

TLA Quarterly

JANUARY 2008

President's Letter

We celebrated our first white Christmas in a couple of years. The ski resorts were booming, the snowmobilers had plenty of snow and the ice fishermen started to come out over the holidays. Now we're having a warm-up and the snow is disappearing fast. The cycle of winter.

Your Three Lakes Association continues to its commitment to water quality and safety during this winter period. We have scheduled meeting with the township representatives starting this month. We have a complete set of all Master Plans and ordinances and will review water quality/safety issues with them.

Our summer interns made their presentation to our Board and to their respective School Boards. They each received a TLA Certificate of Achievement and \$200 for college expenses.

Our membership at year end was higher than prior year and that's great. You should have received our 2008 membership appeal letter. When sending your check please indicate your interest in volunteering and your recommendations for our consideration.

Have a happy new year.

Best regards,

Bob Bagley

Collaborating with Townships to Manage Phosphorus Loading

On December 20, 2007, Three Lakes Association accomplished one of its 2007 major goals by hosting a facilitated focus group of special liaisons from the eight townships with jurisdiction over the watersheds affecting Torch Lake, Lake Bellaire, and Clam Lake. This was the first step toward a new systematic campaign on phosphorus entering these watersheds involved a formal invitation to work collaboratively, in a non-adversarial manner, with seven environmental organizations under the leadership of Three Lakes Association. The facilitated focus group took place at Helena Township Hall. Megan Olds formerly head of the Northwest Michigan Council of Governments (NWMCOG) and now at the Grand Traverse Regional Conservancy facilitated the session. She had supervised a focus group after our presentation of the Torch Lake modeling results at Hayo-Went-Ha in 2004 and did a great job of keeping the discussion on track.

The townships and special liaisons were as follows:

Torch Lake Twp:	Alan Martel	Central Lake Twp:	Bill Gadwau
Forest Home Twp:	Terry Smith	Custer Twp:	Roxann Flake
Clearwater Twp:	David Grimm	Kearney Twp:	Moose Kotz
Helena Twp:	Jim Gurr	Milton Twp:	Chris Weinzaferl, Bill Geddes

During the December 20th focus group, Three Lakes Association identified the following four types of township-based "opportunities" for protecting water quality:

1. Put water quality statement in Master Plan language
2. Inspect septic systems on sale of property
3. Add phosphorus estimate to site plan review
4. Enact Overlay Districts

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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.



Founded 1966

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Becky Norris, Treasurer
Dorothy Clore, Secretary
Dick Garcia, Past President
Norton Bretz, Executive Director

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B. Milton Township: Bob Oswald, Carl Schiele
C. Torch Lake Township: Arlene Westhoven, Becky Norris
D. Central Lake Township: Alan Hickman, Patricia Roush
E. Forest Home Township: Al Gibbs, Art Hoadley
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George Bushnell, Public Relations
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**The TLA Quarterly is published by
the Three Lakes Association**

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TLA Calendar

A paper entitled "Predictive Water Quality Models for Torch, Bellaire, and Clam Lakes" will be given by Norton Bretz and Dean Branson at the The 21st Triennial Borchardt Symposium on Advancements in Water & Wastewater at the Univ. of Mich. Feb. 27 & 28, 2008 in Ann Arbor

A paper entitled "TLA High School Internship Program" by Norton Bretz will be given at the MLSA Conf. April 25-27 in Grayling

Phosphorus *continued*

Of course, these are not the only issues of concern to us in reducing phosphorus input to our lakes. However, these were the issues we brought up as ones that could most easily be dealt with by townships. For example, the issue of non-legislative, educational initiatives to lake residents was not discussed, nor was the banning of the sale phosphorus containing fertilizers. Many area lawn care and nursery operations are already showing initiative to reduce the sale of phosphorus rich fertilizers.

The following six environmental organizations agreed to actively work with Three Lakes Association on this township-based phosphorus-management initiative as part of an ongoing informal Conservation Network for the protection of the Elk River Chain of Lakes:

Grand Traverse Watershed Center
Tip of the Mitt Watershed Council
Antrim County Conservation District
Grand Traverse Regional Land Conservancy
Torch Lake Protective Alliance
Michigan Department of Environmental Quality

This phosphorus-based water quality protection program was recently given a big boost when the Department of Environmental Quality awarded Grand Traverse Watershed Center a substantial three-year grant, starting in February 2008. The grant application identified Three Lakes Association's volunteering efforts as a critical part of the in-kind matching funds and money was set aside for developing township water quality ordinances and other initiatives.

The next steps include follow up meetings with individual township's planning commissions and special committees, as arranged by the special liaisons, to explore the details of specific actions within the four types of "opportunities" for protecting water quality. Three Lakes Association and the other six environmental organizations expressed their willingness to help the townships accomplish those opportunities for protecting water quality selected by the townships.

by Dean Branson and Norton Bretz

The Three Lakes Association sadly notes the death of Richard O'Dell of Alden. Richard was 93 years old and lived near his daughter, Dorothy Clore, our secretary and Chair of our Education Committee on Torch Lake. He and his wife Louise (who died in 2006) were part of our organization since its inception and enthusiastically supported our endeavors. The family has requested that any memorial donations be given either to the Salvation Army or to the Three Lakes Association (earmarked "education").

Water Quality Project Presentation to Antrim County Board of Commissioners

On Jan. 10, 2008 the results of our Predictive Nutrient-Based Water Quality project covering Torch Lake, Lake Bellaire, Clam Lake and their watersheds was given to the Antrim County Board of Commissioners by Norton Bretz, TLA Executive Director. A similar presentation has been given to the eight townships that border our three lakes and to the Antrim County Planning Commission. In addition and with the encouragement of all the major environmental groups in the area [Grand Traverse Bay Watershed Center, Tip of the Mitt Watershed Center, Antrim County Conservation District, Torch Lake Protection Alliance, Grand Traverse Land Conservancy, and M-DEQ] we outlined our first discussions with township representatives [see previous article].

We were warmly received by the Commissioners and received considerable encouragement from them as well to continue our efforts to use our model of phosphorus loading to advise the community on how to preserve the magnificent waters of Antrim County. Our final statement to the Commissioners is simply that Antrim County has more water than any other county in the state and its waters are cleaner than any other waters in the state. It is up to us maintain their quality. No other agency can do this.

A resolution in support of water quality protection initiatives was offered, unanimously approved by the Commissioners, and signed by Jack White, the Chairman. This resolution reads

WHEREAS Antrim County Board of Commissioners adopted a Master Plan on October 9, 2007 that specifically identified a goal for protecting water quality within Antrim County,

WHEREAS Three Lakes Association (TLA) recently developed predictive water quality models for Torch, Clam, and Bellaire

Lakes that were designed to be practical tools for use by developers of economic growth and units of local government,

WHEREAS the eight townships with jurisdiction over the watersheds for Torch, Clam, and Bellaire Lakes supported the development of these water quality models by (a) provided matching funds totaling \$14,000, and (b) actively participated in public forums where the benefits of these new tools were described,

WHEREAS the key points from this water quality protection research were presented to each of the eight Township's Boards of Commissioners and each township identified a liaison to consider various initiatives to protect water quality,

AND WHEREAS the Antrim County Planning Commissioners reviewed the findings from this water quality protection research on October 11, 2007.

NOW, THEREFORE be it resolved that the Antrim County Commissioners...

1. Support the protection of public health, environmental quality, and the local economy.
2. Encourage the eight townships with jurisdiction over the watersheds of Torch Lake, Lake Bellaire, and Clam Lake to explore and enact water quality protection initiatives in collaboration with local environmental organizations.

Butch Bartz and son, Chad, Receive TLA Certificate

In appreciation for the help that Butch and Chad Barts, proprietors of Bartz Tackle and Marine in Clam River, gave to Jack Norris, Bob Oswald, and Bob McClelland during their cladophora and E.coli survey of Clam Lake last summer, TLA awarded them a framed certificate signed by Bob Bagley, TLA President, Jack Norris, Water Quality Director, and Norton Bretz, Executive Director. This survey provided everyone with a pleasant surprise, namely that the E.coli and cladophora levels are down since the last TLA survey in 2004. TLA appreciates their thoughtful and generous assistance and the use of their docks and motor boat for the several hours required for each excursion. Jack said, "It's a pleasure working with you guys, first on Eurasian water-milfoil, then on zebra mussels, and now on the cladophora survey. Our heartfelt thanks go to environmentally responsible partners like you."

The results of the cladophora and E.coli surveys were described in the October, 2007 TLA Newsletter.



Bob Bagley (right) presents Chad and Butch Barts with a TLA certificate of appreciation at Butch's shop in Clam River.

Loon and other Diving Bird Die-offs in Antrim County

A Plague Upon Our Lakeshores.....

In November of 2006, an outbreak of botulism killed nearly 3,000 birds whose carcasses were discovered over a twelve-mile stretch of shoreline at Sleeping Bear Dunes. Over 55,100 bird deaths on the shores of the Great Lakes had been attributed to the same disease between 2002 and 2006. Common Loons and Long-Tailed Ducks accounted for about half the number of dead birds. The cause of death was Type E botulism. Another, more widespread, outbreak of botulism was reported this last November, which included dead birds found on the shores of Grand Traverse Bay from Charlevoix south.

Clostridium botulinum are anaerobic bacteria, that is, they decompose dead organic material in an oxygen-deprived environment. Dead animal and plant material fall to the bottom of the lake or stream where the conditions are favorable for botulin activity. Type E botulism spores are always present in oxygen-depleted sediment of lakes, streams, and wetlands. The spores can remain dormant in the environment until they are ingested by bottom feeders such as mussels, suckers, or crayfish. This introduces the toxin into the food web. When a bottom-feeding fish or a filter feeder consumes a spore, the animal will live as long as the spore does not become active and begin to reproduce. The active bacterium produces a toxin which is one of the most lethal chemicals known to researchers.

Animals that eat higher on the food chain can become exposed in two ways. Flies favor dead carcasses as egg-laying sites. As the maggots hatch, they consume the bacteria-infested flesh. They are not affected by the bacteria, but the toxin builds up within them. The concentration can become high enough that just three maggots can kill a bird that eats them. This route explains the deaths of carrion-eating birds such as gulls.

Live-prey eaters, such as Common Loons, Long-Tailed Ducks, Red-Necked Grebes, the species which have been most commonly found along Grand Traverse Bay, ingest the toxin directly with their prey. Prey can be fish, snails or mussels. In the case of the Common Loon, the prey is small fish, which can include the Round Goby. It is hypothesized that the toxin, a nerve poison, stuns the fish, making it easier for the birds to capture them.

The botulin toxin paralyzes its victims. After ingesting infected prey, birds lose the ability to fly. Next, their feet and legs become useless. For this reason, affected waterbirds often use their wings to propel themselves over land and water. Finally, the birds lose

control of their wings. The alias "limberneck" comes from the fatal loss of muscle control in the neck. If birds, such as loons, are on water, they die by drowning. If the bird is carrying any toxin, the cycle may begin anew.

The causes of botulin outbreaks in Lake Michigan are under investigation. Invasive species, because of their great numbers and ability to out-compete native species, are implicated in this botulism outbreak. Zebra Mussels, the Round Goby, and particularly the Quagga Mussel, are the culprits. Quagga Mussels are believed to be especially efficient at concentrating the toxin produced by the bacteria. The bacteria travel up the food chain when the mussels are eaten by Round Goby and other fish. These, in turn, are consumed by fish-eating birds.

Recovery from a low dose of toxin is possible. As long as the bird has access to fresh water, safety from predators, fair weather, and shelter weather, it may regain mobility. It is important to get an affected bird into a recovery facility where it has clean water and preferably a soft surface on which to rest. However, if a bird recovers, it is not immune to future doses of botulism toxin.

Nature takes care of the outbreaks in time. Either the number of dying birds becomes small enough to reduce infection rates or else fly activity decreases with the chilly onset of autumn. Unfortunately,

the November outbreak demonstrates that Type E botulism may occur in spite of cooler temperatures.

Regrettably, no methods for fighting avian botulism have yet been effective and practical against these outbreaks. Carcass clean-up operations have been ineffective on a large scale. When cleaning up carcasses, wear gloves, place the carcass in a double bag, and dispose of it in a garbage can. Do not allow pets to eat the carcasses. A vaccine exists, but delivering the injection requires special training.

How many dead loons have been found in Antrim County?

This fall five dead loons were picked up between Torch Bay Road and Barnes Park. These so far are the only confirmed cases of Botulism Type E poisoning in Antrim County.

Are the dead loons the same as our Chain-of-Lakes birds?

During the fall migration, loons stage on the Great Lakes prior to heading south. It is likely that many of these birds are from further north in the Upper Peninsula and Canada. It is also possible that



Common Loon



Long-Tailed Duck



Red-Necked Grebe



Common Merganser

TLA Student Interns Make School Board Presentations

As part of their research project, each student intern must make a presentation to the TLA Board and to their respective school boards in order to complete the requirements of the internship. They completed the training, completed the fieldwork, analyzed the data, wrote the report, and now have given the presentations. Our TLA interns came from two separate high schools, there were two separate presentations.

Danielle Haydell and Courtney Platte along with five other high school students from Bellaire and Elk Rapids High Schools participated in a summer long, unpaid internship program sponsored by Three Lakes and Elk Skegemog Lake Associations to study glacial relicts in Elk Lake, Lake Bellaire, and Torch Lake. Each student spent a minimum of 60 hours doing field work, analyzing results, and writing a report and each will receive 1/2 credit for Independent Studies on their school transcripts.

Glacial relicts are small invertebrates that live in or near the sediment at the bottoms of our cleanest and deepest lakes. They were last surveyed in 1975 by University of Michigan researchers. Each group of students has made a presentation on this work to the TLA and ESLA Boards and are required to make a final presentation to their respective school boards. Courtney and Danielle, both Juniors at Central Lake High School, completed a PowerPoint presentation to the Central Lake Board Tuesday evening, Nov. 12. At the end of their presentation they fielded questions from the board on their work and were presented with a certificate of achievement from Norton Bretz, Executive Director of Three Lakes Association. In addition to the certificate they each received a \$200 book allowance from TLA for future studies. Their final report entitled Glacial Relicts of the Elk River Chain-of-Lakes, Antrim, Kalkaska, and Grand Traverse Counties, Michigan is available at the TLA website www.3lakes.com. Three Lakes has sponsored high school internship programs for the last five summers on different environmental topics. Twenty students have participated from these same three schools and have used their experience and their report to strengthen their college and university applications.

The two Bellaire High School students who participated were Jesse Belanger and Brittani Miszkiewicz. Brittani is currently enrolled at Alma College. So, Jesse gave the presentation by himself



Left to Right: Norton Bretz, TLA Executive Director, Courtney Platte and Danielle Haydell, Central Lake students, and Mike Linton, Central Lake High School Principal.



Norton Bretz, Jesse Belanger, and Bob Bagley presenting Jesse with his certificate after his Bellaire School Board presentation

to the Bellaire High School Board Jan. 14 and received his award then.

In addition to our students there were three Elk Rapids High School students sponsored by the Elk-Skegemog Lake Association,

See Students on page 7 for continuation

TCE Plume: Problem Resolved... For A While!

Information provided by DEQ during ACUTE's final meeting on December 19th suggested that the trichloroethylene (TCE) plume is expected to continue its migration from Mancelona toward Lake Bellaire for many, many years to come. Based on recent monitoring results and forecasts from a recently developed 3-D groundwater model, DEQ's contractor, MACTEC Engineering & Consulting, updated the informal group of community stakeholders who attended the December 19th meeting.

The biggest concern with this groundwater contamination is that the TCE plume is migrating in the direction of the Cedar River Well Field, which is a major source of drinking water in the Mancelona Area Water & Sewer Authorities' public water system. This well field draws its water from the deepest aquifer. TCE has been detected about 12,000 feet "upstream" in this aquifer, which may take 30 to 40 years to reach the screens of these wells, based on a continuous migration rate of 300 to 400 ft per year. But the TCE in a more shallow aquifer is only 4,300 feet from these important drinking-water wells.

MACTEC is still investigating the leakiness of the clay layer separating the two aquifers. If the clay layer allows the TCE to be drawn from the shallow aquifer into the deeper aquifer, then these wells could become contaminated with 11 to 14 years, based on the same migration rates.

By mid-year 2008, DEQ's ongoing investigations are expected to reduce the uncertainties about the threat to the Cedar River Well Field. DEQ is installing two sentinel wells in the path of the TCE plume. Information from these new wells will be used to determine the leakiness of the protective clay layer and the annual

monitoring of the water from these well will be used to provide an early warning of pending TCE before the plume intercepts the drinking water wells. In addition to the information from these sentinel wells, the Health Department is continuing its monitoring of residential well water in the path the TCE plume.

In 2007 DEQ funded a \$2.5 million extension of the public water system in areas where residential well water is affected or threatened. This extension of water mains is expected to be on line by June 2008.

The biggest learning from TCE plume is the effectiveness of a non-adversarial approach to seeking solutions to a groundwater contamination problem. Through a process of regular meetings for the past five years, ACUTE (Antrim Coalition United Through Ecology) a group of community stakeholders, including TLA, developed a community consensus regarding the non-need and economic non-practicality to remediate this TCE plume. ACUTE members include local government officials, property owners, and environmental organizations. Public health is being protected by providing access to safe public water to residents in the affected area.

ACUTE's mission has been to interface with DEQ and to actively searching for innovative remediation technologies. Since there is no longer a compelling mission for ACUTE, it will discontinue regular meetings with DEQ until new information indicates the need to address new threats from the TCE plume, such as the relocation of the Cedar River Wells.

by Dean Branson

The Old TLA Website: www.3lakes.com Looks New

The TLA website has been revised and reorganized to make it somewhat easier to use. Your comments, of course, are always welcome on this subject. Go to www.3lakes.com and see what we have.

The new site includes a calendar on the first page that you can check for TLA upcoming and past events. Publications and reports are in new folders. For example all the intern reports are in a single file and the predictive nutrient-based water quality studies are grouped together. The TLA Newsletters (as before) are all on-line and we will be adding the Executive Director Reports given at

monthly meetings. Our photo album remains intact and we welcome photos from members. We will soon have a complete photo inventory of the shoreline of Torch Lake from the Watershed Center's Torch Lake Shoreline survey. If TLA members want this to be on-line, this can be arranged too.

With the new website we will be inaugurating our ListServe feature that we will call "TLA Alert". This will allow us to send you an email (assuming we have your email on file) alerting you to new issues as they occur during the year. We do not expect there to be many of these. We do not want to fill up your

mailbox with junk. If you do not wish to receive these messages, there will be a place to request from us to unsubscribe. In addition the first page of the website will allow you to join or abstain from this service.

The event calendar will be easier for us to up-date. So, even the most technically challenged of us can add events or modify it from the office. Previously, changes had to go through our web guru, David Branson. This new setup will also allow us to add on-line membership renewal..... but we will be improving one step at a time.

NEW TLA MEMBERS

Curt and Beverly Bunte
4217 Clam Lake Dr.
Bellaire, MI 49615

Jim and Kati Johanson
1034 SE Torch Lake Dr.
Bellaire, MI 49615

Richard and Kathi Brittain
912 Sturbridge Dr.
Akron, OH 44313

Richard Cicone and
Carolyn Burke
7225 N Shore Dr.
Bellaire, MI 49615

George and Suzanne
Chumrua
128 W Superior St.
Wauseon, OH 43567

Loon Die-offs continued

Antrim County birds can become victims if they stage and feed on fish from Grand Traverse Bay or Lake Michigan.

Is it possible that Type E botulism can become a problem in the Chain of Lakes?

Three Lakes Association has addressed the two conditions conducive to the activation of the botulin bacteria. These are a rapid growth of algae and overpopulation of the lakes by rapidly growing species such as mussels. The death of these organisms causes the deposition of detritus on the bottom of the lake. Decomposition of this material causes oxygen depletion which leads to the activation of the botulin bacteria.

As Three Lakes Association continues its monitoring program, discouragement of the use of fertilizer, and soil erosion prevention it will control excess algae growth. Boat washing and bilge water treatment discourage the further advancement by invasive species. By maintaining good water quality, the conditions will be less conducive to the botulism bacteria and the toxin.

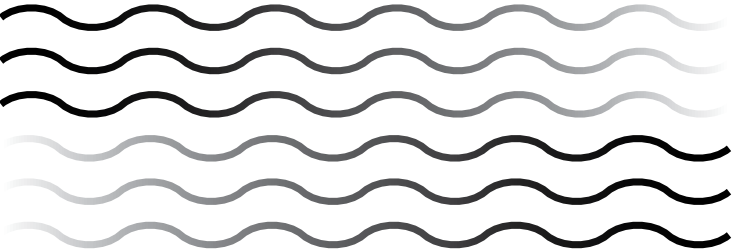
DEAD CARRION-E EATING OR FISH-EATING BIRDS

Students continued

Maggie Petersen, Andrew Mach, and Cameron Schaefer. These students have also finished their presentations to the Elk Rapids School Board.

What about 2008?

We want to extend the shoreline survey recently completed on Torch Lake by the Watershed Center to Clam Lake, Lake Bellaire, and (possibly) Intermediate Lake. In part this reflects the enthusiasm of Central Lake High School in participating in our internship program for the last two years and our desire to keep student traveling to a minimum. A Clam Lake cladophora survey was done in 2007 by Jack Norris, Bob Oswald, and Bob McClelland but did not follow exactly the same protocol as the Torch Lake survey. In particular it did not include a photo and checklist for each property. So we propose to add this to what we already have. With the completion of this project we would have a shoreline and cladophora survey of our all of our Three Lakes by the end of 2008. We have in the past worked with the Elk-Skegemog Lake Association's interns, but they will have a project next year that relates exclusively to Elk and Skegemog lakes. If we can find a sponsor and some volunteers from the Intermediate Lake Association, we would like to offer this as a combined Shoreline/Cladophora Survey/Internship program. If you would like to participate or if you know someone with a cottage on Intermediate Lake who would like to work with us, please send us a note.



FOUND DEAD FROM UNKNOWN CAUSES ON INLAND LAKES SHOULD BE COLLECTED, DOUBLE WRAPPED, AND FROZEN These must be sent for analysis in order to track any problems on inland lakes. Complete the information on the form from the website www.michigan.gov/emergingdiseases [and click on the West Nile Virus tab] and/or call Rich Earle, DNR wildlife biologist for further instructions (231-922-5280) or call Wildlife Recovery (989-772-1538).

by Arlene Westhoven,
President, Michigan Loon Preservation Association

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* * * * *

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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.*

January 2008 issue of the TLA Quarterly

THREE LAKES
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