



QUARTERLY

THREE LAKES ASSOCIATION

SERVING LAKE BELLAIRE, CLAM LAKE AND TORCH LAKE IN ANTRIM COUNTY, MICHIGAN

OCTOBER 2014

The Scoop on Poop

By Donna Gundel - Krieg

Three Lakes Association recently sponsored educational seminars regarding septic systems around the lakes. These seminars were presented by Larry and Mike Stephens of Stephens Consulting Services (SCS). The Stephens educated TLA members at our annual meeting, and additional seminars were also offered to the public.

Facts about septic systems may not be glamorous. However, learning about basic maintenance and common issues can save homeowners thousands of dollars, and help keep our beautiful lakes and rivers clean.

“While well-maintained septic systems remove pollutants, malfunctioning septic systems can create public health issues and exposure to disease-creating organisms,” explained Larry Stephens. “Also, if wastewater is improperly discharged, it depletes oxygen in the lakes and promotes aquatic weed growth.”

Basics: definition of a septic system

A septic system is an underground wastewater treatment structure. It uses a combination of nature and time-tested technology to treat wastewater from household plumbing produced by bathrooms, kitchen drains, and laundry.

Septic systems are composed of a tank and a drainfield. The septic tank is designed to intercept, hold, and partially treat solids contained in wastewater coming from the

home. The drainfield facilitates treatment and dispersal of clarified wastewater after it leaves the septic tank.

Common in areas without centralized sewer systems, septic systems are in one-quarter of all U.S. homes, and 1.5 million Michigan homeowners use them. In addition, community septic systems have become very popular in schools, subdivisions, and similar communities.

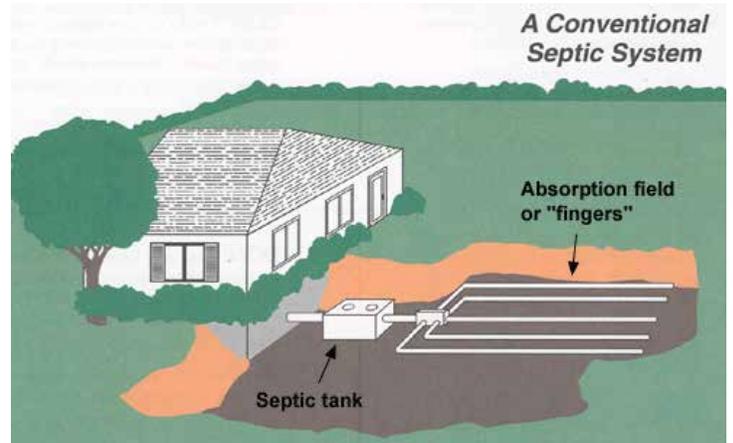
In 1997, the Environmental Protection Agency (EPA) stated that properly running septic systems are as good as centralized treatment systems, according to the Stephens. The reputation of septic systems has also improved as government policy has shifted wastewater treatment from recycling rather than disposal.

“While Michigan may seem ‘water rich,’ it is important that we recycle water, and not dispose of it,” explained Mike Stephens. After all, the average indoor water use is nearly 70 gallons per individual, per day.

How a septic tank works

The typical septic tank is a large, buried, rectangular or cylindrical container made of concrete, fiberglass or polyethylene.

The septic tank is usually located about 10 to 15 feet from the point where the sanitary



drain leaves the house. It can be found by checking your home’s “as built” drawings, checking your yard for lids and manhole covers, or contacting a septic inspector to help you locate it. The tank can also be found by gently inserting a steel rod into the ground where the tank is most likely to be. One can also wait for a light snowfall and observe where the snow first melts.

Wastewater from the bathroom, kitchen, and laundry flows into the septic tank. There, heavy solids settle to the bottom where bacteria partially decompose the solids into sludge and gases. The lighter solids, such as fats and greases, rise to the top and form a scum layer. The partially treated effluent then leaves the septic tank and flows to the drainfield.

Proper design and installation of a septic system is essential for it to correctly function. A home’s groundwater table, soil composition, and a properly leveled drainfield are just a few factors to consider

See POOP page 5

Sneak peek

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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 Elk River Chain of Lakes, especially Torch Lake, Clam Lake, and Lake Bellaire, for all generations.





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President's Message

Greetings to all,

By now, you're probably tired of hearing about it – and I won't harp on it this time – but, you are needed. If you are able in any way to volunteer for any of the TLA projects, know that you will be warmly welcomed. On the TLA website (www.3lakes.com), you will find a tab marked "Volunteer." There is a form to fill out, where you can indicate your areas of interest and how you wish to be contacted. Please take advantage of that form and let TLA know you are available. You don't have to be a member of the TLA Board of Directors to be a volunteer. You just have to be willing to give some of your time.

One of the fundamental purposes of the Three Lakes Association is to teach young people about being stewards of their little part of this Earth. This summer, we had four wonderful high school interns: Kyle Russell from Central Lake, Haley Dole from Traverse City, Caitlin Scroggins and Meike Stoldt from Elk Rapids. Among their pursuits this summer was the exploration of Maury Creek, contributing to the accurate mapping of that creek, which had not been identified on the maps of Antrim County, until now. They also staffed booths at the first annual Water Awareness Day in July, and at the Antrim County Fair in August.

In addition to our summer internship program, TLA's Science Education Outreach Program (SEOP), awards grants of money to help supplement and support the science curricula in our area schools. This program is, in part, supported by a challenge grant initiated by the Dockside Restaurant, of \$3,000 per year for three years. This year (2014) was the second year of the three. If education of the young, in school, and out in the field, is a passion of yours, please consider making a separate gift to this important program. It can be life-changing for the students in our community.

Let me close with a "save this date" comment. In 2016, the Three Lakes Association will celebrate its fiftieth anniversary, at the annual meeting, which will be held on August 11, at the Shanty Creek Resort. This will be a wonderful party, and there is lots to do to get ready for it. The committee in charge is headed up by Sandra Gourley. If this is something you'd be interested in volunteering for, please consider filling out that volunteer form I mentioned earlier (to be found on our website), or calling 231-544-7221 to offer your help.

Best to you all,
Tina

"A lake is the landscape's most beautiful and expressive feature. It is earth's eye; looking into which the beholder measures the depth of his own nature."
- Henry David Thoreau

New Members

- | | |
|---------------------------|----------------------|
| Jerry and Sue Allen | Mike Gentile |
| James Argo | Bethany Hawkins |
| Robert & Suzanne Benz | Ron & Sheri Loeb |
| James Cerano | Donald McClellan |
| Cindy Collins | Matthew Pierce |
| Gordon & Ilene Cottingham | Leland James Whipple |
| Greg & Sarah Dickey | Shirley Wolfe |

Benefits of Michigan's fish species in relation to natural shorelines

By Brett Riser,
Aquatic Biologist, Calhoun Conservaton District and MNSP Educator

Natural shorelines are not only visually appealing but directly benefit many fish species in Michigan. Michigan has more than 11,000 lakes, tens of thousands miles of rivers and streams and 43 percent of the Great Lakes waters within its borders. Within this vast resource live many fish species that are important to our recreational fisheries. Recreational fisheries are a huge economic engine for the state and provide the largest and highest-value use of Michigan's aquatic resources as documented in the recently released U.S. Fish and Wildlife report (2011 National Survey of Fishing, Hunting and Wildlife-Associated Recreation) and the Department of Natural Resources 2013-2017 Fisheries Division Strategic Plan, "Charting the Course: Fisheries Division's Framework for Managing Aquatic Resources.". In addition to the economic benefits of our fisheries, fish populations are often one of several indicators that determine the aquatic health of our water systems.

Critical littoral habitat, riparian habitat, and ecosystem function are altered as a result of shoreline residential development (Engel & Pederson 1998; Francis & Shindler 2009) and many of Michigan's shorelines have been altered as a result of residential development. Landowners often clear large trees and remove dead trees from the water. Fallen trees in littoral zones, can serve as important refuge for fish (Roth et al. 2007) and complex littoral vegetation comprised of emergent, submerged and free-floating macrophytes (aquatic plants) along the shoreline provide structural complexity that mediates predator-prey interactions by providing refuge for small fishes (Sass et al. 2006).

Michigan's sunfish species belonging to the family Centrachidae are extremely important to inland fisheries in Michigan and very popular with anglers. The sunfish species are significantly impacted by shoreline development – or the removal of natural shorelines. There are 12 species of Centrachidae in the state and of these: bluegill (*Lepomis macrochirus*), redear sunfish (*Lepomis microlophus*), largemouth bass (*Micropterus salmoides*), and black crappie (*Pomoxis nigromaculatus*) are

examples of species of significant importance to Michigan's sport fishery that are negatively impacted from shoreline development. These species are abundant in many Michigan lakes and rivers providing residents and visitors many successful angling opportunities.

Effects of development on shorelines extend into the water body itself, and may lead to large shifts in fish communities (Roth et al. 2007). Within developed lakes, black crappie nest adjacent to undeveloped sections of shoreline and associate with macrophytes which are less abundant in developed shorelines (Reed & Pereira 2009). The same trend has been identified for largemouth bass (Scheuerell & Shindler 2004) and bluegill growth rates negatively correlate with shoreline development (Schindler et al. 2000). Largemouth bass in highly developed lakes take longer to enter the fishery and may reach trophy lengths more rapidly in undeveloped systems (Gaeta et al. 2010). Natural shorelines containing vegetation provide needed habitat for the reproduction and survival of these fish species and result in larger fish produced faster within these natural shoreline systems.

These studies indicate an adverse trend in shoreline residential development and its effects on fish communities, especially the Centrachidae (sunfish) family,



Help us match Dockside's grant!

The Dockside - Torch Lake provided TLA with a challenge. They will MATCH all donations to our Science Education Outreach Program (SEOP) up to \$3000 each year for 3 years through 2015. With your help we can continue funding the program at our current average of \$10,000 each school year.

The Three Lakes Association Science Education Outreach Program (SEOP) helps cultivate stewardship of the watershed in the hearts and minds of our young people- the next generation living within the watershed. Our strategy has been to work with science teachers and students in the Central Lake, Bellaire, Kalkaska, and Mancelona school districts.

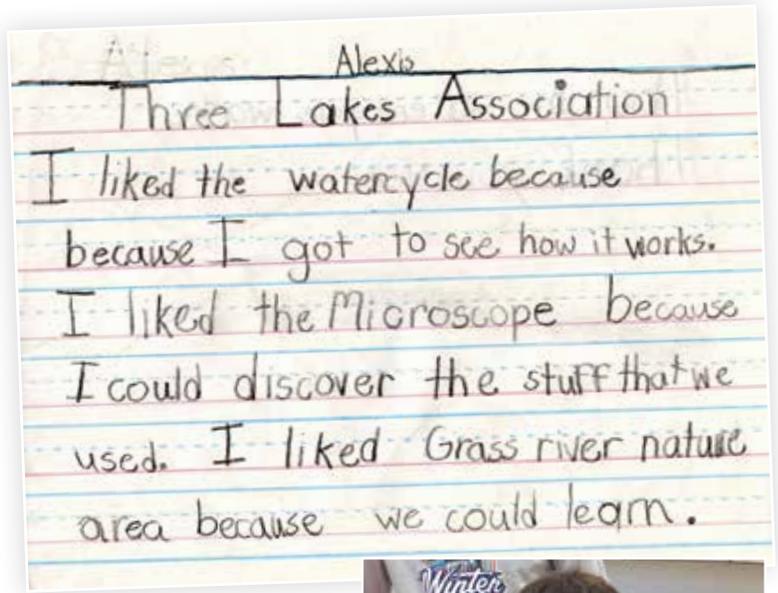
By offering supplemental assistance to local science educators, we have enriched the environmental science curricula. Science teachers are invited annually to submit a grant application for equipment or experiences relevant to their grade level curriculum and state guidelines that enhance science instruction but are not within the budgetary means of their districts. TLA awards as many grants each year as its budget will allow. To date, we have provided almost \$60,000 to our partner districts!

In order to continue this program, we need your help. As our water quality and safety programs expand, our ability to sustain the current awards is in jeopardy.

- \$25 secures a subscription to *National Geographic Kids* for a 2nd grade classroom.
- \$50 provides a Watershed Field Kit to a 5th grade class.
- \$100 assures that a middle school biology class can dissect worms.
- \$250 sends four classes to the Grass River Natural Area for a customized field trip experience.
- \$500 outfits a high school biology class with 3 compound microscopes.

The benefits of the program are great. Preparing our young people to be better stewards of our environment speaks for itself.

Take a moment and help us match Dockside Torch Lake's challenge to assure that the SEOP is funded for 2015 and beyond. You can now donate online on our website 3lakes.com/donate or send us a check!



2014 High School Internship Program

It was a busy summer for the 2014 Internship Program. Under the direction of our Executive Director, the program began June 12 and concluded on August 21. Kyle Russell (Central Lake High), Haley Dole (Traverse City West High), Meike Stoldt and Caitlin Scroggins (both of Elk Rapids High) were this year's participants.

Our Intern's interns studied the aquatic environment by:

- Continuing Eurasian Water Milfoil surveillance
- Inventorying Maury Creek, including mapping, sampling and evaluations
- Creating a "Hydrolab for Dummies" handbook
- Fish Shocking
- Manning a booth at the Antrim County Fair
- E-coli sampling

The internship included over 300 hours of research, training and sampling. Their work has been posted on our website and is also being turned over to the Maury Creek Steering Committee for assistance in completing our Maury Creek Management Plan. Interested in more information? Check out the "Projects" section of our website at 3lakes.com.



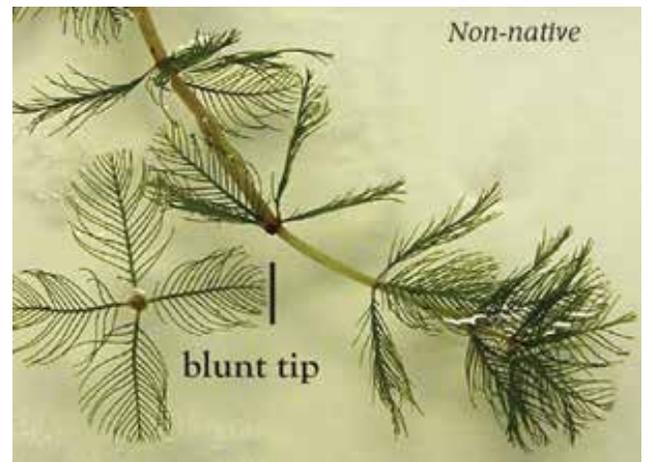
Better late than never!

Funding for the battle against invasive species

Earlier this summer, Governor Snyder and the State Legislature came to an agreement on an initial funding package for the battle against the decades old invasion of aquatic invasive species. Although the Governor had requested \$6 million for the 2014/2015 fiscal year, a more fiscally conservative legislature agreed to \$5 million. A significant portion of the funds will be utilized to hire an additional sixteen full time employees to bolster aquatic invasive species related activities at the Michigan Department of Environmental Quality and the Department of Natural Resources. In addition, the Michigan Office of the Great Lakes will receive funding to enhance its efforts to combat the spread of invasive species within the waters of the Great Lakes. A relatively small grant program will also be created to fund aquatic invasive species remediation projects within inland lakes. While we should applaud the governor and the legislature for finally recognizing the on-going ecological threat posed by aquatic invasive species to the social, cultural and economic value of our freshwater legacy, five million dollars is a woefully inadequate sum with which to adequately address this issue. The vast number of inland water bodies within Michigan hosting one or more exotic aquatic invasive species presents an enormous natural resource management challenge. Effectively managing the ecological impacts and spread of aquatic invasive species within Michigan and the Great Lakes region will not only require an intensive stakeholder effort at all levels, it will also require the successful implementation of well funded and managed publicly funded programs.

In light of the fact that private lakefront property owners have shouldered the twenty five million dollar per year burden for managing aquatic invasive species within inland lakes for over sixty years with no financial support from either the State of Michigan or the recreational boating community, it is time for the Governor and the legislature to recognize the seriousness of the aquatic invasive species problem within our inland waters and respond by providing state funding levels that are adequate to realistically addressing the problem.

Please consider membership with the Michigan Waterfront Alliance, Inc. MWA was formed to provide and sustain a strong political voice in Lansing with which to effectively engage and constructively influence the members of our legislature regarding the unique and often complex issues of critical importance to Michigan's large riparian property owner community. For more information - <http://mwai.org/>



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Poop

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when designing a well-functioning septic system.

It is very important to keep the surface of the drainfield properly drained by mounding the soil over the field, redirecting downspouts and sump pump outflow, and not stockpiling snow over the area.

Maintaining your septic system

Properly maintained septic systems have less than a one percent failure rate, according to a study by the Ingham County Health Department. Yet 25 percent of septic systems around area lakes fail when checked at point-of-sale.

“It is recommended that septic systems be pumped every 3-5 years, depending on the use,” stated Mike Stephens.

“Simple pumping costs \$250 to \$300,” according to the EPA. “This is a bargain compare to the cost of repairing or replacing a malfunctioning system, which can cost between \$3,000 and \$7,000.”

Maintenance of septic tanks also involves regular cleaning of the outlet filter.

Seasonal use impacts the frequency of maintenance, as does size of the tank, household size, total wastewater generated, and volume of solids in the wastewater.

Minimizing the amount of water entering the septic system helps prolong its life. For example, toilets account for 25 to 30 percent of household water use. High-efficiency toilets can quickly reduce the amount of household water entering your septic system. Faucet aerators and high-efficiency showerheads also help reduce water use.

Spreading the use of water via washing machine throughout the week is best for the septic system. Doing all household laundry in one day might seem like a time-saver, but it can be harmful to your septic system, as it does not allow your septic tank the time to adequately treat waste, and could potentially flood your drainfield. Washing only full loads of laundry is also helpful to minimizing water use.

What NOT to do with your septic system

Mike Stephens warns that pumping septic tanks too frequently can be harmful, as this affects anaerobic digestion. This is the processes by which microorganisms break down biodegradable material and change the chemistry of the septic tank. Using antibacterial soaps, or cleaning septic systems too frequently, destroys anaerobic digestion.

In addition, homeowners with septic systems should never pour or flush oil, grease, drugs, flushable wipes, feminine hygiene products, condoms, dental floss, cigarette butts, coffee grounds or cat litter down the drain or toilet.

Household chemicals need to be disposed of properly and can damage septic fields if dumped down the drains. Solvents, disinfectants, oils, paints and pesticides are bad for septic systems, and commercial bathroom cleaners should be used in moderation.

Other causes of septic failure

Hot tubs are another cause of septic failure. Emptying a hot tub into the septic system stirs solids in the tank, pushing them into the drainfield, causing it to clog and possibly fail.

Frequent use of garbage disposals can cause septic failure, too, as this significantly increases the accumulation of sludge and scum

in septic tanks, resulting in the need for more frequent pumping. It is recommended to compost coffee grounds, eggshells and other kitchen wastes rather than putting them into a garbage disposal.

Many freshwater purification systems such as water softeners can also cause septic failure by unnecessarily pumping water into the septic system. This causes agitation of solids and excess flow to drainfields. When researching the purchase of water purification and softening systems, check with a licensed plumber about alternative routing.

Signs that your septic tank may have issues include backups, gurgling, or odors in your sinks or showers. Pooling water or muddy soil around your septic system, or in your basement, is also a sign of trouble. If there is a strong odor around the septic tank and drainfield, there can also be a problem.

In addition, soggy or lush vegetation in the outside area near the tanks is a sign to call the septic company for inspection and maintenance.



The right kinds of plantings help septic fields

Planting certain annuals and non-aggressive flowers on your septic drainfield helps the system by removing moisture and nutrients from the soil, and reducing soil erosion.

“At a minimum, the leach field should be covered with a dense cover of grass to provide these important benefits,” states Susan Day from the Virginia Cooperative Extension.

Planting trees and shrubs is risky, as they are likely to clog and damage drain lines. Good choices for planting near leach fields include cherries, crab apples, dogwoods, hemlocks, oaks and pines. NOT recommended for planting are beeches, birches, elms, poplars, maples or willow trees.

Is it okay to plant a vegetable garden over the septic field? While a properly operating system will not contaminate the soil with disease-causing organisms, it is difficult to determine if a field is operating just as it should. Therefore, vegetables should be planted elsewhere to avoid any possible risk.

Automatic sprinklers should not be used over the tank or drainfield. In addition, the drainfield should not be fertilized. Finally, concrete, asphalt, plastic or compacted soil should not be put on the tank or drainfield.

Alternative systems

In some situations, it may be possible or necessary to treat and disperse effluent from the septic tank using something other than a drainfield. Many innovative alternative engineered systems have been developed in recent years. Alternative systems in use today include sand filters, mounds, wetlands, gravelless drainfields, pressure dosing and aerobic units.

Treating and recycling our wastewater properly through the many types of septic systems available is an important part of protecting the waters in our Great Lakes State. Educating homeowners helps them understand the design, inspection, and maintenance process for their septic systems.

Editors Note: To date, only Milton Township has adopted a Point of Sale septic inspection ordinance. Other Townships are currently considering the ordinance. Would you like more information on where your Township stands? Send us an email or give us a call.

Fish

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in Michigan's lakes and streams. These consequences can be hard to observe over time; and for the riparian landowner to witness how residential development of a shoreline can ultimately negatively affect the ecology of many fish communities is a challenge.

We have observed how natural shorelines benefit many species of wildlife and help to reduce soil erosion along our rivers and lakes. The benefits of natural shorelines extend well into surface waters where this highly desired habitat is extremely valuable, and depended upon, by many of Michigan's fish species.

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Why is lake and stream temperature important?

Temperature exerts a major influence on the biological activity as well as growth of aquatic organisms and its influence on water chemistry. The rate of chemical reactions increases at higher temperatures, which sequentially affects biological activity.

Did you know that the Bellaire Dam was originally owned by the City of Charlevoix and was used to power their street lights? When they no longer needed the power, the dam was decommissioned and later bought by Antrim County for \$1.

Membership counts!

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We need your help!

We are short of reaching our match of Docks-Torch Lake's \$3000 donation for our Science Education Outreach Program (SEOP). Docks-Torch Lake has also provided the SEOP with an additional \$1000 in memory of former TLA Board Member Mark Knight.

With your help we can continue to provide these supplemental opportunities for students in the area. To donate, please mail us a check, or use the Pay Pal option on our website.

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