer of the Foundation, at 989-257-3583.

THE MICHIGAN RIPARIAN
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"THE MICHIGAN RIPARIAN (ISSN 0279-2524) is published quarterly for $2.50 per issue by the Michigan Lakes and Streams Foundation, a Michigan non-profit corporation. Periodical postage is paid at Three Rivers, Michigan, and additional mailing offices."
POSTMASTER:
Send address changes to:
The Michigan Riparian
P.O. Box 249, Three Rivers, MI 49093

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 waterfront property.

THE MICHIGAN RIPARIAN magazine is published quarterly and is mailed to subscribers during February, May, August and November.

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SUBSCRIPTION RATES (4 issues/year)
Individual annual subscription: $10
Lake association quantity subscriptions (beginning with Feb. 2009 issue): $8

ADVERTISING RATES
Advertising rates sent upon request.
Advertising deadline is by the 10th of the month preceding publication, i.e. by April 10 for the May issue, etc.

Printed by Spartan Printing, Lansing, Michigan

Cover photograph by Aerial Graphics L.L.C. Aerial Graphics has photographed most inland lakes in Michigan. To see all photos and order online, check out its web site at www.aerialgraphics.com.

FROM THE PUBLISHER

Are personal watercraft being operated within the law?


Don Winne

Nine members of the 89th Michigan House of Representatives introduced House Bill No. 5426, an act to promote the safe use of personal watercraft on the waters of the state and to provide for rules relative to the operation of personal watercraft. Some of the rules included in the House Bill were as follows:

- The Michigan Department of Natural Resources was responsible for publishing the approved rules for the operation of personal watercraft on Michigan waters.
- Personal watercraft (PWs) were to move counterclockwise around a lake.
- PWs should abide by the 55 mile an hour maximum speed law for all boats.
- A person shall not operate a PW on the waters of this state where the water depth is less than two feet deep.
- The number of persons riding on a PW shall not exceed the number for which it was designed.
- The operator of a PW shall maintain a distance of not less than 100 feet from a dock, raft or buoyed or occupied bathing building or swimming area, or a person in the water or on the wter in a personal floating device, or vessel moored, anchored, drifting or sitting in dead water.

This Act 116 has been amended a number of times by Act 262 (1998); by Act 229 (2000); and, again in 2008, but most of the changes have kept the rules identified in the above listing. It has been brought to my attention that violations of these rules are occurring frequently on inland lakes. Violations most frequently cited include going the wrong direction, operating the vessel before starting time (8 a.m.) and after the ending time of one hour before sunset, and operating in shallow water. Some lake associations are in constant contact with their county sheriff's department to keep violations to a minimum. How about yours?

IMPORTANT NOTICE: DO YOUR PART TO DISINFECT YOUR WATERCRAFT

A fish virus (VHS) has spread to the Great Lakes. To date, it has not spread to Lake Superior. It has caused fish kills in other Great Lakes waters and some inland lakes. Once it is detected within a body of water, it cannot be removed. You can be part of the solution – all watercraft (including jet skis) leaving a lake should be disinfected. The simple step of disinfecting your boat will help stop the spread of the VHS virus to other lakes.

A 1% solution of Virkon Aquatic is a very effective disinfectant. Place one tablet in the sprayer provided. Add one gallon of water and shake, then follow the directions below. Do not handle the tablet directly – use the tongs.

Disinfection directions
1. Remove all organic materials (vegetation, unused bait etc.) from boats, trailers, and live wells. Place it in trash.
2. Move boat and trailer to a location away from the launch ramp. Do not disinfect a watercraft in or near the body of water.
3. Drain the bilge water, live wells, and pumps on land away from the launch ramp.
4. Turn motor over several times to remove water from cooling system.
5. Spray the Virkon solution on the hull, bilge area, livewell, trailer, and engine water intakes/exhausts.
6. Let drip on land for 5-10 min and you are good to go.

Virkon Aquatic kills the VHS virus, is approved by the U.S. Environmental Protection Agency and is environmentally safe. For more information about Viral Hemorrhagic Septicimia or other aquatic invasive species, go to www.michigan.gov/dnrfishing or contact the Fisheries Division at 517-373-1280.

Bob Smith is President and Owner of Aerial Graphics of Grand Rapids. He often contributes our front cover photographs.

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Advantages and disadvantages of aquatic plant management techniques: PART TWO

PART TWO

NOTE: Part One of this three-part series appeared in the May 2008 issue of The Michigan Riparian. This series is a revision of a previously printed article.

By John D. Madsen, Ph.D.
Assistant Professor
Mississippi State University

CHEMICAL MANAGEMENT TECHNIQUES

In many ways, chemical management techniques have changed dramatically in the past 20 years. Increased concern about the safety of pesticide use in the 1960s and 1970s changed the review process for all pesticides, particularly for products used in water. Currently, no product can be labeled for aquatic use if it poses more than a one in a million chance of causing significant damage to human health, the environment, or wildlife resources. In addition, it may not show evidence of biomagnification, bioavailability, or persistence in the environment (Joyce 1991).

The greatest change for herbicides came with the passage of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) first passed in 1972 and amended in 1988 (Getsinger 1991, Nesheim 1993). Due to more stringent and costly standards for testing, fewer compounds were available for aquatic use. In 1976, 20 active ingredients were available; as of 1995, only six were available. Beginning in 2000, several new compounds have been approved for aquatic use, with several more in the process of approval.

The important caveat to remember is that these products are safe when used according to the label. The U.S. Environmental Protection Agency (EPA) approved label provides guidelines protecting the health of the environment, the humans using that environment, and the applicators of the herbicide. In most states, there are additional permitting or regulatory restrictions on the use of these herbicides. A typical state restriction requires that these herbicides may be applied only by licensed applicators. Annual updates from state regulatory and environmental agencies are necessary to check for changes in label restrictions and application policies or permit requirements, before developing or implementing any plans for applying herbicides.

Herbicides labeled for aquatic use can be classified as either contact or systemic. Contact herbicides act immediately on the tissues contacted, typically causing extensive cellular damage at the point of uptake but not affecting areas untouched by the herbicide. Typically, these herbicides are faster acting, but they do not have a sustained effect, in many cases not killing root crowns, roots, or rhizomes. In contrast, systemic herbicides are translocated throughout the plant. They are slower acting but often result in mortality of the entire plant.

Complexed copper compounds include a variety of formulations from different companies, under different names and labels, in which copper is chelated in an organic complexing agent that keeps it in solution. Formerly, copper sulfate was used in applications, predominantly for the control of phytoplankton. However, the copper rapidly precipitated, especially in harder water, and was no longer available, leading to the production of complexed copper agents. Complexed copper is very effective for algal control, somewhat effective for several vascular plants (particularly hydrilla), and is also used in tank mixes with diquat to increase its effectiveness.

A widely used aquatic herbicide for many broadleaf species, such as Eurasian watermilfoil, is 2,4-D. A selective systemic herbicide, it effectively controls broadleaf plants with a relatively short contact time, but does not generally harm the pondweeds or water celery. However, it is also not effective against elodea or hydrilla.

Diquat is a contact herbicide that will act on a very short contact time. It causes a rapid die-off of the shoot portions of the plant it contacts, but is not effective on roots, rhizomes or tubers, requiring subsequent applications. Diquat will bind to particulate and dissolved organic matter, which restricts its use in some water bodies. It is also effective in a tank mix with copper compounds.

Endothall is another contact herbicide. Unlike Diquat, it is not affected by particulates or dissolved organic material. It should not be used in tank mixtures with copper, as it can have an antagonistic reaction with chelated copper compounds.

Fluridone is a nonselective systemic aquatic herbicide. It requires very long exposure times but may be effective at very low concentrations. Fluridone is widely used for both hydrilla and Eurasian watermilfoil management. It appears to work best where the entire lake or flowage system can be managed, but not in spot treatments or high water exchange areas.

Continued on page 9

Continued from page 8

Glyphosate is not effective on submersed plants, and triclopyr is not yet labeled for general aquatic use, so neither compound will receive additional attention.

In treating submersed species, the applicator is actually treating the water with an herbicide, and allowing the plant to take up herbicide from the water. This creates a situation in which the applicator needs to know the exchange rate of the water to have a successful application (Getsinger et al. 1991). The exposure time of the plant to the herbicide is determined predominantly by the water exchange rate. The response of different plant species to different herbicides is a function of the properties of both the plant and the herbicide. The applicator also needs to match an herbicide with an appropriate concentration and exposure-time relationship for the target species (Netherland 1991). The concentration and exposure-time relationship for a given compound have been determined from laboratory experiments. For instance, if it is known from water exchange studies that the exposure time will ensure only 24 hours of contact with 1 mg/liter of 2,4-D if applied at full label rate, than a 75% control rate for Eurasian watermilfoil can be expected. If longer exposure times are expected, than lower concentrations can be applied. One goal of this area of research is to allow for lower application rates, both to save money on herbicides and to introduce a lower total amount of herbicide into the aquatic environment. For higher exchange rates, the applicator will have to use higher concentrations of the contact herbicides such as diquat or endothall; slower exchange rates may allow the use of systemic herbicides (Tables 3,4). However, some systems are limited in selecting herbicides for use, because it is never admissible to use concentrations of herbicides higher than the allowed EPA maximum label rate.

Some herbicides (e.g., 2,4-D and triclopyr) are intrinsically selective, being very effective for controlling broadleaf plants such as Eurasian watermilfoil but not narrow-leaved plants or grasses such as hydrilla. Other herbicides may be used selectively but only through application based on the target and non-target plant's biology. Recent research has shown fluridone may be used to selectively manage Eurasian watermilfoil and hydrilla at extremely low (e.g., 5 to 8 ppb) concentrations; however, concentrations must be carefully monitored to avoid failure to control the target species (Getsinger 1998, Netherland et al. 1997).

The future of herbicide use may include applying plant growth regulators (PGRs), such as flurprimidol and paclobutrazol, which reduce plant elongation rather than cause plant death (Van 1988). The future of this approach dimmed considerably in the U.S. when Du Pont Corporation did not pursue the registration of bensulfuron methyl, which showed great promise in restricting tuber formation in hydrilla (Haller et al. 1992) and PGR activity in Eurasian watermilfoil (Getsinger et al. 1994).

A second area in the future of herbicide use is integrated control, where herbicides are used in conjunction with other management techniques to improve their effectiveness. Herbicides have been used with grass carp (Eggeman 1994), insect biocontrol agents (Haag and Habeck 1991, Van 1988), and pathogens (Nelson et al. 1998, Sorsa et al. 1988) to increase their effectiveness. Combining herbicides with mechanical and physical control techniques is also possible.

Mechanical and Physical Management Techniques

Mechanical management methods have been widespread in attempts to control aquatic plants. Yet all too often the approach to a solution is strictly "engineering," rather than applying engineering to knowledge of biology and ecology of the target organism. Likewise, the erstwhile inventor often neglects a concern for the environmental implications of use of the mechanical control, confirmed in the belief that it must be better than "using poisons."

The most common form of mechanical control is actually the use of hand cutters, rakes, or bare hands (no tools) to remove vegetation. Not only is this the most common method worldwide, but also it is the most widely used method by most lakeshore owners in the U.S. In a do-it-yourself guide, McComas (1993) listed a large number of hand implements and other small-scale devices for mechanical control. These techniques are most appropriate for localized nuisance problems of both nonindigenous and native plants.

Larger-scale control efforts require more mechanization. The first uses a mechanical cutter, which is typically a boat with a sickle-bar cutting blade. Although cutting alone is relatively rapid, it leaves large mats of plants that can not only spread the plant but also create a floating obstacle, wash up on shorelines, and cause water-quality problems through decomposition. Because of these problems, cutting operations are typically combined with plant removal. However, in some applications, removal is not necessary, in which case cutting alone is sufficient.

In mechanical harvesting, cutting operations are combined with plant removal. Occasionally, there are separate cutting and harvesting boats. More often, the harvesters have both a sickle-bar cutting blade with a conveyor belt that loads the cut material on a boat. Disposal vehicles carry the plant material away.

Read Part Three of this three-part series in the November 2008 issue of The Michigan Riparian.

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Donald E. Winne, EXECUTIVE DIRECTOR

'Fall Seminars' planned

Michigan Lake & Stream Associations, Inc., presents "Fall Seminars" in order to provide information to local lakes and streams residents who care about their local or state-wide waters. Fall Seminars are conducted by MLSA Region Vice Presidents, so if you wish to secure more information, contact your Regional Vice President or check the web site at www.mlswa.org. The MLSA home page includes a map of Michigan's MLSA regions.

AUGUST

Regions 7, 9, 10 & 11
August 23, 2008
BJ's Restaurant, Gaylord
Contact for more information (see contact info at left): Cecile Kortier, Richard Mikula, Roger Houthoofd

SEPTEMBER

Regions 13, 14 & 15
September 6, 2008
Contact for more information: Arny Domanus, Sue Reiss

Regions 4 & 8
September 20, 2008
Big Star Lake Township Hall, Baldwin
Contact for more information: Ed Highfield, Franz Mogdis

Regions 1, 5 & 6
October 11, 2008
Howell Nature Center, Howell
Contact for more information: Ron Cousineau, Floyd Phillips, Ginny Himich

Region 2
October 18, 2008
Jackson Community College, Jackson
Contact for more information: Scott Brown

Region 3
October 22, 2008
Stan Van Deeren Conference Center, Michigan
Contact for more information: Sue Vomish

SAVE THE DATE

Plan now for Michigan Lake & Stream Associations, Inc.,'s 48th Annual Conference, scheduled for April 24-27, 2009, at Houghton Lake.

ATTORNEY WRITES

Riparians and estate planning

By Clifford H. Bloom, Esq.
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What do the following property situations potentially have in common? The modest cottage on Bass Lake. The year-round home on Houghton Lake. The multi-million-dollar cottage at Bay Harbor. The hunting cabin on Trout Creek with 40 acres. The vacant buildable lot on the Kalamazoo River.

All five situations could involve properties which the current owners want to "keep in the family" after their deaths. Successful generation-to-generation transfers of riparian, hunting, and vacation properties do not just happen—it requires thoughtful estate planning, with the assistance of a skilled attorney who specializes in that area.

Although I briefly touched on the importance of estate planning for such properties in my column in the May 2000 issue of *The Michigan Riparian*, this is a topic that should be dealt with in more detail.

Unfortunately, many property owners who want to see their lakefront home, vacation cottage, pristine acreage parcel, or riparian property stay in the family (by passing it on to children, siblings, nieces and nephews, or other family members or friends) attempt to do estate planning "on the cheap." Oftentimes, they will draft their own wills or simply put family members on the deed to the property so that those family members will automatically own the property after the death of the current owner. Other landowners hire an attorney who is not an expert in the area of estate planning as it relates to riparian, vacation, or similar properties.

The results of poor estate planning (or no estate planning at all) can be disastrous. For example, where a property owner simply adds other family members to the deed (particularly without a formal side agreement governing how the property will be maintained, managed, etc.), it can later split families apart, result in property interests going to a former spouse who has divorced an inheriting family member, or lead to unpredictable results. Poor estate planning can also lead to significant tax consequences.

The results of poor estate planning (or no planning at all) can be disastrous.

Where proper estate planning does not occur, it is fairly common for members of the next generation to inherit a riparian, vacation, or hunting property as "tenants in common" or under a similar arrangement. Absent the proper restraining documents executed by the now-deceased former property owner, any inheriting co-owner has the right to "partition."

That is, in Michigan, a co-owner has the right to force either a sale of the overall property (and division of the proceeds) or physical division of the property against the wishes of the other co-owner(s).

Other potential pitfalls involved with poor estate planning regarding such properties can include the following:

- The inability or refusal of one of the new co-owners to pay his/her fair share of taxes, maintenance costs, upkeep, etc.
- Unending disputes regarding who can use the property (and when), whether an addition should be added to the cottage, how the building should be decorated, etc.
- Problems caused when one of the co-owners wants to be bought out (such problems can be compounded by disagreements over price, terms, how quickly the purchase must occur, etc.).
- What to do when one of the co-owners goes bankrupt or his/her creditors attempt to seize that person's interest in the property.

Two of the most common techniques, which are used by skilled estate planning attorneys to keep these types of properties in the family without causing undue future problems, include setting up a trust or a limited liability company. There are, of course, "pros" and "cons" to each approach. The limited liability company (or "LLC") is becoming an increasingly favored approach.

Some of the issues which must be dealt with in a well-crafted succession plan for a prized family property include the following:

- Co-owner buyout provisions.
- Dealing with divorce, bankruptcy, and creditor situations.
- Property usage rules.
- Voting provisions among co-owners.
- Allocating usage times among co-owners.
- How to handle building maintenance, additions, improvements, etc.
- Tax consequences.
- Provisions for eventual termination of the arrangement.
- Possible endowment fund.
- Conflict resolution techniques.

If you want to keep your beloved cottage, vacation, hunting, or similar property in the family, act now, hire a skilled estate planning attorney, and effectuate a good estate plan soon.

On The Cover

Elk Lake and the Elk River Chain-of-Lakes

By Dean W. Ginther, President
Elk-Skegemog Lakes Association

Of the over 11,000 inland lakes in Michigan, Elk Lake is one of Michigan's riparian jewels. Reportedly, it was named after a set of elk horns found near the mouth of the Elk River, which is located in the present-day village of Elk Rapids. Prior to settlement, the shores of Elk Lake were home to the Anishinabek, which included the Odawa, Ojibwe, and Algonkin. Today, the shoreline around Elk Lake is 75% developed, primarily with seasonal residences. The first summer residences were built around the turn of the 20th century. Now many of those initially modest structures have been upgraded or replaced.

Elk Lake is a constant-level lake with a surface area of 7,730 acres. It is about nine miles long and one mile wide, in most places. The average depth is 71 feet, with a perimeter of 26 miles and a maximum depth of 192 feet. It is classified as an oligotrophic lake with average Secchi disk readings of about 25 feet in the spring to 12-15 feet in late summer. In-water phosphorus levels are consistently less than 2 parts per billion with dissolved oxygen levels being high at both the surface and near the bottom. Elk Lake has an active fishery with bass, trout, perch, rock bass, and walleye and muskie in the adjoining Skegemog Lake. Elk Lake typically has little or no in-water shoreline vegetation, and the bottom is mostly alluvial gravel and sand. The lake almost always freezes over in the winter, with the earliest freeze date being Dec. 22, 1989, and the latest thaw date being April 25, 1996.

Elk Lake is the most "downstream" lake in the extensive Elk River Chain-of-Lakes. The Chain-of-Lakes includes 14 lakes, the largest being Torch Lake, which has the greatest Michigan inland lake volume of 2,627,800 acre/feet. Elk Lake follows in fourth place among all Michigan lakes with a volume of 548,830 acre/ft. The watershed surrounding the Chain-of-Lakes includes 320,000 acres and contains 54 lakes, 220 streams and tributaries, as well as 110 miles of connecting waterways. It one of the largest watersheds in Michigan and contributes 60% of the inflow to Grand Traverse Bay. If one were to depart from the north end of Elk Lake for a canoe or kayak trip along the Chain-of-Lakes, the round trip could extend up to 200 miles, with a few portages. In a powerboat, nearly half of that distance would be directly navigable from Elk Lake.

Elk Lake connects to Skegemog Lake, a smaller and shallower lake of about 2,560 acres. These two lakes were home for the founders of the Elk-Skegemog Lakes Association (ESLA), which was formed by a few forward-thinking riparians more than 60 years ago. ESLA was the first lake association on the Chain-of-Lakes and one of the first in Michigan. Today, ESLA has more than 600 members and continues to energetically inform and educate its members, monitoring water quality and protecting the water, streams, and lakeshore in and around the lakes and watershed.

Within the last 18 months, ESLA has been active in educating its members regarding proposed legislation that would restrict traditional public access and use at road-ends. An additional current concern for ESLA members relates to the relicensing of the powerhouse (dam) at Elk Rapids. Virtually all of the water running through the entire Chain-of-Lakes empties into Grand Traverse Bay at Elk Rapids. Most, but not all, of this water passes through a powerhouse in Elk Rapids that was constructed about 80 years ago and has been producing hydropower for the majority of that period. Today, the dam is owned by Antrim County and continues to produce electric power. However, the federal license to generate power expires in 2014. Without relicensing and appropriate maintenance of the power plant, monitoring and adjusting the seasonal court mandated water levels in Elk and Skegemog Lakes could become neglected.

Therefore, ESLA supports the relicensing of the power plant, especially in light of the fact that the current dam operators are committed to maintaining the powerhouse and properly regulating the water level. Unfortunately, to re-license older dams, the Michigan DNR routinely requires the construction of a fish ladder, which would allow fish to move from Elk Lake into the Grand Traverse Bay and also migrate from the Bay into Elk Lake. For more than 100 years, the dam has been an effective barrier against the migration of most of the invasive plant and animal species that now inhabit Lake Michigan. Constructing a fish ladder would inevitably lead to immigration of many of these destructive species into the Chain-of-Lakes via Elk Lake. The resulting damage to the Chain-of-Lakes fishery, ecology, and property values would be enormous. ESLA is working to prevent this potential invasion as the re-licensing process for the Elk Rapids Dam moves forward.

Over the years, ESLA has faced many other challenges and responded to a variety of opportunities, such as helping to establish the 3,300-acre Skegemog Wilderness Area on the south end of Skegemog Lake. With state agencies responsible for environmental protection and enforcement experiencing staff reductions and budget cuts, local lake associations are becoming even more important in protecting and advocating for the unique and beautiful waters of our Michigan inland lakes.

MICHIGAN LAKE & STREAM ASSOCIATIONS, INC.
MLSA NEWSLETTER

Costs Cut MLSA Newsletter

Increasing costs for production and mailing have contributed to a big change for the Michigan Lake & Stream Associations Newsletter, which has been published quarterly for more than two decades. The newsletter will now appear as a special section, which you see here, in The Michigan Riparian Magazine.

Many articles will be taken from the newsletters of individual lake associations – this means action on the part of our member associations. If your lake would like articles from your newsletter to be considered for publication, please send a copy of your newsletter to the MLSA Editor, 5660 Woodland Ave., Watervliet, MI 49098. If your newsletter exists electronically, in your computer, please e-mail it to delavan1122@comcast.net.

Thank you to all of our readers. We hope you like the necessary transition. – Delavan Sipes

Winter Oxygen Levels

Dissolved oxygen levels on Pentwater Lake at summer's end are typically well depleted below 20 feet. We surmised that when the lake "turns over" during the cool and stormy autumns that oxygen levels would increase at lower depths. In March 2008, we decided to test the hypothesis.

George Richey, Joe Primovich and tom Osborn took an oxygen meter to the middle of the lake in fifty feet of water. Tom says, "Of course, most of the perch were being caught near the lake bottom during this winter of good ice and big run of small fish, we knew there had to be oxygen for them."

Sure enough, the water oxygen level was 10 mg/l in water temperature of 1-2°C (milligrams/liter and degrees Celsius) to about 35 feet of depth. They then saw a steady drop in concentration to about 4.7 mg/l just off the bottom.

This is Norman oxygen use and decomposition continue in the winter under the ice, but much more slowly than at summer water temperatures. In the spring, the lake temperatures will stratify and the summer depletion cycle will begin anew.

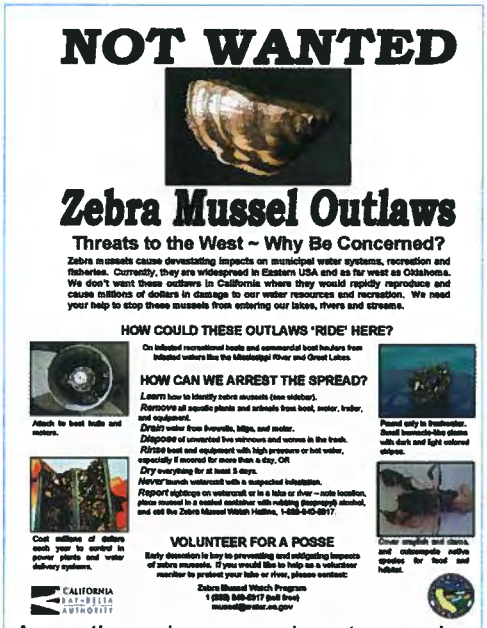
– Pentwater Lake Association Newsletter
Tom Osborn, Chair, Water Quality Committee

Threats to Michigan Lakes

The May newsletter edition of the Indian Lake Association, Kalamazoo County, contains a list of threats to Indian Lake. Because these are potential threats to all Michigan Lakes, we are passing them on to you below:

Introduction of Invasive Plant or animal Species

Invasive species are impossible to eradicate once they enter a lake, although a few may be controlled at great expense. Actions: Decontaminate all boats, trailers, live wells, fishing equipment, water sports equipment and pets before introduction in your lake, preferably a week in advance. Instruct your guests to observethesame precautions. Do not place any plants or animals in your lake that did not come from your lake.



A creative zebra mussel poster used by the California Department of Water Resources.

Fertilizing Phosphorous Free

Phosphorus is a limiting nutrient for aquatic plants and algae. Actions: Soil test before applying any fertilizer. Purchase and use only phosphorous free fertilizer. Support laws to prevent use and sale of phosphorous containing fertilizers in Michigan.

Nitrogen from Fertilizers

Nitrogen is another limiting nutrient for algae. Actions: Do not apply fertilizers within 15 feet of shore. Adhere to the recommended application rates on lake properties. Grass clippings may be left on the lawn to recycle nitrogen and reduce fertilizer use.

Phosphorous in Ash from Burning at the Lakeshore

Actions: Avoid open burning. If you burn, follow the stringent state and local regulations regarding permits and allowable locations. Support regulations to prohibit all open burning in local communities of Michigan.

Chemicals-Burning or Inappropriate use

Pollutants are concentrated in ash through burning. Actions: Avoid open burning. Follow directions for use of all chemicals, including those in lawn fertilizer. Avoid the use of chemicals near the lake or your well. Dispose of all toxic chemicals at your county Hazardous Waste Center.

Airborne Toxins and Poisons

Smoke from open burning contains poisons and cancer causing chemicals. Actions: Report illegal open burning

and nuisance smoke to your local fire department.

Nitrogen Leaching from Yard Waste

Yard waste near the lakeshore may leach nitrogen into the lake. Actions: Avoid the accumulation of grass clippings, leaves and twigs within 25 feet of the lakeshore, or on slopes draining toward the lake. Dispose of all yard waste in a compost pile of an approved landfill.

Lakefront lawns

Lakefront grasses are an unnatural lakefront plant permitting soil erosion and leaching of nutrients into the lake. Actions: Plant native plants along the lakefront after searching the may internet sites discussing this topic (Lakescaping). Install a rain garden where water accumulates, which will filter out nutrients in the runoff. An added benefit is that geese do visit properties with the lakefront buffer zones of native plants.

Toxic Algal Blooms

There are typically three algae blooms per year in Michigan lakes; one in late spring, one in midsummer, and one in late summer or early fall. The bluish-green hue in late summer/early fall may be toxic. Algae blooms (growth) are caused by excess phosphorous and nitrogen in the lake. Even Zebra mussels will refure to eat toxic blue-green algae. These toxins may threaten the health, and occasionally poison humans and other animals using the lake. Exposure to algal toxins may also occur on shore from airborne water droplets during boating or lawn irrigation. Actions: Strictly avoid the addition of phosphorous and nitrogen to your lake.

High Water Quality—Constant Priority

From The Brower News (News 'round and about Big Brower Lake) we bring you a note about maintaining high water quality which is a common goal for many Michigan lake associations. The news about Big Brower Lake's current water quality challenge can be summed up in the phrase—"Eurasian Water milfoil on the move." EWM is a non-native, invasive species. Once in a lake, EWM is difficult to eradicate, but can be controlled. Its presence waxes and wanes in cycles. If left uncontrolled, EWM first chokes our native vegetation on the lake bottom. Then it forms dense surface mats which destroy recreational surface use.

In the summer and fall of 2007, new large patches of EWM were observed in several areas around the lake, especially in the cove, along the south and west shores, and in the middle of the lake. Currently, water quality monitors Joe Hesse, PhD, and Bill Cutler are working with Jason Broestra of Professional Lake Management to devise a treatment program for 2008 to insure ongoing high water quality in Big Brower Lake while controlling the invasive Eurasian water milfoil.

Because of the presence of EWM and other aquatic plants, in the 80's Big Brower Lake Association instituted a three pronged weed control programs: 1) mechanical harvesting; 2) chemical treatment; 3) educating residents to protect the watershed by limiting phosphorous run-off from leaf ash, yard waste and fertilizer.

Mechanical harvesting is effective at controlling some types of aquatic plants that limit recreational use of the lake, especially eel grass. Mechanical harvesting also removes biomass that otherwise dies, falls to the bottom and creates a layer of fertile muck to support the next year's crop of weeds. The last mechanical harvesting was in 2005 due to budget limitations and presence of EWM. Attempting to harvest EWM leaves some cutting floating in the water which can root and spread the growth of EWM.

Chemical control is a viable option to control EWM, but acre for acre, chemicals used to treat milfoil are much more expensive than chemicals used to control other aquatic plants such as algae.

What is a Watershed?

Michigan landscape is made up of many interconnected basins, or watersheds. Within each watershed, all water runs to the lowest point—our streams and then our lakes. On its way, water travels over the surface and across the fields, forests, streets, driveways, and lawns, or it seeps into the soil and travels as groundwater.

Each of us lives in a watershed. We are part of a watershed community. Animals, birds, fish, plants, and trees are part of the watershed we live in. we influence what happens in our watershed, good or bad, by how we treat the natural resources—soil, water, air, plants and animals. What happens in our watershed, in turn, affects each and every one of us.

The last glacial period, which ended about 10,000 years ago, left Michigan with a diverse arrangement of soils and topography. Depressions filled with water to create our lakes. Nutrient poor soils make lakes less fertile and produce fewer plants and marine animals.

All lakes are temporary features of our landscapes. Over time, soil particles and nutrients are washed into the lakes from surrounding land. This drainage area is

called the lake's watershed.

All lakes "age" or naturally become more fertile with time. The rate of this aging process, referred to as "natural eutrophication," depends on the lake's characteristics and the quantity of sediments and nutrients that wash into the lake from the watershed. Natural eutrophication is a very slow process that takes tens of thousands of years. However, human development within a watershed creates "cultural eutrophication" that can accelerate the speed of aging.

How old do you think out lakes will get to be?

– From "Lewiston Lake Living"
Twin Lakes Property Owners Association

Birch Lake Helped by Three Lakes Assn

Earlier this year, Birch Lake Property Owners Association asked the Three Lakes Association (TLA), in the tip of the mitten, for support in their efforts to preserve part of a wetland that feeds into Birch Lake near Elk Rapids.

An area farmer and landowner began construction of an access road through protected wetland without a permit and despite a Michigan Department of Environmental Quality (MDEQ) violations notice.

The TLA discussed this issue and wrote a letter to the MDEQ in support of the Birch Lake property owners. On March 12th, the MDEQ Water Management Division directed the land owner to restore the wetlands that had been damaged and stated that the farmer had sufficient alternative routes to this part of his property that the construction of this new road was not justified.

Road Ends Legislation

Some months ago, Three Lakes Association passed a resolution and wrote a letter to their legislators expressing their opposition to the passage of House Bills 4463 and 4464 that would legalize the use of road ends as marinas. The Michigan Waterfront Alliance has solicited a legal opinion from the Michigan Attorney General regarding these ill-conceived gills currently pending in the Michigan State Legislature. They wrote us the following:

Although there are dozens of good reasons why the ill-conceived road end bills being pushed by the backlot property owners groups should never become law in Michigan. Michigan Attorney General Mike Cox just weighed in with perhaps the most persuasive argument of all against the road ends bills. In a well researched and reasoned formal Attorney General Opinion released on January 30, 2008, Attorney General Cox indicated that the legislation, if enacted into law, would likely be unconstitutional, under both the Michigan and U. S. Constitutions. That is, to the extent that the legislation would attempt to expand usage rights at dedicated public road ends, it would probably be unconstitutional. Worse yet, if the courts did not invalidate the legislation outright, the State of Michigan might very well have to pay monetary compensation to all injured parties, which would likely include nearby riparian property owners. Who would foot the bill? Not the backlot property owners who championed this legislation, but the taxpayers of Michigan! Just what Michigan needs in these troubled economic times-allowing a relatively small group of militant backlot owners to prompt all Michigan taxpayers to fund the backlotters' own private marinas at road ends!

The complete text of the Attorney General's opinion may be found at http://www.ag.state.mi.us/opinion/datafiles/2000s/op10287.htm.

Even the passage of these bills would leave it up to local governments to further restrict the use of road ends. In Antrim County, several townships have passed road ends ordinances that restrict the use of road ends, limiting them to lake access with no docks, mooring, or commercial development. Torch Lake Township's proposed Lake Access Ordinance is a good model of what three Lakes Association feels is needed for our lakes. Check the website at http://www.torchlaketownship.org/.

Results of Harmful Algae Study

In early fall of 2006, the Hamlin Lake Preservation Society collected water samples for a state-wide study, involving 77 lakes, to determine whether Michigan inland lakes had significant amounts of harmful blue-green algae (cyanobacteria). Laura and Will Lyons collected the samples from upper and lower Hamlin Lake.

Objectives of the study were to: 1) to measure toxin levels produced by blue-green algae in many inland lakes; 2) to study the relation among zebra mussels, phosphorous levels and blue-green algae. Previous studies had shown that zebra mussels may selectively consume non-toxic algae leaving the toxic forms to flourish. The results of the study may be fond at www.michigan.gov/deq. Search for "harmful algae" to get the report.

Cyanobacteria (blue-green algae) are organisms that produce mycrocystin, a hepatotoxin which can be injurious and sometimes fatal to terrestrial animals and humans. Cyanobacteria blooms also cause reduction in water clarity, taste order problems, and reduce the recreational value of a lake. In this study, mycrocystin content was measured in samples from all 77 lakes.

Among the participating lakes, Hamlin Lake and

most of the other lakes had mycrocystin levels well below the World Health Organization guidelines of 1.0 microgram/Liter (ug/L) for drinking water and 20 ug/L for recreational exposure.

Concentrations from all lakes ranged from a low of 0.02 ug/L to as high as 46.4 ug/L. Hamlin Lake results ranged from 0.06 ug/L to 0.20 ug/L.

Major conclusions from the study are:

- Most lakes: No toxin risk to recreational users
- Mycrocystin levels were highest at the shoreline
- Mycrocystin levels were higher and more variable in lakes with zebra mussels
- Phosphorous levels have a positive correlation with mycrocystin levels in lakes having no zebra mussels
- High levels of mycrocystin found in two lakes with low phosphorous levels and populations of zebra mussels.

"A fine goose, sir?
What would you do with it?"

– Delavan Sipes, Editor, MLSA Newsletter

"I'd banish them from my lake! That's what I'd do. We had a goose roundup to get rid of the pesky critters."

"And why is that, sir?"

"They're dirty, filthy waterfowl. They're foul fowl!"

"Why do you feel that way, sir?"

"Because they poop all over my lawn. Every step is treacherous and slippery."

"Does your lawn go right to the water's edge?"

"Yes, why?"

"That's why geese poop on your lawn."

"I don't understand."

"When geese are in flight, they prefer to land on water. The geese that bother you swim to shallow water and then walk on your grass, don't they?"

"Well, uh, yes."

"And while they walk around eating grass and insects they to that things the you don't like?"

"Of course. That's why I want them banished."

"But did you know there are other ways to keep them off your lawn?"

"Like what?"

"You can change your lakeshore from grass to plants that are native to shoreline habitat. Get native plants that like the moist shoreline soil, and plant them in a buffer strip ten or more feet wide. The geese will not walk through it, therefore your lawn will not be treacherous and slippery."

"But then I'll have more maintenance than I do with the grass. I just cut the grass and I'm done with it."

"Once your native plants gain a foothold they need no special attention, while your greass requires several cuttings each summer."

"But where do I find the right kind of native plants?"

"Check the web for waterscapes and native plants. You'll end up with the beauty of a restored natural shoreline and protect the rest of your lawn from those traveling geese. There are other benefits, too."

"Like what?"

"A buffer strip of native, water lovingplantshave deep roots that make marvelous filters to remove toxins from the water that seeps into the ground, and that includes phosphorous and nitrogen fertilizers."

"I didn't know that."

"Further, you may even learn to enjoy the geese. Many people do, you know. They especially look forward to early summer when the goose and the gander lead their goslings around the lake, with mom up front and ad bringing up the read, as they teach the young where to feed. They also get a great deal of exercise to develop their wing muscles while their wing feathers grow to maturity. All of this in preparation for that long flight south when the lake freezes in late fall. Another bit you might like to have is that natural buffer strips don't erode from water actions. They are far more stable than shallow-rooted grass. Well, hope you enjoy the geese, sir."

"Uh, thanks. I'll think about what you said."

REMEMBER:

If your lake would like articles from your newsletter to be considered for publication, please send a copy of your newsletter to the MLSA Editor, 5660 Woodland Ave., Watervliet, MI 49098. If your newsletter exists electronically, in your computer, please e-mail it to delavan1122@comcast.net.

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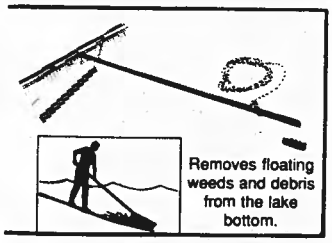

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New Michigan Court of Appeals decision regarding riparian boundary lines

On July 1, 2008, the Michigan Court of Appeals released a new published opinion which discusses how to ascertain riparian boundary lines (i.e., where the bottomlands of one riparian property ends and that of another begins). That case is *Heeringa v Petroelje*, _____ *Mich App* _____ *(2008)*. Prior to the Heeringa opinion, it had been many years since a Michigan appellate court had squarely addressed riparian boundary line issues. In order to determine a riparian boundary line, the Court of Appeals succinctly stated as follows:

> Briefly, the proper method for determining riparian boundary lines involving irregularly-shaped bodies of water is: first, to draw a 'thread' line through the geographic middle (as opposed to the deepest point) of the body of water; second to determine where the riparian landowners' surface property lines intersect with the water; and third, to draw lines from the thread at as close to right-angles as possible as measured at the thread line to the 'landward terminus points.' The thread line must be determined on the basis of the shape of the 'original' shoreline, referring to the date the United States government parted with title to the property.
> (Slip Opinion at 2.)

Although surveyors, engineers and attorneys can give opinions (orally or in writing) as to where a particular riparian boundary is located, those opinions are not binding. Only a court with appropriate jurisdiction can definitively determine where common a riparian boundary line is located for two adjoining riparian properties.

– Clifford H. Bloom
Law Weathers & Richardson, P.C.
Grand Rapids, Michigan

Have you been in the Cooperative Lakes Monitoring Program? 2009 enrollment – plan to take part!!

Citizen volunteers are quietly keeping watch over the quality of their lake. They donate their time and energy to collecting water quality samples and making measurements that help the state track the health of their lake.

In 1990, a lake testing project – Secchi, Total Phosphorous, etc. – was established for members of MLSA who were concerned about their lakes.

Today's Cooperative Lakes Monitoring Program (CLMP) volunteers continue to measure lake clarity with Secchi disks, but also monitor several other indicators of lake quality. They may monitor for temperature, dissolved oxygen, phosphorus (the main nutrient responsible for algae and plant growth in lakes), and chlorophyll (a pigment produced by algae in the water column).

These more sophisticated measurements are made possible through cooperation with the Department of Environmental Quality, which provides equipment and laboratory analysis. Michigan Lake and Stream Associations, Inc., has helped lake associations and individuals get involved in the CLMP, providing logistical support, promoting volunteer monitoring, and hosting training at their annual conferences since 1993.

Training and support are available for volunteers who want to monitor the aquatic plants found in their lakes. They can learn to identify native and exotic plants and map their distribution in the lake.

Volunteers who participate in lake monitoring receive technical training from program staff, learn first-hand about the quality of their lakes, and can take an informed role in lake management.

The long-term monitoring data the volunteers are generating is available online at the MiCorps website (www.micorps.net). The volunteers' collected data provides the public and the state with information about trends in lake quality that are crucial to lake management decisions.

There is always room for more volunteers in the Cooperative Lakes Monitoring Program! Enrollment begins October 1, 2008. The time commitment depends on the indicators that are measured, and varies from one or two hours twice a year, to once a week during the summer.

If you would like to learn more, contact Jo Latimore at latimor1@msu.edu or Pearl Bonnell at pbonnell@mlswa.org.

You may also find more information at MiCorps website at www.micorps.net. or MLSA website www.mlswa.org. You may call MLSA at 989-257-3583 or 269-273-8200.

submit your story to LOVE MY LAKE ...

"Love My Lake" is a new feature of The Michigan Riparian. In each issue, we invite subscribers and readers to tell us why they love their lake and to share one or two photographs. If you'd like to feature your lake in a future issue, please just answer the questions you see below and submit them via e-mail to **jchurchill14@yahoo.com** or via "snail mail" to: Love My Lake c/o Jennifer Churchill, P.O. Box 44, Carson City, MI 48811. Please also e-mail a large-format (300 dpi) jpg or tiff photo of your lake, or snail mail a regular photo. Photos will not be returned, so please mail us a copy. We look forward to hearing about your lake!

What is your name and MLSA affiliation (association you belong to)?
What is the name of your lake and where is it located (county and general region of Michigan)?
How long have you lived on lakes? How long have you lived on this particular lake?
How would you describe your lake? Very rural?
Developed? A village or town feeling, or isolated?
What do you love most about living on a lake? What do you love most about this particular lake that you now live on?
What types of activities do you and family members do on your lake?
What (if any) special challenges do you encounter living on a lake? Any advice to other riparians that you've acquired over the years?

Jane Herbert: District Water Quality Educator
Michigan State University Extension Land & Water Program

During my teenage years, my family owned a modest cottage on a lake near our home in Barry County. Back then, I loved our lake for the tan I could develop while sun-bathing on the dock and watching those cool "lake guys" show off on slalom skis. As a science major in college, I became interested in natural resources management and pursued a degree in fisheries. This has led me to a variety of places over the years including where I am this lovely June morning – sitting on my porch overlooking a small northern Minnesota lake.

I have read with interest the MLSA member contributions to the Riparian's "Love My Lake" column. And this summer I'm experiencing first-hand the quiet allure of lake living. Thanks to the generous support of MLSA and other organizations, I'm on sabbatical, studying with the University of Minnesota Extension's Shoreland Management Team. The team leader, Dr. Mary Blickenderfer, is conducting research on biological and biotechnical shoreline erosion control methods, techniques and products that provide alternatives to rock and sea walls. I'm here to learn what I can and bring it back to Michigan.

During my MSU Extension career, I've spoken to many groups on the importance of spring turn-over and summer stratification to a temperate lake's ecosystem. However, this year I'm experiencing with adult interest and joy how the summer unfolds on a lake – a phenomenon many MLSA members experience every year. My husband and I are renting an old two-room log cabin on Peterson Bay, which is located at the south end of Little Bass Lake near Cohasset, Minnesota. It's rustic but charming, and comfortable enough for the two of us.

The locals tell me it's been a late spring even for northern Minnesota. We arrived here on the first of May, just two days before ice-out. For those two days, I could hear the tinkling of lake ice as the spring winds pushed it into the bay. These days from my dock, I see the panfish moving into the shallows, setting up their territories and nurseries. (In 10 minutes I can catch enough for supper on my fly rod.) The northern pike are scarred and bloody from spawning in the wetland fringe that

surrounds this lake. The largemouth bass, now plump with eggs, are moving up to warmer waters. Near-shore sweeps with my dip net yield darters and minnows, along with mayfly and dragonfly larvae dislodged from the emerging aquatic plants.

I've watched with interest the slow, but steady, spring growth of this lake's diverse aquatic plant community. Although I've helped numerous lakefront property owners identify aquatic plants during late summer, this year I have the opportunity to see these plants in their early growth stages and observe how they form communities that change from one part of the lake to another. For example, there is a gentle light-green ring along the edge of this undeveloped bay where the sedges are growing out to meet the rushes and water lilies are finally coming to the surface.

I'm keeping busy up here, but I have to admit that lake living has rekindled my love of bird watching. With a plethora of migrating warblers, along with nesting loons and osprey that keep a sharp watch for bald eagles patrolling the lake, I've learned not to leave the cabin without my binoculars.

The shoreline around this 155-acre lake is mostly wooded with less than 20 homes– mostly year-round residences. And then there is Little Bass Lake Resort – a low-key place owned by a retired engineer named Jerry Angst. Jerry grew up in Chesaning, Michigan, and is a proud graduate of Michigan State University. On his resort website, Jerry posts a daily chronicle about what's happening on the lake and claims that "You're not really up north until your north of U.S. 2." Of course he's referring to the highway that runs from Michigan's U.P. through northern Wisconsin and Minnesota and on across the country. He also makes it clear that if you're looking for an action-packed resort vacation, Little Bass Lake Resort is probably not for you. I enjoy visiting with Jerry and learning what he's learned about Little Bass Lake since purchasing the resort 16 years ago. In 1999, Jerry volunteered his shoreline to Dr. Blickenderfer as a site on which to demonstrate a more natural, vegetated solution for controlling shoreline erosion. The previous resort owners had removed trees, shrubs and aquatic emergent vegetation at various intervals along the shoreline to provide views from the cabins and also swimming areas. Mowing to the water's edge had only made the problem worse. An aerial photo of the resort shows how those areas had receded – some so badly that Jerry was worried about losing the gravel drive leading to his cabins.

Together Jerry and Dr. Blickenderfer developed a restoration plan calling for the planting of native grasses and shrubs between the road and the lake. The next step was to reintroduce emergent aquatic plants, like sedges and rushes, back into the lake and then protect them by installing fiber-log wave breakers for a couple years. The project continues to be a success; the erosion is under control and shoreline habitat has been restored. Shoreline soils are knit together by strong root systems and wave energy is being dissipated by the emergent aquatic plants. Lake sediments, trapped by the restored aquatic plant community, are being trapped near shore and are slowly rebuilding lost shoreline. Jerry now maintains one central swimming area and proudly displays a sign that educates guests about his project and how it benefits the lake. Although not the only possible solution to this erosion problem, Jerry's project is the type of low-cost, low-tech solution that is possible when lakefront property owners decide to, as Mary Blickenderfer puts it, "give their shorelines back to the lake."

When I read the "Love My Lake" column, I read accounts of what MLSA members enjoy about their lake and what the lake gives to them. My summer on Little Bass is helping me understand that special bond – the 'give and take' of lake living if you will. And yes, I too love "my" lake.