

**JANUARY 2010** 

### **President's Letter**

The beginning of 2010 seems like a good time to pause briefly to reflect on a few of TLA's most significant 2009 accomplishments and to identify our 2010 goals to further protect water quality in Torch Lake, Lake Bellaire, and Clam Lakes, and the watersheds feeding the Chain of Lakes.

Hopefully each reader has had a chance to review TLA's impressive list of 2009 accomplishments that were attached to your TLA membership renewal letter. The number of members who have already responded to this appeal is a good indicator that our membership is pleased with TLA's activities.

TLA's Board truly appreciates your timely response to this year's renewals letter, in part because we have already authorized \$8,200 for 2010 Education Outreach grants to teachers in anticipation of your renewal. These grants will be awarded in January so the science teachers and students can benefit from these grants in this school year. These grants include four Inland Seas Schoolship Excursions. TLA's budget for 2010 activities was based on anticipated funds from membership dues, donations, golf outing earnings, and endowment earnings. The aim of TLA's 2010 activities will be to continue protecting water quality and advancing environmental education-related information for members, public officials, students, residents. We intend for these activities to include the following:

- Measure water clarity at four locations each week during the summer, and collect samples for water quality determinations.
- Evaluate **E.coli** values from 23 tributaries 2 or 3 times during the summer, post the values on TLA's Website, and investigate several E.coli hot spots.
- Mentor summer interns from three area high schools, and then post their report on TLA's Website; www.3lakes.com.
- Sponsor the participation of 4 classes from schools within our watershed on an **Inland Seas Schoolship Excursion.**
- Award grants to 9 science teachers within our watershed for nutrient detectors, microscopes, advanced teacher training, and field trips.
- Actively support township's efforts to develop and adopt an ordinance requiring an inspection of septic system at the point-of-sale.
- Assist the new Regional Stakeholders Group in addressing the Bay Harbor cement kiln dust leachate problem.
- Support Chain-of-Lakes Conservation Network activities including finalizing an application to re-licensing hydroelectric power from **Elk Rapids Dam**.

TLA will continue its active participation in spring and fall lake association summits as organized by the Tip of the Mitt Watershed Council and The Watershed Center. These networking summits enable us to exchange ideas with other lake associations regarding various threats to inland lakes and gauge successes in responding to these threats. Last fall we learned about some limited success some lake associations are having in addressing swimmer's itch. If you are aware of some incidences of swimmer's itch in your neighborhood, I would appreciate receiving an e-mail note from you briefly describing the incidences.

If you are interested in helping with the 2010 summer internship program, please let Norton or me know.

Dean Branson, President deanbranson@torchlake.com

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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



Founded 1966

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The TLA Quarterly is published by the Three Lakes Association

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# Remember Calcium Carbonate Precipitation?

by Norton Bretz

Torch Lake has a new credit to its already illustrious reputation. A PhD thesis has been written about it!! Way back in 2005 when TLA was working on a Michigan DEQ grant to develop a model for the nutrient balance in Torch Lake, we drew the attention of one of the world's most renowned experts on lake modeling, Prof. Steve Chapra of Tufts University in Boston. He was on the panel of experts that reviewed the final report done by Doug Endicott of GLEC (Great Lakes Environmental Center in Traverse City). Prof. Chapra took one look at the data and told us that Torch Lake was different than all the other lakes he had studied with his model. Of course, we all knew that already. However, Prof. Chapra's interest was on how the water clarity has a similar yearly cycle to most other lake, but not enough plankton to explain it. Most lakes get less clear in the summer when phytoplankton grow in the surface layers and cloud the water. The more phytoplankton the poorer the water quality and clarity.

Unlike everyone else who simply took this a one more unsolved mystery, Prof. Chapra had an explanation - calcium carbonate precipitation. This is a non-biological process and normally would not be counted against Torch Lake on the scale of water quality. That is, Torch Lake has a higher water quality than its, already substantial, clarity would imply. Prof. Chapra thought that calcium carbonate in the waters of Torch Lake would mimic phytoplankton. So, he did some preliminary calculations for us and showed that the Torch Lake data fit this explanation reasonably well. Since then, we have been trying to get the Environmental Sciences Department at Michigan State University, Michigan Lake and Streams Association, and even the National Aeronautics and Space Administration (NASA) to reconsider their plans to rank lakes based on water clarity and satellite data - mostly to no avail. We are still looked upon by experts in the field as retired GM executives living in luxury on our lake mansions (no offence to GM executives or anyone who lives on a lake mansion, but GM's reputation is a bit low and the state is in big trouble). No more! Prof. Chapra's student, Elizabeth Homa, now Dr. Elizabeth Homa, has completed her PhD entitled "Mass Balance Modeling of Calcite in the Epilimnion of an Ultraoligotrophic Lake". This is PhD speak for Torch Lake. In no more than 150 pages she used all the modern tools of science to verify and quantify Prof. Chapra's original supposition. Torch Lake is special, the only one that has been so carefully examined that has this unusual characteristic.

Why should we care? The state of Michigan wants to rank lakes for the purpose of allotting funding, DNR resources, and fish stocking based significantly on water clarity data. Furthermore, NASA is selling satellite data which it claims can rank lakes from measurements from space. Dr. Homa's work shows that, for Torch Lake, at least, these plans have some faults. What about other lakes in the area? In particular what about Lake Michigan? Lake Michigan has virtually the same chemistry and environment as Torch Lake. Dr. Homa has not addressed this question because, being conservative and a scientist, she does not have as comprehensive a data set for Lake Michigan as she had on Torch Lake – thanks to TLA. This was one of the issues TLA has raised

See Calcium Carbonate on page 2 for continuation

### **Education Outreach Fund Needs Donations**

by Norton Bretz

In order to keep up our plans to help district schools with funds for water quality education, we appeal to you all to help with extra donations. Our schools have been hit unusually hard in the last year from cuts in the Michigan State budget and other fallout from the economic collapse last year. Property tax revenues are down and everyone is tightening their belts. The schools are among the hardest hit by this turn of events. Unemployment in the state is running at 14.7% (Nov. 09), the highest in the nation, and Antrim County at 14.9% (Oct. 09). So, both schools and families have serious money problems. Those of us that have jobs or are retired, have also been hit, but we can afford to dig out a few extra dollars for these programs. They are extremely important in helping us pass down the gains we have made over the years in preserving and maintaining the quality of our lakes and rivers. Most of these kids will either have a legacy in our area or stay here to work. We need to make sure that they all know what a unique place this is.

My own family has a history dating back to the lumber era in Eastport where my family has returned for generations. I remember moving from the Detroit area to Great Bend, Kansas as a teen and being shocked at the lack of water resources there. They don't have many and the ones they do have threaten to flood the town on a regular basis. My friends took me to the local lake for a "beach" party and I was amused to see that the power boats had to go around clockwise to avoid hitting each other. I had never really thought about how special our area was. Unfortunately, I was not able to live here until I retired to Eastport about eight years ago, but my family has returned for several weeks every summer. My own children love our place but they have no grounding in the community or background to see how fragile and special this place is.

When I give talks on our area, I refer to it as the Saudi Arabia of water. Some places are blessed with an over-abundance of wealth. Our wealth is water. I'm glad that it isn't gold, diamonds, coal, or oil. Water is not for sale, and we can use it ourselves many times over. If

### **Calcium Carbonate** continued . . .

with Michigan State and Michigan Lake and Streams. Does the state really understand water clarity, one of its major sources of tourism? Wouldn't Torch Lake and surrounding lakes be a good place to direct their research activities? Until now we have not been able to show academics a solid description of the problem and proposed solution.

The next step for Dr. Homa is to write an article in a scientific journal that is reviewed by her academic peers. This is the way good science progresses. She and Prof. Chapra have promised to submit an article forthwith. Ultimately, this is what we can refer other researchers and policy makers to in the future. So, Dr. Homa has taken the first step in putting Torch Lake on the academic map. She spent a few days on Torch Lake in 2006 when we were in the process of taking data for her thesis, so she knows our area more than academically. In the spring we are hoping to bring her back to give some talks at MSU and other venues. If she makes it all the way to Antrim County, we will have a reception and introduce her to all of you.



Tom Baeckeroot's Biology Class at Bellaire High School on the schooner Inland Seas during their TLA sponsored outing with the Inland Seas Education Center in Grand Traverse Bay last May.

we are careful, we can avoid depleting or depreciating it. We have an obligation to keep the waters and other natural resources for future generations. My own family spends a considerable time outside the area, but like many of our students, returns either to visit or to live. On the other side and from various contacts in local schools I know that many of our students don't travel very far from home and may not appreciate how unique it is. Our State Representative, Kevin Elsenheimer says we need jobs and he's right. We need good jobs and good education to maintain our quality of life here. If you have ideas for jobs, see Kevin. If you want to help education, one way is to contribute to our TLA Educational Outreach Fund. This donation has no overhead; everything goes to where it counts: individual programs for environmental science studies and water quality education.

# Michigan to Restrict Phosphorus in Dish-Washing Detergents

Based on Public Act 427, it will be illegal to sale dish washing detergents the State of Michigan after July 1, 2010 that contain more than 0.5% phosphorus. Since some dish washing detergents currently contain up to 8% phosphorus, this new law will help protect water quality by reducing the amount of phosphorus entering the environment. Does the label on your brand of dish washing detergent indicate the phosphorus content? Similar restrictions on phosphorus content in laundry detergents were adopted several years ago.

TLA QUARTERLY 3

## 2009 TLA High School Internship Program Finishes

by Norton Bretz and Dean Branson

We have been updating you on the progress of our six 2009 high school interns: Wilhemina and David Witt and Alisha Youmans of Central Lake, Billy Bohannon of Bellaire, Braden Ackerman of Elk Rapids, and Jordan Gunderson of Kalkaska. You may remember that they completed the field work on their project "Lake Bottom Survey of Torch Lake and Lake Bellaire" in July, wrote their report in August, gave their presentation to the TLA Board in September, and have been making presentations to their respective school boards since then. Unfortunately, all the school boards happen to meet on the second Monday of each month. So, the scheduling of these presentations has been stretched out until this last December. But now they are done!

The last two presentations were on December 14 in Bellaire and Kalkaska. Dean Branson hosted Billy Bohannon in Bellaire and Norton Bretz hosted Jordan Gunderson in Kalkaska. Braden Ackerman presented in November and Wilhelmina and David Witt and Alisha Youmans presented in Central Lake in September with Dean hosting each time. And they all gave wonderful presentations to their boards and got many kudos from their principals and other board members. We congratulate them on their accomplishment. The principal of each high school got a letter from TLA for each student outlining the time spent and achievement completed. This qualifies them for a half-credit of independent study. They each got a check from TLA for \$300 and a certificate of completion. Dean and I have already been asked for letters of recommendation for college and university admission and expect to be writing more in the next few months. Compared to their peers in urban areas, our students get few opportunities to do substantial internships that would help them with future careers. From our six years of experience now, we know that many of these students will go on to work in environmental areas and that those that do not will have a substantially better understanding of why our area is unique.

From Steve Conkle, baseball coach and mathematics teacher at Bellaire High School, we learned that his daughter, Sarah Conkle, a former 2004 TLA summer intern, graduated from the University of Michigan in Civil Engineering with an emphasis on Environmental Science and now works in Ann Arbor for CH2M HILL. CH2M HILL is an employee owned engineering, procurement, construction, management and operations firm with \$6.4 billion dollars in revenue and 25,000 employees based near Denver, Colorado. The firm's work is concentrated in energy, water, transportation, environmental, nuclear, and industrial facilities and rated by Fortune as one of the 100 best companies to work for



Dean Branson presenting Billy Bohannon with a TLA Certificate of Achievement at Bellaire High School



All six 2009 high school interns: Jordan, Alisha, Braden, Wilhelmina, David, Billy

We at TLA are sure that her experience as an intern will guide her in her professional activities. We have asked her to write a short article for us in a future issue of the TLA Newsletter.

### **TLA Office Move**

Three Lakes will be moving its office in the next month. The US Department of Agriculture reclaimed the space on 106 Depot Road in Bellaire where we have been set up for the last 10 years or so. Thanks to Pepper Bromelmeier we have had this space rent free for these years and we appreciate their help. However, it's time to move on. We wish we knew exactly where we will be going. The Antrim County Conservation District offered us space in their office on Stover Road, but found that the offer violated the terms of their lease with the Antrim

County Conservation Club that owns the building. We are now in negotiations with the Antrim County Conservation Club on this and have the stuff from out old office temporarily stored. Lori Brandt, our Administrative Assistant, is working out of her home for the time being, but we will carry on as usual until we find something. If you know anyone that might donate or rent (cheaply) some space in Bellaire, please contact Norton (599-2729) or Dean (544-2700) at home. Our TLA phone also has no home at the moment, so don't call there.

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### **Torch Lake: The History of WAS-WAH-GO-NINK**

by Norton Bretz

Speaking of former TLA supporters and workers - Ed and Mary Kay McDuffie, have just finished a new book on Torch Lake entitled *Torch Lake: The History of WAS-WAH-GO-NINK*. Ed was Director of TLA's Water Quality Studies Program from its inception in 1967 until about 1980 when Bill Weiss took over. Ed worked with Central Michigan Professor and Chairman of the Biology Department, LaVerne Curry, and helped supervise many of Prof. Curry's students who wrote Masters Theses on our Three Lakes.

Since leaving an active role in TLA, Ed and Mary Kay have not let any grass grow under their feet. Mary Kay was already well known in our area for saving the Antrim County Court House in Bellaire and has had a burning interest in history for many years. Besides working on TLA Water Quality, Ed conducted a geological tour of Antrim County with the Torch Lake Yacht Club for many years. Between the two of them they have collected one of the most impressive collections of history books on our area. Recently Ed has been working with the Antrim County Historical Society on reconstructing the Derenzy School House. Mary Kay has been collecting photos and stories about the resorts and families around Torch hoping to put them into a book.

A few years ago Mary Kay was diagnosed with ALS (amyotrophic lateral sclerosis or Lou Gehrig's disease) and she made the decision to go for broke and finish the book. Since then she and Ed have been devoting almost all of their time to the project. The results are now out in 436

pages with 673 maps and photos. It tells the story of Torch Lake from the time of the last glacial retreat to the end of World War II. Mary Kay acknowledges, "Having the book to work on has been a blessing because it kept my mind well occupied with a positive topic. Gathering all the material and getting it in order was the biggest part of the job. The research was fun. Writing is my idea of the best way to spend the day and all in all, writing the book was a wonderful adventure."

The book retails for \$60 and is available from Higgin's Store in Alden or by calling 231-620-2243. Order forms are also available at Higgin's. For a preview see <a href="https://www.torchlake-history.com">www.torchlake-history.com</a>.

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Mary Kay McDuffie & Edward R. McDuffie

Author Mary Kay McDuffie holding Torch Lake: The History of WAS-WAH-GO-NINK

### **Update: Bay Harbor Cement Kiln Dust Leachate Problem**

Once the Regional Stakeholders Group (RSG) and three Work Groups were officially formed in October, there has been good progress in addressing the public's concerns about the cement kiln dust leachate entering Little Traverse Bay at Bay Harbor. Topics currently being addressed by the RSG in a non-adversarial, consensus-seeking manner include the following:

- "Mercury Flux" is the amount of mercury and other cement kiln dust-related contaminants migrating into Little Traverse Bay in groundwater not being collected as leachate. If this amount is small enough, then EPA and DEQ may classify this amount as being a "Technical Impracticable" exemption from further control.
- Another deep injection well is being proposed in Emmet
  County to dispose of some collected leachate into the 6,200
  ft-deep Mt. Simon Sandstone formation. DEQ's geologist
  clarified the advantages of this formation for leachate
  disposal.
- A discharge permit for effluent from a wastewater treatment plant is being proposed for treating leachate. The wastewater treatment facility will either be a new on-site facility or an upgraded municipal waterwater treatment facility in Petoskey. The discharge permit may involve a mixing zone to comply with DEQ's stringent 1.3 parts per trillion health and environmental-based criteria for total mercury.
- Comments to EPA and DEQ regarding CMS Energy's RI/AE document for East Park are due by the end of January 2010. RI/AE = Remedial Investigation & Alternatives Evaluation. A similar document is currently being prepared

for the larger Development Area at Bay Harbor. The public comments from the RSG on the RI/AE document for the Development Area need to be submitted to EPA and DEQ by mid-2010 to have a chance to influence the outcome of the regulatory process for this site.

A representative from each of fourteen local organizations have been participating in monthly meetings. The organizations include several units of local government (city, townships, counties, and health department), Odawa Indians Tribe, Friends of the Jordan River, Tip of the Mitt Watershed Council, Chamber of Commerce, Michigan Environmental Council, Bay Harbor Property Owners Association, Walloon & Three Lakes Associations. Walloon and Three Lakes Associations were the organizations that requested EPA support last June to form a Regional Stakeholders Group. Gary Knapp is TLA's representative on the RSG. Dean is Gary's alternate and is a member of the Technical Work Group. The other two Work Groups are addressing Legal & Policy issues, and Education & Outreach topics. Representatives from EPA, DEQ, and CMS Energy also actively participate in each meeting, but are not voting members of the RSG because they are directly involved in the regulatory remediation of the Bay Harbor site.

Ecology & Economics Inc. received an EPA-TASC grant to provide professional facilitation for this Regional Stakeholders Group. TASC = Technical Assistance in Support of Communities. Melinda Holland facilitates each highly structured meeting and her assistant, Krissy Russell-Hedstrom, is screening experts in groundwater modeling, solutions to cement kiln dust leachate problems at other locations, and mercury material balance modeling to assist the Technical Work Group.

# Inspecting Septic Systems at the Point of Sale, Progress Update

We were pleased to learn that three local townships have recently agreed to collaborate on the development of language of an ordinance requiring an inspection of septic systems at the point of sale or at the time of transfer of the title. The three townships are Milton, Elk Rapids, and Torch Lake. We were also pleased to receive a copy of a letter of support for such an inspection ordinance from Andy Knott, Executive Director of the Grand Traverse Watershed Center to the supervisors of these three townships.

In anticipation of TLA's support of townships interested in developing such an ordinance trustees, TLA prepared responses to 15 Frequently Asked Questions about such a proposed ordinance last May. Copies of these responses and examples of example ordinances were made available to township trustees and the public last May. This information is posted on TLA's Website: <a href="https://www.3lakes.com">www.3lakes.com</a>.

Although the vast majority of local residents living in this area favor the adoption of such an ordinance as part of our overall protection of public health and water quality, the following new questions have been raised recently and responses are being developed:

- Why not develop the ordinance as an amendment to an existing zone ordinance rather than as a police-power ordinance? Typically police-power ordinances do not include grandfather exemptions and they address issues associated with the protection of health and the environment.
- Why not develop an ordinance that applies only to older septic systems or limited to septic systems that are visually failing, i.e. a performance-based ordinance?
- How many septic systems on sold or transferred properties are expected to fail an inspection?
- Is the cost of an inspection really a form of a new tax on property owners?
- Rather than adopt an ordinance, why not rely on banks to require an inspection as part of the mortgage application process?

The township's collaborating subcommittees are developing responses to these and other new questions.

## 'Creeping Crud' Seemed To **Be More Significant This Past Summer**

This article appeared in the January Elk-Skegemog Lake Association Newsletter by Tom Yocum. TLA has been working with Tom to understand the yellowish scum on rocks on the bottom of our lakes during this last year. This represents the best statement anyone can make about the issue so far.

During this past summer several residents reported sightings of a brownish, fuzzy growth expanding across the bottom of Elk Lake. My initial observations confirmed that this was not the usual calcite precipitation that our lakes encounter at the end of the summer season. Calcite usually leaves a thin gray coating on horizontal surfaces left under the water for an extended time. I was fully expecting to be left with a mystery that could only be explored next summer. However, this mysterious covering along the bottom seemed to be shared with Lake Bellaire and Torch Lake.

The Secchi disk readings that measure water clarity in our lakes turned out to be only half the usual depths for a short time this year in Lake Bellaire. Fearing something serious was impacting water clarity and quality, the Three Lakes Association(TLA) undertook a special investigation in September. .

Water quality parameters (phosphorus, nitrogen, Temperature, etc.) were measured. Along with these measurements, samples of the water were captured at several different depths and screened for types of phytoplankton (diatoms, algae, etc) present. The results obtained from the consultants (PhycoTech and Great Lakes Environmentl Center) indicate that an unusual group of diatoms were present this year. Additionally, the water temperatures were below average (as many of us experienced here). This particular combination may have led to the accumulated diatoms building up along the bottom as they died, and unusual coloring from their pigments. While these findings are preliminary, ESLA has already contacted TLA to begin discussing possible follow-up work for next year, should this type of growth be found again. .

Meanwhile, please know that no other unusual findings were recorded in Elk Lake this year. Phosphorus levels are taken by Tip of the Mitt Watershed Council each spring, soon after 'ice

out'. Secchi disk depths, surface water temperatures and water
samples for chlorophyll-a levels are taken through the summer
months and will be available in January. The chlorophyll-a level
analyses are done by the University of Michigan Biology Station
at Douglas Lake
Comments or questions regarding this information can be
directed to Thomas Yocum, 264-6387, or kstyocum@aol.com.
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### January 2010 issue of the TLA Quarterly

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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