

TLA Quarterly

JANUARY 2009

President's Letter

While the snow is falling outside, TLA's leadership teams are busy inside building a membership directory, preparing the 2009 Appeal Letter, and drafting articles for the current Newsletter. By the time you are reading this message, you should have already received your 2009 Appeal Letter, which summarizes an impressive list of 2008 accomplishments. Your support of these accomplishments, with your time and donations, is very much appreciated by the whole organization.

One of the major anticipated changes in TLA's activities being planned for 2009 are new environmental educational partnerships with local schools. These new partnerships



will be in addition to our ongoing support of the Grass River Natural Area's education programs. The idea is for TLA to underwrite a few water quality-related initiatives at local schools, such as sponsorship of teachers to attend workshops and the purchase of specialized equipment such as dissecting scopes, dissolved oxygen meter, and/or Ponar sample collection device, etc. The scope of this new activity will be based on the teacher's wish list and TLA Board's 2009 Budget. A special Thank You to Patricia Roush, our new Education Committee

Chair, for her recent efforts to explore opportunities for partnering with teachers in local schools, especially those areas of environmental science that coincide with the State's mandated teaching benchmarks.

As a follow up of DNR's dredging of their boat launch site at Fisherman's Paradise on Lake Bellaire the first week in November, we expressed some concern to the project manager for proceeding without first communicating their plans with TLA. DNR employed new vacuum-based dredging methodology rather than their conventional mechanical dredging. Since the vacuum dredging equipment is similar to the equipment that may be used to dredge Craven Pond, we would have liked to have collected water samples as part of our ongoing interest in phosphorus loading associated with vacuum dredging.

Regarding our Summer Internship Program, the feedback from the School Boards in Elk Rapids, Bellaire, and Central Lake, based on this year's summer intern's brief PowerPoint presentations to the school boards, continues to be overwhelmingly very positive. The nature of the questions asked by School Board members indicated a genuine interest in the conclusions of the Lake Bellaire shoreline greenbelt survey as well as their interest in the ongoing partnership with TLA's Summer Internship Program. An article in this Newsletter includes instructions for individual property owners to obtain a summary of the survey results for their parcel of property. This is a win-win-win activity. If you are interested in helping with next year's summer internship program, please let Norton or me know.

Dean Branson, President

New Members:

New members since Oct. 08 (last newsletter)
Roketenetz/Dan and Diane • Makowski, Melissa DDS

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The Mission of the Three Lakes Association is to provide leadership to preserve, protect, and improve the environmental quality of the chain of lakes watershed for all generations.



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Lake Bellaire Shoreline Survey Results

By the time you receive this newsletter, the Lake Bellaire Shoreline Survey will be available on-line [www.3lakes.com] and survey results on your individual property can be obtained by either leaving a message at the office (231-533-4852) or emailing us at info@3lakes.org. We will have the original database on the office computer so that either our Office Assistant, Lori Brandt, or our Executive Director, Norton Bretz, will contact or send you your ratings.

The survey was based on seventeen different categories for each of 287 separate shoreline parcels. The written report only has average values for the whole lake and were reported briefly in the October TLA Newsletter. Individual results come from the survey form that was filled out for each parcel. A comparison of individual scores in each category to average scores in the final report will help to understand what has been done.

You may not agree with the scores that you received for your property. And you may not agree with the method used to compile a summary score. We welcome your comments and if we have made an error, we will correct it. However, TLA tried to use the same criteria on each property and definitely used the same ranking method as on the Torch Lake Survey. TLA is not going to be visiting riparians who scored low or giving awards to those who scored high. This is for you to use as you choose. If you feel that you need advice on how to improve your shoreline, there are several places to go. Tip of the Mitt Watershed Council in Petoskey (231-347-1181) and the Watershed Center of Grand Traverse Bay in Traverse City (231-935-1514), and Antrim County Conservation District Office (231-533-8363) all do assessments for property owners and most of the nurseries in the area are qualified to give advice on how to design attractive and environmentally friendly waterfronts. In general Lake Bellaire has an unusually large fraction of waterfront that is undeveloped, and this is good for the health of the lake. If anything, we would encourage homeowners to maintain or plant a buffer so that the lake ecology can stay as healthy as possible. Mowing to the lake edge and artificial barriers on the edge of the water are not as desirable, but each property is different. Boats, rafts, and docks were not part of our survey, nor was the size or condition of your house. The scores only relate to the part of the shoreline immediately behind the edge of the water (to about 40 feet). Structures on the edge of the water such as boat houses or stairways were noted but did not enter into the ratings.

The methodology used for the shoreline survey was based on advice from Tip of the Mitt and used in the 2007 Torch Lake Shoreline Survey Report. The Clam Lake shoreline survey was finished last summer in cooperation with the Friends of Clam Lake. We expect that the final report will be completed this winter and be available in the spring of 2009. We hope that other lake organizations will do similar surveys on the other lakes in the Chain in the future. Some other nearby lakes have already completed a survey very similar to this one, for example, Walloon Lake. With interlake comparisons and comparisons between what our lakes look like today versus what they may look like in the future, we can begin to evaluate large scale changes. So far, the lakes are very healthy and relatively unchanged in terms of water quality. Everyone who uses them deserves some measure of credit for this situation.

TLA High School Interns Give School Board Presentations

In October, November, and December our three TLA high school interns each gave presentations to their school boards in Elk Rapids, Bellaire, and Central Lake, respectively. In part because each of these school boards meets at the same time on the second Monday of each month, we had to space the presentations out longer than usual. The students, Braden Ackerman, Billy Bohannon, and Wilhelmina Witt had already made a presentation to the TLA Board in September on the Lake Bellaire Shoreline Survey. They were ready, but school board meeting convergences and travel by our Executive Director conspired to delay the final presentations.

However, all the students did a marvelous job of showing off their work with Power Point oral presentations and giving the final report to the boards. In addition TLA awarded each student a certificate of achievement and a check for \$300 for college expenses. TLA gave each school a letter certifying that each student had completed 60 contact hours of community service and qualified for ½ credit hour in independent studies. In the past these students have been able to use their TLA internship experience on university applications and claim authorship on a professional report.

TLA President, Dean Branson, hosted the first two students and Norton Bretz, the last, ending on Dec.8. The TLA board commented that this group was unusually poised and professional, and after they had the experience of this presentation behind them, they were, if anything, even more self-confident and knowledgeable when they went before their local boards. Norton commented, "If I had been asked to do this same thing, at their age, I would have been a basket case." So, it is a tribute not only to the upbringing of these young people but to their experience in school as well. We must be doing something right.

You will be reading about these youngsters in the papers over the next few years. Braden plays soccer and worked at the Corner

Drug Store in Elk Rapids. Billy is using his internship toward a qualification to be an Eagle Scout and worked in the Riverside Marina in Bellaire. Wilhelmina is on the cross country team at Central Lake High School, is a member of 4-H, and sells eggs from her 85 chickens to local businesses to raise college money. All are Juniors this year.

In addition to completing the Lake Bellaire survey, Braden Ackerman and Art Hoadley also completed taking the survey data on Clam Lake. This activity was done in cooperation with the Friends of Clam Lake. So, we anticipate a complete shoreline survey of all three lakes will be completed by the spring of 2009. And, all the interns were treated to a ride in Art's pontoon plane to see the shoreline from the air and take more photos. A photo of Wilhelmina just before her trip is shown here.



2008 TLA high school student intern Wilhelmina Witt gets ready to take off in Art Hoadley's pontoon plane.

Freshwater Summit

The first Freshwater Summit was held at the Water Studies Institute on the Campus of Northwest Michigan College in Traverse City on October 30, 2008. The purpose of this gathering of about 100 people was to provide an opportunity for networking between nine lake associations actively addressing threats to inland lakes and other environmental organizations with a keen interest in protecting Grand Traverse Bay.

This Summit was co-sponsored by The Watershed Center, NMC's Water Studies Institute, Tip of the Mitt Watershed Council, and the Network of Lake Associations. One of the most useful presentations was Tina Allen's summary of Long Lake Township's proposed Ordinance requiring an inspection of septic systems at the time of sale. Tina was the Treasurer of Long Lake Township that passed this Ordinance on December 9, 2008. The learnings from Long Lake Township's experience are expected to be helpful to TLA's efforts to support the development of similar ordinances in the townships within the watersheds for Torch, Bellaire, and Clam Lakes.

During breakout sessions, half of the audience heard presentations about water quality science and the disturbing prevalence of invasive species, such as the Round Goby in the Great Lakes, Avian

Botulism, and Eurasian Water Milfoil. Norton Bretz presented an overview of TLA's water quality modeling during this session. The other session was an open dialogue between representatives from lake associations on ideas for addressing common concerns, including road-end legislation, working relationships with township officials, anti-funneling initiatives. Ray Ludwa facilitated the session.

In an effort to help build the capabilities within lake associations and other environmental organizations in this area, an electronic database "Freshwater Roundtable Organizational Profile" of each organization is being compiled and coordinated by the Water Studies Institute's new Director Hans Van Sumeren. The purpose of the database is intended to identify opportunities of collaboration on solutions to common problems. TLA's profile now is part of this database.

Since lake associations seem to benefit from the networking during lake summits, the plan is to schedule two summits each year; one in the spring that will be organized by Tip of the Mitt and one the fall that will be organized by The Watershed Center and the Water Studies Institute. Dean Branson was one of a small group to help plan the next Freshwater Summit in the fall of 2009.

Everything You Wanted To Know About The Elk Rapids Dam . . .

Why is Three Lakes Association interested in the Elk Rapids Dam? Let's start with what your life would look like without it.

Before the white man arrived in the Chain O' Lakes, its rivers were not navigable. Elk Rapids, Torch, Grass, Intermediate, and other rivers of the upper chain were clogged with deadfall and beaver dams. Much of the watershed we currently use was flooded. Water flowed through this maze slowly by the standards of today. Lake levels could drop significantly when flood conditions washed out debris and rise as beavers struggled to re-establish their habitat. Just before the lumber era, Elk Lake must have been three to five feet lower than today allowing a cedar forest to grow on the east side of Lake Skegemog where stumps are now visible just below the surface. Torch was lower as well since similar stumps can be seen underwater on the eastern side of Clam Lake. Of course, there are no records of any of this. However, starting in the 1850s the first Elk Rapids settlers put in a milldam, and as lumbering grew, all the interconnecting rivers were dredged for the transportation logs and steamers. The mill dam increased level in Elk Lake but dredging and beaver dam clearing also lowered levels upstream. In succeeding years the Elk Rapids dam was enlarged and raised and another dam was built on the Intermediate River in Bellaire. These two dams stabilized and raised our lakes to their current levels.

In the 1920s the Elk Rapids dam was converted into a hydroelectric facility. During these early times lake access was more important than lake level, per se, but after WWI commercial development of lakeshore properties made lake levels a matter of great concern to owners of lakefront property. The dams in their present form and the control of lake levels we have now date from the early 1970s. As of today, the overflow level of the dam at Elk Rapids (and subsequently the levels of Elk, Skegemog, Torch Lakes and Lake Bellaire) and the level of Intermediate Lake are set by state law. The Antrim County Drain Commissioner is charged with maintaining the dams and adjusting the levels which are lower by 7" from November 1 through April 15 for Elk Lake and November 1 through May 15 for Intermediate Lake.

While the levels are now stable and relatively uncontroversial, another important issue has arisen: invasive species have changed the ecology the Great Lakes and the Elk Rapids dam has isolated the Chain from many of the problems associated with this invasion. So far, the ecology of the Chain has been affected relatively little and the number of invasives relatively small. Currently, if one doesn't count brown trout (an early but generally welcome invasive), the Elk Rapids dam has protected the Chain from the lamprey eel, round gobi, quagga mussel, viral hemorrhagic septicemia and a variety other, less well known newcomers and ailments. Invasive species have completely altered the fishery in the Great Lakes by out-competing native populations and changing their habitat. The isolation of the Chain isn't perfect. We have significant populations of Eurasian watermilfoil and zebra mussel, all originating from Lake Michigan but not coming upstream through the dam. The dam, which was originally established to harness waterpower and stabilize water levels, now plays a substantial role in protecting our lakes from ecological mayhem. The price we pay is that Lake Michigan fish no longer spawn in the Chain, eliminating for example, the lake sturgeon from our lakes.

What would happen if the dam were removed? Elk Lake would certainly drop to within a few feet of Lake Michigan. The current level difference is about 10 feet. Below the Bellaire dam lake levels would rise and fall with the level of Lake Michigan, typically a variation of three to five feet over decades. As the river channels eroded,

the levels in Torch Lake, Clam Lake, and Lake Bellaire would drop an intermediate amount. The Torch Lake sand bar would become part of the beach. Besides adding hundreds of feet between cottages and the water in these lakes and turning Clam Lake into a river, the lakes would be opened up to a significant array of invasive creatures that they have never seen before. Fish populations of all kinds would fluctuate wildly, lamprey weirs would have to be installed, quagga mussels would populate the bottoms of our deepest lakes, now completely barren of plant or animal life, and the round gobi would replace pan fish and burbot, the feedstock of our salmon and trout, as they have in the Great Lakes. Riparian and aquatic life would change dramatically.

No one is calling for the removal of the Elk Rapids dam, but its existence depends to a large extent on whether it can be maintained as an electric power generator. The current dam has undergone a succession of changes since 1920. Several power companies have owned and operated it. Between the 1950s and 1980 it sat unused. Since the county refurbished it in 1980, the dam has been run as an electric power station and is currently licensed by the Federal Energy Regulatory Commission through 2013. The county still owns the dam itself and the power equipment but since 2007 it has been operated by Elk Rapids Hydroelectric Power (ERHP), a family owned company. ERHP is paying off a \$195,000 county bond and selling electricity on the open market. For the first time since its refurbishment the dam operated in the black this year. If the dam did not produce power and revenue for the county and were left unused, it would still have to be maintained. So, the best economic solution for the county would be to keep it as an electric power plant.

The removal of several dams on the Boardman River dams has been surrounded by controversy. However, there are far fewer stakeholders there and advocates for the removal of these dams can claim with some authority that the river will be improved. Many leading ecologists, state and federal environmental authorities, and leading nature organizations have favored dam removal in order to restore the natural ecology of river systems and avoid killing fish in the turbines. However, the Elk Rapids Chain of Lakes is different. Dam removal would significantly degrade the ecology of a large watershed and anger virtually every resident and recreational visitor. Several thousand lakefront property owners would be negatively affected by a lowering of the lakes. The fact that hydropower produces no greenhouse gases should also count strongly in its favor.

Although TLA has not made a formal survey, we believe that virtually all state and local environmental organizations support the maintenance of this dam. So, residents of the watershed need to give their support early and strongly to the special committee of the Antrim County Commissioners who will be responsible for applying for a new license. Otherwise, the Federal relicensing process might require an environmental impact study and fill kill analyses, all increasing the cost by millions of dollars. Thus, it is important to convince the MDNR and US Fish and Wildlife Service that maintaining the dam is supported by sound environmental science, that removing it does not have any substantial benefits, and that its removal is opposed by virtually everyone in the community.

In the coming months our County Drain Commissioner, Mark Stone, who is responsible for carrying out county policy on the dam, will be asking for advice and support as the relicensing moves forward. TLA intends to stand firmly behind this effort and encourages everyone else to do the same.

Note: Information for this article was obtained from the Elk-Skegemog Lake Association and Mark Stone.

Executive Director's Concern for the Future

In thinking about my presentation at the Freshwater Summit on the Nutrient-Based Water Quality Model that has been developed for our three lakes and how to generalize our conclusions for other lakes, I came to the conclusion that the Elk Rapids Chain-of-Lakes is at the cusp of an era. As yet we have relatively few invasive species from the Great Lakes, and their effect on our ecosystem is relatively minimal. Zebra mussels are the most obvious newcomer. They have been in our lakes for about 10 years now and have reached an equilibrium in their invasion. It is unlikely that they will become much more numerous

than they are now. However, even now they have crowded out all the freshwater clams and populate the rocky bottoms to about 40 feet in patches. Our interns who were taking dredge samples two summers ago found them in only a few of the 20 or so dredges that were taken in Lake Bellaire, Clam Lake, and Torch Lake. They populate only part of the bottom of our lakes down to this level.

However, this is only the camel's nose under the big tent. Great Lakes zebra mussels have been almost entirely replaced by their ugly cousin, the quagga mussel. Quagga mussels breed in a wider range of temperatures and faster, and they live at depths to 300 feet and on marl substrates. The Great Lakes have already been changed by quagga mussels. They live in larger beds on the bottom and apparently foster the development of algae and cladophora mats. These mats float to the surface and wash up on beaches making many inlets unpleasant for swimming. Quagga mussels may be abetted by another invasive, the round gobi, which now takes up more than 80% of the fish mass in Grand Traverse Bay. Round gobis and quagga mussels are both implicated in the migrating bird, including loon, die-offs that are increasingly common on the Grand Traverse Bay shore.

Zebra mussels got to Torch Lake on the bottoms or trailers of boats and quaggas are likely to get here the same way. Michigan has done very little to keep unwashed boats from being moving between our lakes. During my talk at the Freshwater Forum, a DEQ official pointed out that there were signs warning boaters to wash boats and trailers at DNR boat launches. Have you ever seen anyone wash a boat or trailer (except at a TLA washing station) at one of our public boat launches? Glen Lake has only one public access and its lake organization has spent most of its resources maintaining a washing station there. In spite of this effort, zebra mussels have made their appearance for the first time this year.

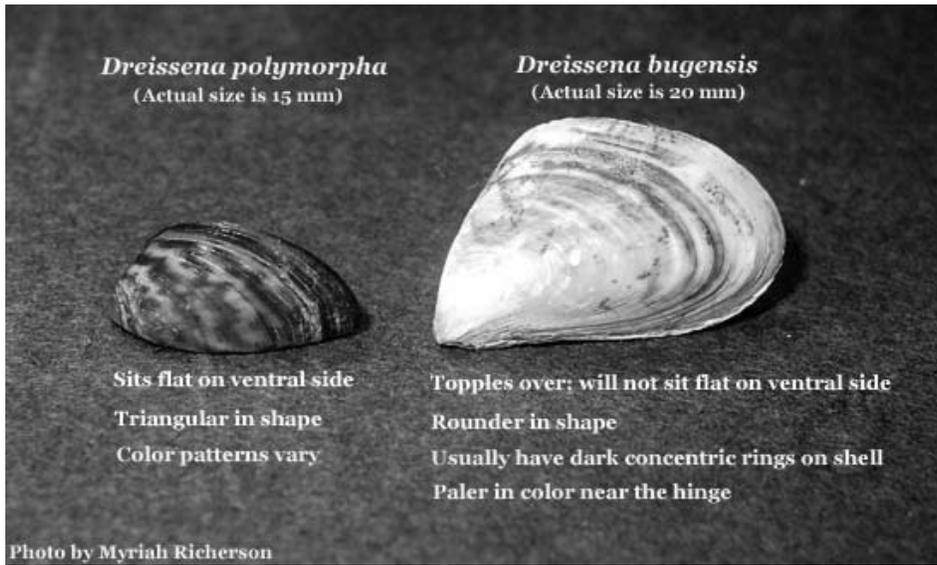
One of the main conclusions from our Nutrient-Based Water

Quality Model was that Torch Lake, and to a lesser extent, Lake Bellaire, are self cleaning. 80 to 90% of the phosphorus that enters the lakes is precipitated to the bottom where it stays, as it has for millennia, inert. In fact the bottom of our lakes below 60 feet is a barren wasteland of marl with no vegetation. The conditions that make this burial work are (1) the water is saturated with calcium, its main impurity, (2) the bottom is cold (<40 deg. F) and dark year around, and (3) the water is well oxygenated. We are not sure what role these conditions play separately, but all appear to be important.

What happens if this system is interrupted by the appearance of quagga mussels? The short answer is that, like all perturbations to the ecosystem, we are not sure. However, it appears to me that the permanent burial of phosphorus may be a casualty. The phosphorus that is already there is an ideal nutrient and the calcium that falls continually from the surface is just what mussels need for their shells. If they all just retained the phosphorus in their bodies and the calcium in their shells, things might not be so different, but they will die eventually and decay using up oxygen and probably releasing phosphorus. On the other hand Torch Lake, at least, seems to be less hospitable to zebras than Grand Traverse Bay, possibly because it has more marl and less rock on the bottom. Torch Lake may continue to be less hospitable to quagga mussels. Who knows? But the lake will be substantially different and if our lakes don't bury phosphorus as they have in the past, the level of phosphorus in the lakes themselves will rise.

TLA is not proposing a solution. We don't think that there is an effective one. We will have to wait and see. However, this suggests a project for TLA and for some summer interns: a survey of the deep parts of our lakes, before the invasion. Our lakes can be a test tube for what has already happened to some extent in Grand Traverse Bay. I am working this winter with the physics teacher, Keith Forton, at Central High School in Traverse City on a Remotely Operated Underwater Vehicle (ROUV) state and national competition that they have participated in for several years. Keith has held annual workshops for other teachers around the state to show them how to build relatively cheap vehicles for doing various underwater tasks and recording underwater videos. We can make a video record of several spots on the bottoms of our lakes that we can return to in the future to monitor changes.

Norton Bretz, Executive Director



Zebra and quagga mussels can look very similar. The most important differences are the ability of the zebra to sit flat on the ventral side and the asymmetry of the quagga hinge.

Responding to Boating Issues on Grass River

Speed and propeller damage to the stream bottom are two issues of concern when boating on Grass River. Although Grass River is a “no wake” boating area, it is becoming more and more common to observe boats traveling up and down the River at speeds that generate significant wakes. Erosion of stream banks is one of the consequences of boating at speeds that make waves on the River.

Another disturbing trend is the increasing number of stripe marks on the bottom of the River caused by boat propellers. There is no reason to believe that boaters intentionally cause this damage but rather that they inadvertently fail to raise their boat motors when traveling up and down the River. This is especially true for the larger boats that draw more than two feet of water. The amount of floating aquatic plants entering Clam Lake on Monday morning provides confirming evidence of dislodged aquatic plants from the stream bottom due to weekend boating on the River. Friends of Clam Lake have also provided aerial photos of these disturbing stripe marks.

To help address these issues, a special ad hoc Committee with representatives from Grass River Natural Area (GRNA), Three Lakes Association (TLA), and Friends of Clam Lake (FoCL) was formed last year. The Committee’s first project was to install a series of attractive new “No Wake” signs that explain that waves from boats make the River wider and shallower.

Volunteers who helped install the new signs on October 23rd were Bob Bagley and Gary Knapp (TLA), Butch Bartz Jr. (GRNA-Stewardship Committee Chair), and Jeff Dalton (GRNA), Steve Hoadley (FoCL), and Art Hoadley (TLA and FoCL). The Cedar poles for mounting the signs were harvested by volunteers earlier. These poles were driven into the stream bank using Butch Bartz Sr.’s

hydraulic probe and a working pontoon made available courtesy of DeWitts Marine.

The Committee is developing plans to further address these issues, which may include (1) paper placemats for use by local restaurants to encourage slow boating on Grass River, (2) a tri-fold brochure clearly defining “no wake” and providing a rationale for protecting aquatic plants in the River, (3) signs identifying where Finch, Cold, and Shanty Creeks enter Grass River, and (4) ideas for enforcing the existing “no wake” ordinance and addressing boating congestion. For further information about the Committee addressing these issues, please contact Bob Bagley, TLA office phone: 231-533-4852.



New signs on Grass River encouraging boaters to drive slowly.

Long Lake Township Passes a Septic Inspection on Sale Ordinance

For several years now TLA has been watching communities that have passed ordinances requiring the inspection of septic systems when a property ownership is transferred or sold. In higher density urban areas many counties and regional health boards have adopted inspection-on-sale language as part of their health code requirement. Eleven Michigan southern counties and one in the north, Benzie, have similar ordinances but most northern municipalities do not. Our rural life style, lack of large cities and industries, and the abundant natural areas and wetlands has allowed us to be less vigilant about our waste streams.

However, many of our community septic systems are old and failing. Without an Inspection-on-Sale ordinance, once a system is installed there is no mechanism to require its upkeep. In fact, the failure rate nationally for septic systems is in the range of 10%. That is, if one took a snapshot of all properties in a well established community, 5% to 20% would not meet current code for one reason or another. Of course, newer communities have lower failure rates than older ones, some areas present more difficult engineering problems for installation and maintenance, and there is considerable variation in the meaning of “failure”. We depend on our natural areas and wide separations between communities to filter out what our septic systems do not. However, our population levels are rising and our lakes and streams are largely pristine, so in order to keep them that way, we will have to consider raising our standards.

Commission did not recommend the adoption of septic inspection-on-sale to our county health commissions during its last review a few years ago. Septic inspection-on-sale was discussed in public hearings on proposed changes in the health code but real estate interests were opposed to the measure. They felt that property sales would be hurt by such a rule. In fact, some older properties would not be able to easily upgrade to current code. For example, small properties may not be able to satisfy the minimum separation of a drain field and well or have proper drainage on the property for a drain field. On the other hand, some real estate people favored the change as a good practice to certify a property as safe and healthy.

In December Long Lake Township in Grand Traverse County passed an ordinance requiring the inspection-on-sale of septic systems. Besides Benzie County this is the closest community to have adopted this standard. The unusual thing about this and a few others in the state is that the township has passed the ordinance, not the county. It is legal for individual townships take on this role. From the perspective of maintaining high lake water quality standards, townships that have many lakes or have a significant lakeshore within them might well consider standards that are more strict than those that are further away. When water flows to lake through tributaries, wetlands, and groundwater, there is additional filtering that takes place naturally. However, lake front properties do not ordinarily have significant distance or wetlands to serve as additional filters. In our area there are eight townships that have

See Septic Inspection on page 7 for continuation

Septic Inspection *continued*

frontage on our three lakes. So the importance of keeping a high level of septic maintenance is most important in these.

One of the reasons our lakes are so clean is that they have low phosphorus levels. Septic systems play a dual role (1) they eliminate pathogens from wastewater, so that people don't get sick and (2) they eliminate or reduce the amount of phosphorus from entering the groundwater. In our area sand and gravel soils are particularly inefficient at eliminating phosphorus. So even in a properly operating septic system a substantial fraction of the phosphorus that enters the system eventually finds its way into the groundwater and into our lakes. Broken, poorly maintained, or poorly placed septic systems all contribute more phosphorus and can be sources of pathogens as well. All municipal sewer systems have a settling phase in which phosphorus is eliminated. Ordinary septic systems do not eliminate phosphorus except as it is taken up by plants or absorbed by soils before entering the groundwater.

Long Lake is entirely contained in Long Lake Township whereas our Three Lakes are distributed over eight townships. Furthermore, our Three Lakes combined are seven times larger in area and thirty-five times larger in volume than Long Lake. It will be difficult to make a case for keeping the water quality high in our lakes one township at a time. No single ordinance will have the effect on our lakes that Long Lake Township's ordinance will have on Long Lake. Although two of our eight townships do not have zoning (Central Lake and Custer), they can still encourage Septic Inspection-on-Sale. TLA will begin introducing a model ordinance to all eight townships.

Our township officials want to know how to evaluate the importance of a septic inspection-on-sale ordinance. TLA will argue that failing septic systems are the primary culprits for causing our lakes to lose clarity and quality. Too much phosphorus leads to cladophora on the shoreline, increased algae on the shore bottoms, and an increase in the average level in the lakes themselves. TLA has documented significant cladophora blooms along parts of our shore and worked with homeowners to find their sources and clean them up. However, many go undetected when the concentrations are low or the distribution is over a wide area. The Nutrient-Based Water Quality model that TLA has developed allows us to quantitatively predict the effects of the ordinance on water quality.

TLA has measured the amount of phosphorus that comes into the lakes from all sources and can estimate what comes from septic systems through groundwater. We estimate that 10 - 20% of the phosphorus entering our lakes comes from septic systems. The rest comes from rainwater and from non-manmade sources. So, if we take a 10% failure rate for the entire three lake system and approximately 2,500 riparian parcels and septic systems, there may be as much phosphorus coming into the lakes from failures as from all the other properly functioning septic systems. However, these estimates are very uncertain and there is no direct way of determining the effect on the lakes of individual poorly operating systems. If one had a meter that measured phosphorus directly and could drive around the lakeshore measuring local levels, this would help, but no such instrument exists. We can only measure the average phosphorus level in the lakes. If there are local concentrations, we cannot detect them at the present time.

What we do know is that our lakes are extremely resilient and do a good job of eliminating phosphorus on their own.

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Three Lakes Association is a 501(c)(3) corporation. Your dues and other contributions are tax deductible. Gifts, memorials, and bequests can also be made to the Three Lakes watershed Conservation Foundation administered by the Grand Traverse Regional Community Foundation. Michigan residents receive a 50% state tax credit for contributions to this fund. Call for further information.

* * * * *

To join Three Lakes Association please return this form with your check to:
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The Mission of the Three Lakes Association is to provide leadership to preserve, protect, and improve the environmental quality of the chain of lakes watershed for all generations.

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