

TLA Quarterly

OCTOBER 2008

President's Letter

First, I would like to acknowledge the leadership and passion of TLA's past presidents, executive directors, and volunteers who have helped shape our legacy as guardians of the watershed for all generations. As a newcomer to this community in 2004, I am especially indebted to Tim Hannert, Norton Bretz, Dick Garcia, Len Franseen, Jack Norris, and Bob Bagley for their inspirational visions and actions for protecting this pristine water quality.

TLA's history of actively collaborating with other environmental organizations in this area is one of TLA's trademarks. There has been a special synergy when educational events and shoreline greenbelt protection projects have been pursued with The Grand Traverse Watershed Center, Tip of the Mitt, Grass River Natural Area, and Torch Lake Protection Alliance. Our ongoing working relationship with area high schools has enabled 15 students to participate in TLA's unique summer internship program over the last four years. As we continue to build on this history of collaboration, one of our new goals is to convert our recently developed science of water quality modeling into township-based public policies for protecting the pristine water quality in this watershed.

A special thank you goes to Alan Hickman, our Chairman of the Membership Committee, and each of our Zone Directors, for a successful membership campaign that resulted in a 10% increase in membership compared to last year at this time. Not only is the total number of members important, but each of us on the Board of Directors wants to hear from individual members who live on and off the lakes. What are your favorite TLA projects/accomplishments? How can we improve our activities aimed at addressing the greatest threats to these lakes and watersheds? Please take a few minutes to check out our Website (www.3lakes.com), and have a conversation with one of TLA's Directors or send us a quick note or e-mail. During my term as President, I hope to meet each TLA member.

To help you get acquainted with some of TLA new Directors, the attached photo shows (left to right) Norton Bretz (TLA's Executive Director), Hans Van Sumeren (Northwestern Michigan College [NMC]-Water Studies Institute's new Director), Aaron Cook (NMC-Flight School Instructor), Dean Branson (TLA's new President), Art Hoadley (TLA's new Secretary), and Bill Donberg (NMC Flight School Administrator), (front row) Becky Norris (TLA's Treasurer), and Patricia Roush (TLA's new Education Committee Chairman). This photo was taken on September 2, 2008, as part of a TLA Officer's Committee meeting. We exchanged water quality protection ideas with the new Director of the Water Studies Institute, including some innovative ideas involving remote sensing and airborne technologies.



Top left to right: Norton Bretz, Hans Van Sumeren (Director, NMC Water Studies Institute), Aaron Cook (pilot, NMC Flight Instructor), Dean Branson, Art Hoadley, Bill Donberg (NMC Flight School)
Front left to right: Becky Norris, and Patricia Roush.

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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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Founded 1966

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Becky Norris, Finance
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Association Cooperative Lake Monitoring Program

The TLA Quarterly is published by
the Three Lakes Association

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Anti-Funneling Ordinance: 3 Cheers for Torch Lake Twp's Planning Commission

On September 16, 2008, the Torch Lake Board of Trustees unanimously adopted a Lake Access and Use Zoning Ordinance Amendment that significantly reduces the amount of allowable “funneling” or “key holing” within Torch Lake Township.

The Torch Lake Township Planning Commission had unanimously recommended that the Board adopt this Amendment, which was the culmination of over two years of persistent work by the following Planning Commission members:

- Lee Scott (Chair)
- Jim Walworth (Vice-Chair)
- Jessica Thompson (Secretary)
- George Parker (Board Representative)
- Jim King
- Lee Colvin
- Kris Elbert

Prior to this revision, the Zoning Ordinance in Torch Lake Township allowed up to five parcels of property to have direct access to waterways through a commonly owned parcel of lake front property, plus access to an additional parcel for each additional 10 feet of waterfront. Therefore, up to fifteen back lot parcels would have been able to access the lake through a single 200 feet of frontage.

This Amendment more closely regulates this type of funneling, allowing access to two back-lot parcels. The Amendment also regulates the number of watercraft associated with lake front property to one dock, three watercraft, and one raft per 100-foot parcel. Each personal watercraft (PWC) is counted as ½ boat, with a maximum of four allowed. The Amendment includes a grandfather clause for parcels with less than 100 feet of lake frontage that were documented as legally non-conforming at the time the amendment was adopted.

According to Lee Scott, Planning Commission Chairman, “Adoption of this Zoning Ordinance Amendment was the result of a dedicated effort by the members of the Planning Commission. Residents had multiple opportunities to voice their opinions and make suggestions at every Planning Commission meeting, along with three public hearings in the past year. Township officials feel confident that the wishes of the vast majority of township residents are satisfied with the final version of this Amendment. Very few current owners of lake front property, and those who enjoy boating, will have trouble complying with this Amendment. The idea is to manage uncontrolled overcrowding in the future.”

George Parker, Torch Lake Township Board of Trustee’s representative on the Planning Commission, credited Three Lakes Association’s Water Quality Study for pointing out the potential for drastically reducing the quality of water in Torch Lake by just doubling the number of homes within the watershed using current septic treatment technology.

THREE CHEERS to these Planning Commissioners for their efforts to manage the funneling-related threats to water quality in Torch Lake Township. Thank You. This ordinance complements the Public Access and Mooring Ordinance adopted last year. Copies of these ordinances are available on the Torch Lake Township website: www.torchlaketownship.org.

One Step Forward and One Step... In Another Direction

The issue of funneling comes up in both the use of residential property and road ends. The Torch Lake Township Zoning Ordinance described above applies to residential property. Torch Lake Township also has a Public Access and Mooring Ordinance that covers road ends and limits their use. However, Higgins Lake has a long history of the development of road ends by back lot property owners that is in the process of being resolved in the Michigan courts. The main case resulting from this dispute is presently in litigation. The following is taken from the May 2008 issue of The Michigan Riparian:

On July 3, 2007, the Michigan Supreme Court of Appeals issued a disturbing opinion in *Tomecek v Bavas*, 276 Mich App 252 (2007). A portion of the Michigan Land Division Act allows Michigan circuit court to vacate, correct, or revise a plat or portion thereof.

Traditionally, that provision has always been seen as a remedial or procedural power; that is to allow a court to correct a plat error, vacate a road or other common area where everyone agrees, or order a similar non-controversial “cleanup” matter.

In a stunning decision, the Michigan Court of Appeals held that the statute allows a trial court to drastically revise plats, including forcefully imposing new easements on some objecting property owners and granting new property rights to others. In other words, the decision would allow courts to alter substantive (and oftentimes, very important rights, even over the objection of those property owners being adversely affected. This case has important implications for road-ends at lakes in Michigan, since if the Court of Appeals decision is allowed to stand, it would permit local courts to alter road-end dedications to allow extensive dockage, boat mooring, floating marinas, etc.

If the decision stands, it could also allow courts to take additional property for public road rights-of-way away from adjoining property owners in plats and to expand roads without the need to exercise eminent domain.

The Michigan Lake & Stream Associations, Inc. (via an amicus brief) joined with others to ask that the Michigan Supreme Court agree to hear the *Tomecek v Bavas* case and urged the Court to reverse the erroneous decision of the Michigan Court of Appeals.

Future Fuels from Algae

The following article was prepared in conjunction with Samantha (Sam) Fox who is currently a junior at Massachusetts Institute of Technology (MIT), majoring in Environmental Science and Engineering.. In 2005, Sam was one of TLA's Summer Interns from Elk Rapids High School whose independent environmental study helped document the seasonal variations in Torch Lake water quality. Sam was invited to prepare this article as part of an effort to track the careers of TLA's Summer Interns.

As part of a very large R&D program aimed at commercializing alternative sources of renewable energy, Sam Fox worked this past summer at the University of Hawaii measuring the lipid content in marine algae. The lipid content was based on the detection of a dye that fluoresces after reacting with lipids. This biofuels R&D program is sponsored by Royal Dutch Shell and involves six major international universities and several joint ventures.

Sam's project was to help screen around 80 strains of algae indigenous to Hawaii to determine their growth rates as well as their lipid content following a brief period of starvation. In nature, some strains of algae respond to an immediate reduction in available nutrients by converting their

growth energy into the production of lipids. These algae-based lipids can be extracted and processed into a bio-diesel fuel. The business and scientific fields are excited about this research because some strains of algae can double their mass several times a day and produce at least 15 times the vegetable oil per acre as typical crops, and they can produce this much fuel on coastal land that is not suitable for conventional agriculture. This technology may also offer the potential of capturing CO₂ from power plants.

Sam was part of an eight-person team, under the direction of Professor Zackary Johnson, an MIT graduate. This team identified five strains of algae that satisfied the criteria for pre-scale up evaluation at the University of Hawaii's new pilot plant. Success will be based on the economic and environmental information associated with the production of a type of bio-diesel fuel from the vegetable oils from algae.

Sam is continuing her interest in environmental studies this fall while carrying a full load of classes at MIT. She is working on a special project to collect and process waste cooking oils from campus kitchens, which should be enough to fuel the campus shuttle buses with the resulting B-20 bio-diesel from these waste oils.



Sam Fox at the University of Hawaii, summer 2008

Lake Bellaire Shoreline Buffer Survey: 08 Student Intern Project

This summer a team of high school interns has carried out a survey to map the shoreline buffer on Lake Bellaire. The project followed very closely a survey of Torch Lake done last summer by the Grand Traverse Bay Watershed Center with White Pines Associates (Peg Comfort). Wilhelmina Witt of Central Lake, Billy Bohannon of Bellaire, and Braden Ackerman of Elk Rapids High Schools made up the intern group along with supervision by Norton Bretz, Dean Branson, and Trish Narwold. Bob Kollin provided and drove the survey boat during the field work portion of the project. This is the sixth year TLA has led a team of student interns. Each will earn ½ credit in independent studies in environmental science toward their high school diploma and will have a scientific report to add to their college or university applications.

The students were trained to fill out a standard survey form by Peg Comfort in order to provide continuity between the two lake surveys. In fact Braden and Art Hoadley, with the cooperation of the Friends of Clam Lake, completed the field work for a Clam Lake survey as well, but this was not part of the report that was completed at the end of the summer. The survey team started with parcel maps of the lake shore, identified individual parcels, filled out a multi-part survey form, and took photos of each of the 293 parcels on Lake Bellaire. After completing the field work, the data was entered into an Excel spreadsheet in order to organize and make charts of the results. Their findings are described in Lake Bellaire Shoreline Survey Summary Report. The results in the summary do not single out any particular parcel but give overall and average results. As with the Torch Lake survey, individual results will be available by phone or email later in the fall. Finally, the intern team gave a presentation to the TLA Board Sept. 9 and will give a presentation to their school boards in October.

Here is what they found: 42% of the Lake Bellaire shoreline is

developed, 30% is undeveloped and protected (part of Grass River Natural Area or owned by Antrim County), and 28 % is undeveloped and unprotected (privately owned). This compares with 86% of developed shoreline and 14% of undeveloped shoreline on Torch Lake. Because so much of Lake Bellaire is undeveloped 58% of the shoreline buffer was considered good to excellent compared to 33% on Torch Lake. Similarly, because much of the Lake Bellaire



Left to Right: Billy Bohannon, Wilhelmina Witt, and Braden Ackerman

shoreline borders on wetlands and the shore is not steep, there were only 10 erosion sites on Lake Bellaire compared to 349 sites on Torch Lake.

Over all the students appear to have enjoyed their summer activity and Art made it even more interesting by giving them a ride in his pontoon plane. They each had a chance to see the watershed from the air and were able to take photos of their own homes.

In the Drink V: Invasive Species Emphasis



Andy Knott, Executive Director of the Grand Traverse Watershed Center

The August 20 Joint Educational Event, In the Drink V, went off like clockwork at DeWitt Marine. This event is sponsored by TLA, TLPA, and GRNA. Mark Breederland, from the MSU Extension Service Sea Grant Program gave a talk on invasive species and gave a demonstration of how they hitchhike on boats and boat trailers. Three pontoon boats were supplied by DeWitt and captained and guided by volunteers, Arlene Westhoven, Dean Branson, and Ray Ludwa. Tip of the Mitt, Antrim County Soil Conservation, Grand Traverse Bay Watershed Center, and TLA had poster presentations. The Watershed Center gave out copies of the 2007 Torch Lake Shoreline Survey. TLA's posters showed our interns surveying Lake Bellaire shoreline, tributary E.coli results from our three lakes watershed, and lake monitoring results from the Michigan Lake & Streams Cooperative Lake Monitoring Program.

The weather was perfect, the wine flowed, and everyone seemed to enjoy an opportunity to meet the experts on water quality and environmental conservation in our area. In baseball they say "If we play, they will come." Our motto may be "If we pour, they will come."

E.coli Tributary Sampling Results: TLA Lake Watch Program

TLA's Lake Watch Program was expanded in 2008 to increase the number of locations sampled from 23 to 33 and to increase the number of sampling events from a single event to three; the first sampling event in June, the second in July, and a third in August. In addition to the stream sampling, two lake front properties were evaluated for possible sources of E. coli contamination in response to the property owner's requests.

Of the 33 sites sampled, the E. coli counts in all but five streams were consistently below the State Health Department's 300 colonies per 100 milliliters (ml) criteria for water that is safe for swimming. Each of the sites with elevated E. coli counts, tested less than 300 colonies per 100 ml part of the time. None of the sites showed persistent elevations; however the Eastport Creek site, tended to run in the high end of the acceptable E. coli level.

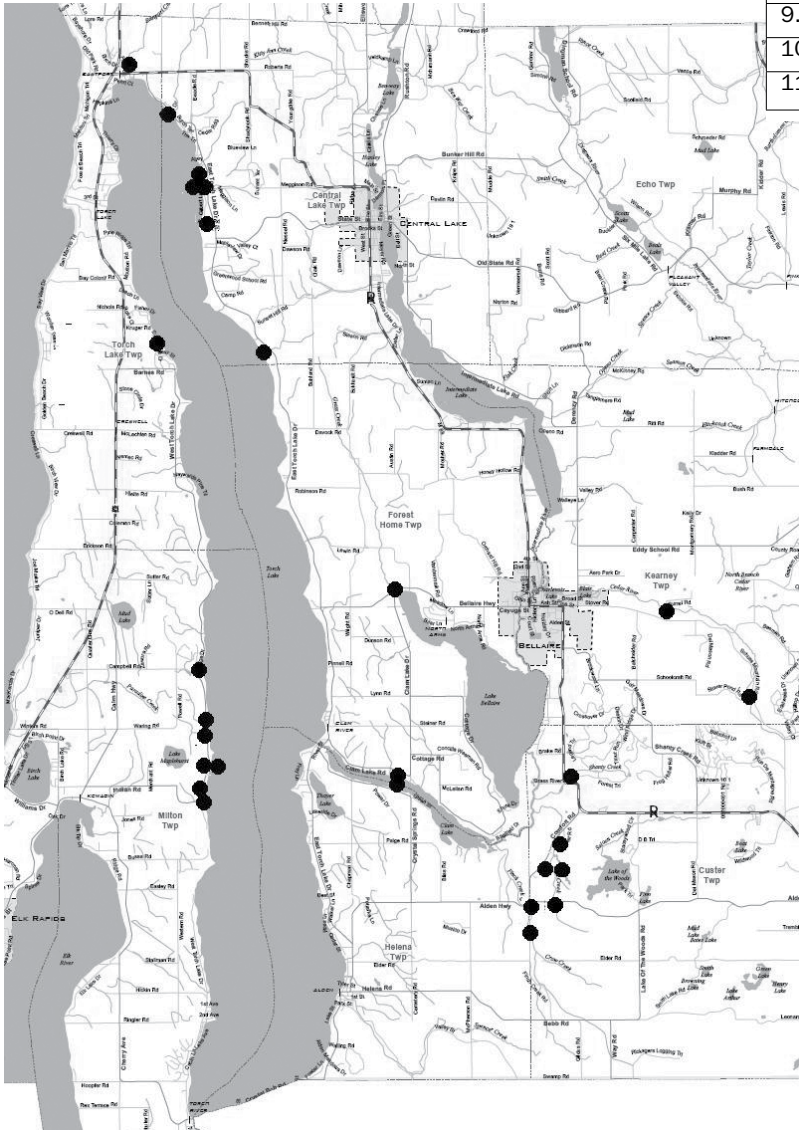
The table compares the E. coli counts found in 2007 to those found in 2008 for 11 of the common streams that feed Lake Bellaire, Clam Lake, and Torch Lake. The elevated E. coli count in Wilkinson Creek in 2008 was confirmed in subsequent testing.

These findings are expected to trigger follow up investigations.

E. coli is short for *Escherichia coli* constituting the largest portion of the "umbrella" group of fecal coliform bacteria that can serve as an early warning of sources of contamination from failing septic systems, stormwater run off, farm animals, wildlife, and septage

Streams	2007 Geometric Mean, one sampling time	2008 Range of values three sampling times, June, July, & Aug.
1. Wilkinson Creek	158	99 to 727
2. Eastport Creek	206	210 to 387
3. Spencer Creek	144	75 to 93
4. Meggison Creek	220	31 to 55
5. West Butler Creek	164	11 to 148
6. Cedar River/upstream	19	9 to 29
7. Cedar River/Burrel Rd	68	16 to 34
8. Cold Creek, upstream	17	6 to 16
9. Cold Creek/Tyler Rd	22	10 to 56
10. Shanty Creek/M-88	26	17 to 41
11. Finch Creek/Alden Highway	20	6 to 13

This table shows the number of E. coli colonies in each 100 ml sample



Regional map showing tributary sampling sites

land disposal. One of the objectives of TLA's Lake Watch Program is to establish a baseline of E. coli counts in an effort to detect sources of contamination and then to take appropriate follow-up actions. E. coli results that were available by mid-August were presented in a poster at the In-the-Drink-V educational event, including the location of the sites sampled.

TLA's Lake Watch Program began to take shape in 1987, as a result of TLA members who expressed their frustration with the mishandling of illness-producing pollution of lake water by public officials. The question that triggered the formation of the Lake Watch Programs was... "TLA, are you going to do anything about it?" The answer was YES. TLA water quality leadership and Zone Directors met with the aggrieved neighbors, Health Department personnel and a facilitator which resulted in the development of a new and very discriminating scientific method for tracking pollution – known early on as the White-Kuhn-Larsen-Norris water quality monitoring system, in honor of all those who contributed to it. An advantage of the new system was its ability to detect miniscule quantities of a tracking substance, so that the work could be done with utter discretion – with cooperating neighborhood groups – thereby both avoiding undue or undeserved embarrassment and encouraging prompt correction of poorly operating septic systems. Since 1987, this Program as well as similar independent actions by individual property owners have prevented more than 60,000 gallons per day of septic leachate from entering the lakes.

The 2008 Lake Watch team included Bob Oswald (Water

See E.coli on page 7 for continuation

Swimmer's Itch... Again

Swimmer's Itch comes to you in the most roundabout way. If you had been in charge of its invention, you'd never in the world have gone about it like this. Curious? Read on. If not, just skip to Prevention, down below.

The thing that causes the itch is called a cercaria. It's a tiny flat worm that doesn't eat nor live long; all it wants to do is to get under the skin of its vertebrate host – in these parts that's usually a duck – where it expects to find a mate and do some sexual reproduction, laying eggs that get into the vertebrate host's gastrointestinal system.

Cercariae are not as discriminating as they might be, and occasionally get into a swimmer or wader instead of a duck, where they promptly die, and their deteriorating proteins – foreign to the penetrated person – may cause an allergic reaction. Very annoying and potentially the site of infection, though the puncture itself is not infective.

Luckier cercariae get to mate before dying – some slight advantage we suppose.

The eggs laid in the vertebrate host's body are excreted with the host's feces. And once eggs hit the water, another whole bizarre mechanism cranks up. A short-lived, non-eating, free-swimming entity called a miracidium emerges from the egg, and using special hair-like equipment on its tiny body, seeks out its intermediate host – a non-vertebrate animal, usually a snail – and not just any snail, no, a specific species. Wherever we find the swimmers itch phenomenon, some particular vertebrate (mallard, merganser, muskrat, red-winged blackbird or others) will have matched up with specific snail species, out of the dozen or so available, and that precise combination serves as the supporting structure for swimmers itch in that area.

The miracidium enters the invertebrate host, the snail, and – you won't believe this – develops into what's called a mother sporocyst, which in her turn undergoes a non-sexual reproduction process yielding large numbers of daughter sporocysts, which a-sexually produce yet another large family of -- Ah! Remember them? Cercariae!

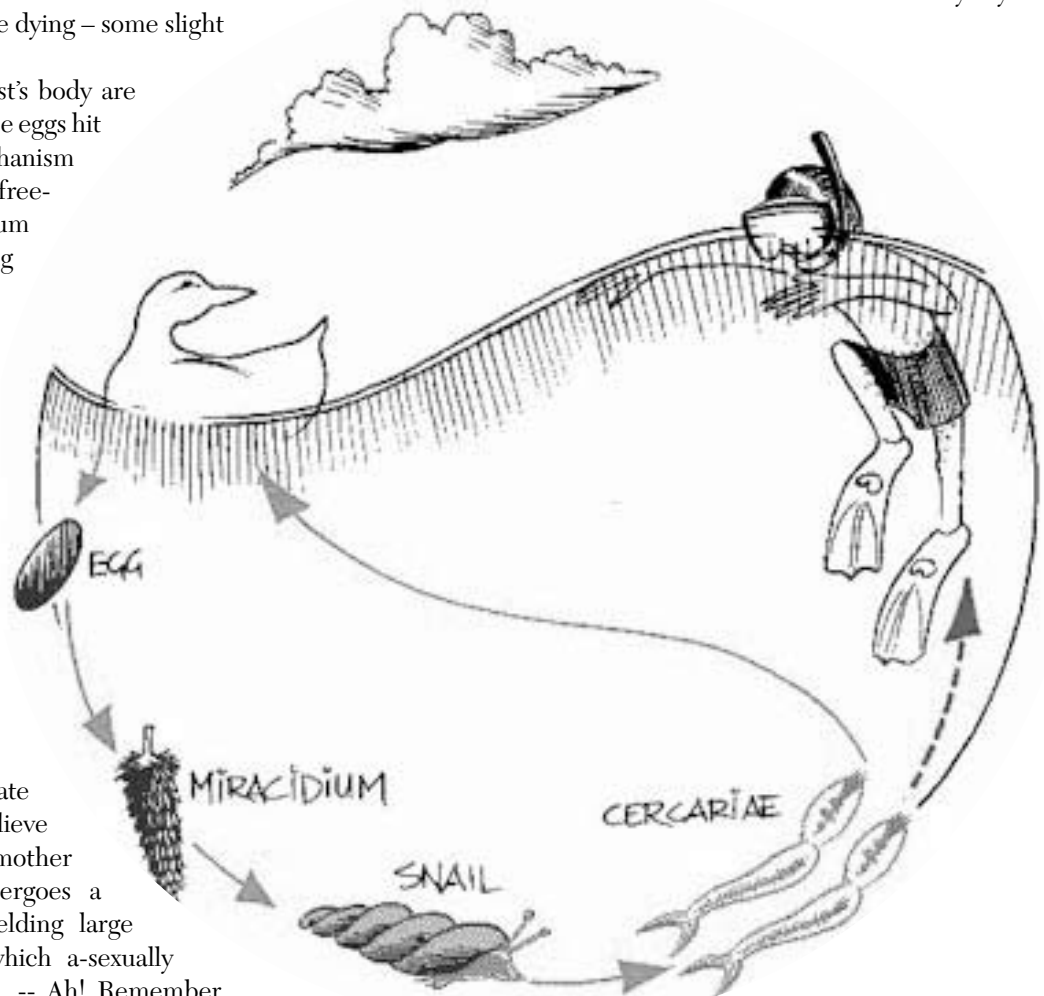
The snail excretes them and they begin their short and hapless lives on the hunt for a duck – with the occasional deadly misstep into human skin.

Prevention of swimmers itch isn't all that tough. Feeding the ducks, while fun and cute, tends to make sure your near offshore

is rich with duck poo, and the bits of bread crust or Twinkies that filter down through the water help keep the snails on call – just what you need for swimmers itch. And, if you've got lots of snails and certain kinds of rubbery plastic water toys, the snails go into a breeding frenzy, laying not just mucho eggs, but layers of eggs. Tremendous target for the next team of cercariae.

Other useful hints: Cercariae are attracted to certain (ducklike?) vegetable oils – sometimes occurring in salves and lotions. Sun blocks seem less attractive to them. Also they are extremely fragile. A brisk towel-off will put 'em out of their misery, pronto. Cercariae are most active on bright windless mornings. Doggonit! A significant fraction of the population is simply immune to swimmers itch. If you have never had swimmer's itch it may be because you are in this group, but it may be because you haven't been sufficiently exposed.

Don't take chances. Towel off and use sun block anyway.



Membership Drive

The zone directors from Central Lake Township, with help from Dick Williams and Todd Collins, canvassed door-to-door in August. The results were very positive. There was an addition of 16 new members. A special thanks to Todd Collins who brought in an additional 11 members on his own from other zones. Four past members who had not renewed in the past few years rejoined to bring the total to 31 new members for the month of August. Our total TLA membership, as of this date, hit a 6 year high of 480. There are still at least 30 members who have not renewed their memberships from last year. If they would renew we can finally reach our goal of 500 members. Thanks again to all those who helped make August a membership success.

New Members:

Babb, Kathleen and Michael
 Bostwick, David and Patricia
 Chuchman, John and Marilyn
 Detar, Dave and Erika
 Flis, Jim/Swans Cove Lake Spa and Salon
 Gardner, Sallie
 Hall, Caroline and William
 Hickman, Tracy
 Hildreth, Beverly
 Keyes, Robert
 Landaal, Steve and Kim
 Mandeville, Charles and Gail
 McDowell, Paul
 Miller, Marilyn
 Nicholson, Paul and Ruth
 Nordberg, Tye
 Parfitt, Thomas
 Powell, Betsy
 Reaves, Jeanne (Lynnwood Co LLC)
 Roth, Becky
 Ryan, Mike and Betty
 Schulze, Dave and Erica
 Sherman, Brent and Natalie
 Stavrianos, Marge
 Tambling, Marilyn
 Thompson, Eley and Kara
 Tobczyk, John and Anna
 Van Vlack, Laura

E.coli continued

Quality Chair), Jack Norris, Bob McClelland, Becky Norris, Jim Allender, plus two volunteers from Torch Lake Protection Alliance, Gary Bokerman and Paul Roush.

The major goals for the 2009 Lake Watch Program include...

1. Identifying and mapping the tributaries flowing into our lakes (current maps have some mistakes)
2. Assessing differences in E. coli counts that may exist between samples upstream and downstream of shoreline developments
3. Sampling at additional sites, selected for environmental reasons.

As collaboration with other lake associations increases, we envision expanding the water quality database to include the entire Elk River Watershed.

membership counts!

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<input type="checkbox"/> Finance	<input type="checkbox"/> Public Relations
<input type="checkbox"/> Service	<input type="checkbox"/> Other

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.

October 2008 issue of the TLA Quarterly

THREE LAKES
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