TLA QUARTERLY
June 2006

President's Letter

Signs of early summer are all around us. The loons are nesting on Clam and Bellaire. The Sand Hill Cranes are back on the Grass River and talking to us as the sun goes down. Docks are going in and boats are on the lakes. Our Chain of Lakes beckons once again to come and enjoy her beautiful waters. Please help us keep them clean for all generations.

Here are some of our most recent accomplishments. In April TLA members were recognized at the annual Northern Michigan Environmental Action Council (NMEAC) awards reception. Tim Hannert, Norton Bretz and Dean Branson received a special Environmental Innovation Award for their leadership and work on the Torch Lake Water Quality Model. In accepting the award they acknowledged the many hours that other TLA volunteers and student interns put into the project. Ray Ludwa, executive director of Torch Lake Protection Alliance (TLPA) and TLA's vice president, received NMEAC's Environmental Professional of the Year award. Ray also serves on the board of the Watershed Center. Congratulations to all!

Work on the Bellaire and Clam Lakes Water Quality Model is well under way. The Torch Lake Model peer review held in early May produced helpful feedback as expected.

The TLA, Grass River Natural Area, and TLPA joint education committee has put together two great summer programs. The first, "Summer Serenity—how to keep your summer hot and your neighbors cool" will be held on June 14th at the Alden Depot. It will feature a panel of experts addressing the questions we all have about issues that arise when living on or playing in the lakes. The second, "In the Drink, III" will be on August 23rd at DeWitt's Marine. Our annual Water Quality Report Card will include a pontoon cruise on Clam Lake. At both events you'll enjoy a wine and hors d'ouvres reception and browse hands-on informational displays.

Get your reservations in for the TLA Annual Meeting and 40th Anniversary Celebration at Hannert's Farm on July 19th. You don't want to miss the delicious pig roast and square dancing.

See you on the lakes.

Bob Bagley

TLA Annual Meeting/Pig Roast and40th Anniversary Celebration:
(insert photo) Photo ID (l to r) Mary Lee Bretz, Norton Bretz
Please mark your calendar for the **July 19th** Annual Meeting and Pig Roast at the Hannert farm in Bellaire. Bring your friends and neighbors. Anyone can attend. The tables seat 8 people so plan to invite your neighbors and sit together. It's a good way to expose non-members to what TLA is all about. Maybe they will join when they hear all the good things going on in TLA. The cost is $25 / person which includes good food, good wine,

good music, and square dancing in the barn. Let's fill up the tent and celebrate forty years of protecting our watershed. For more information or tickets, contact Sally Hannert at 231-533-6550 or email at sally@hannert.com or send $25/person to 3083 Stover Rd. Bellaire, Mi. 49615

Detroit Edison (DTE) Energy Foundation Award:

Three Lakes Association (TLA) was presented with a $25,000 award for Excellence in Collaboration from the DTE Energy Foundation. The award ceremony was held on June 13th at the Detroit Symphony Orchestra Max Fisher Music Center, Detroit, MI. The award recognizes TLA for its collaboration with over 30 watershed partners to construct a predictive water quality model for the fourteen lakes in the Elk River Chain of Lakes. These watershed partners include eight townships, the Michigan Department of Environmental Quality, local schools, other lake associations, and civic groups.

The predictive water quality model will provide science-based support and education for the township partners. It will assist them as they work to maintain the unique environmental quality of our region while managing desired economic growth.

Dean Branson, TLA Board member and Water Quality Project Leader, attended the event and accepted the award on behalf of the organization. After receiving the award Branson commented, "This award acknowledges the 3,000 + hours of volunteer time and effort invested in the Predictive Modeling Project and the tremendous support we have received from our many water quality partners. Our sincere thanks to all who have been a part of this amazing process."

TLA will utilize this award to continue monitoring the water quality of our lakes, streams and groundwater. TLA will also be able to expand science-based educational opportunities for Antrim County, and local high school summer interns.

If you would be willing to volunteer some time to help complete this predictive modeling project please contact the Three Lakes Association by phone at 533-4852 or by email at info@3lakes.com

Summer Education Events:

The TLA, GRNA & TLPA Joint Education Committee has two great events planned for the summer. Mark your calendars for **June 14th** at the Alden Depot and **August 23rd** at DeWitts Marine, both at 4-6 p.m. The June event is titled **"Summer Serenity"** and will feature having fun with respect for man and beast. Come learn how to 'keep your summers hot and your neighbors cool'. The August event will be titled **"In the Drink-III"** and will feature water quality reports and a pontoon cruise on Clam Lake. Check our website calendar at www.3lakes.com for more details.

45th Annual Michigan Lake and Streams Association Conference:

Dean Branson, Norton Bretz, and Tim Hannert attended the MLSA conference April 28th, in Big Rapids, MI. Dean presented a paper titled; *A Predictive Water Quality Model for Torch Lake,* and Norton presented a paper titled; *Groundwater Phosphorus Influx to Torch Lake.* Dean spoke about the overall conclusions of our modeling on Torch Lake and Norton spoke about the groundwater measurements and their significance for the model. This was the first time that Three Lakes Association has had a significant presence at this meeting and we were well received. Thanks to **Dean Branson** and **Norton Bretz** for bringing some serious science to the MLSA attendees.

Supporting Wetland Protection:

On Friday, May 19, 2006, the US House of Representatives voted 222-198 for H.R. 1356, Clean Water Authority Restoration Act of 2005. The purpose of this bill, and its companion bill in the Senate (S. 192), is to reverse EPA's and the Army Corp of Engineer's 2003 Policy that narrows the definition of protected wetland. Although EPA and the Corp of Engineers may have been striving to prioritize and focus their limited resources on the protection of the most important wetlands, the net effect of their policy was leave about a million acres of "isolated" wetlands vulnerable to no State or Federal regulatory protection because the wetlands had no year-round direct connection to "navigable" waters.

In Michigan, 17% of its valuable wetlands were rendered unregulated by the 2003 Policy, which is still in effect today. This legislation will reverse this detrimental policy and restore the original intent of the 1972 Clean Water Act. There are several recent examples within the Chain-of-Lakes Watershed where this policy has resulted in confusion and the destruction of unregulated wetlands.

In response to two GAO reports describing the issues and environmental protection-related concerns associated with the 2003 Policy, a nationwide grassroots effort was initiated to reverse the policy. Early in May, Tip-of-the-Mitt Watershed Council circulated a sign-on letter to lake associations and other organizations in this area directly involved in protecting wetlands. The letter with dozens of signatures was sent to members of Congress encouraging them to co-sponsor this legislation. On behalf of Three Lake Association's members, Tim Hannert was proud to sign the letter. We are optimistic that the Senate's version of this bill will soon pass and then be easily combined with the bill that just passed the House. Since the combined bill is expected to be strongly bipartisan, the President would be expected to sign the bill into Law.

Dean Branson, Water Quality Team

Water Quality Model for Torch Lake: Project Successfully Completed

May 1, 2006 signaled the successful completion of one of Three Lakes Association's (TLA) most comprehensive projects. A small team of water quality modeling experts were convened to peer review TLA's final report to M-DEQ, "*Developing a predictive water quality model for Torch Lake*" (**insert photo- ID's from left to right: Doyle Brunsen, Norton Bretz, Howard Yamaguchi, Ray Canale, Steve Chapra, Dean**

Branson, Tim Hannert, Doug Endicott.) In addition to identifying the technical uncertainties associated with the Torch Lake water quality modeling project, the peer reviewers were also asked to suggest improvements in the 2006 sampling plan for building the Lake Bellaire & Clam Lake predictive water quality model.

The following water-quality modeling experts met at Northwest Michigan College's Water Studies Institute in Traverse City:

- Professor Steve Chapra, Tuft University, author of textbook "Surface Water Quality Modeling", and creator of Lake2k modeling framework.
- Retired Professor Ray Canale, University of Michigan
- Doyle Brunsen, M-DEQ Water Division, Grant Administrator
- Howard Yamaguchi, retired Antrim County Planner

Doug Endicott, the environmental engineer from Great Lakes Environmental Center in Traverse City who built the water quality model for Torch Lake, also actively participated in this peer review, as well as Tim Hannert, Norton Bretz, and Dean Branson, TLA's project leadership team. Fifteen invited individuals from other lake associations, including Elk-Skegemog Lakes Association, Intermediate Lake Association, and Walloon Lake Association were observers of the peer review process. These observers are actively involved in preparing grant applications to develop predictive water quality models and land-use models for their lakes and watersheds. TLA's water quality modeling team is mentoring the other lake associations, which is part of TLA's long-term goal of integrating water quality and land-use models for the entire Chain of Lakes and its 500 square-mile watershed.

Another part of the successful completion of this project was the submission of the final report (155 pages) to M-DEQ. This report, along with the final Financial Status Report describing $59,000 of in-kind matching funds ($44,000 of in-kind volunteer time plus $15,000 of contributions from seven townships and special donations) were prerequisites for receiving full reimbursement from M-DEQ for the $62,000 of M-DEQ grant-related expenses.

One of the important things learned from the peer review was the significance of Torch Lake's unique water chemistry that controls its water clarity. According to Professor Chapra, the predictable seasonal pattern of Secchi Disk data along with the low levels of chlorophyll and phosphorus can be explained by the formation of insoluble calcium carbonate during the warm summer months. This results in the precipitation of calcite with phosphorus bound to the insoluble carbonate particles. Rather than a reduction in water clarity during summer months due to the growth of phytoplankton, as is the case with most inland lakes, most of the reduction in water clarity in Torch Lake is due to calcite precipitation. Calcite also helps explain the beautiful turquoise color of Torch Lake.

To further quantify this seasonal pattern of calcite precipitation in Torch Lake, Professor Chapra agreed to collaborate with TLA to measure the changes in water chemistry during the

2006 summer and then include this information in an enhanced version his Lake2k software. The new algorithm will become part of the PhD Thesis research for one of his students, Elizabeth Homa. This collaborative effort will also involve some analytical chemistry help from Ray Canale's Platte Lake resources, the use of Elk-Skegemog Lakes Association's new Li-COR Light Extinction Instrument. We have received two thousand dollars from Torch Lake Protective Alliance to pay for the analysis of dozens of water samples collected every two weeks during the summer. If you are interested in participating in this exciting special project, please contact TLA (231) 533-4852 or at info@3lakes.com to volunteer time.

Dean Branson, Water Quality Project Leader

Upgrading Schuss Mountain Wastewater Treatment Plant:

The Mancelona Area Water & Sewer Authority (MAWSA) is currently reviewing a proposal to purchase the Schuss Mountain Resort's Wastewater Treatment Facility. The outfall from this facility is discharged into drain fields that eventually contribute to the flow of Cedar River. This purchase would be good news for the users of the facility, for the new owners of Schuss Mountain and Shanty Creek Resorts, and for the protection of water quality in Lake Bellaire, a win-win-win arrangement.

Part of the purchase agreement calls for MAWSA to upgrade the Wastewater Treatment Facility's capacity & capability to adequately treat sewage from the village of Mancelona and from future anticipated growth associated with Schuss Mountain Resort area (under new management). These upgrades will benefit both the users of the MAWSA sewer system by managing their monthly sewage treatment bills, and the new resort owners by enabling future growth.

Most significant to TLA is the upgrading of the wastewater treatment facility's capability to help protect future water quality in TLA's watershed by voluntarily retrofitting phosphorus removal equipment. This upgrade is expected to remove more than 90% of the phosphorus in sewage. Phosphorus captured in this wastewater treatment facility will be disposed of in licensed and a lined landfill, thereby preventing its eventual migration into this watershed and the resultant decrease in water clarity. Construction to upgrade the wastewater treatment facility is expected to begin in the fall of 2006 or spring of 2007.

Since 2003, Three Lakes Association (TLA) has been an active participant in ACUTE (Antrim County United Through Ecology), an informal group of thirteen stakeholder organizations interested in supporting non-adversarial efforts to resolve problems associated with a very large trichloroethylene (TCE) groundwater plume currently migrating from Mancelona into the Cedar River. ACUTE meets at 9:30 AM the second Wednesday of each month in the Founders Room of Shanty Creek Resort. Visitors are welcome. For additional information, contact Gary Knapp (231) 587-5085 or Dean Branson (231) 544-2700.

Dean Branson, ACUTE Board Member

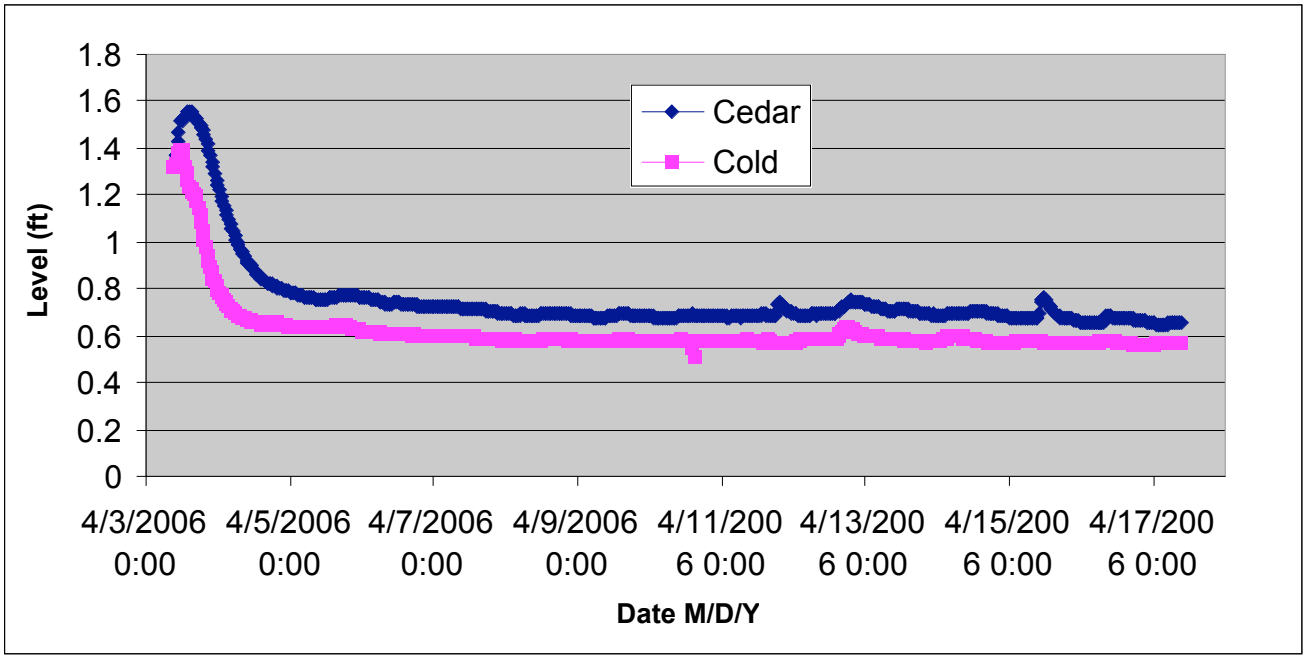
Going with the Flow:

The Lake Bellaire and Clam Lake water testing in our 2006 modeling project has most of the old elements we saw last year on Torch Lake: Hydrolab vertical profiles of water temperature, dissolved oxygen, pH, and specific conductivity; sedimentation traps, deep basin sampling of phosphorus, alkalinity, chlorophyll, calcium; monitoring of phosphorus in rain and groundwater; and stream flows. However, the stream flow portion of the project is now much larger and more sophisticated than before. In fact, this is probably the major difference between the projects. Bellaire and Clam are smaller lakes but the watershed that contributes to them is actually much larger than the watershed directly affecting Torch Lake. The volume of water in Bellaire and Clam is only 4% of Torch, but their watershed is twice as large. This means that the land use component of our study and the part needed to quantify the water in and out of the watershed is much larger.

So what are we doing? One of TLA's in-kind matching contributions to the second DEQ grant has been the purchase of two automated water level gauges. In addition the MDEQ has loaned us two more automated level instruments that can also take water samples during rain events. These instruments record the level hourly and will be calibrated to give the flow volume in several of our tributaries and interconnecting rivers. The TLA gauges are on Intermediate River under the Bellaire Bridge and at the entrance to Grass River. In addition we have MDEQ gauges on Cedar River and Cold Creek, two of the major tributaries. Each Thursday we measure stream flow in Intermediate, Grass, Cedar, Cold, Finch, Clam Rivers in order to calibrate our gauges. Some days we just measure the flow in a reference location and other days we take measurements at many different places in the river cross-section to get the total flow. In addition, TLA volunteers are taking weekly readings of the levels in Lake Bellaire, Clam Lake, and Torch Lake. There is already an automated USGS gauge on Intermediate Lake under the Central Lake Bridge. These levels are important because a change in lake level is equivalent to a flow of water. We can determine how rainfall surges though the lake system and how phosphorus is carried with it. We have already recorded several rain "events" with the automated MDEQ stations. They typically take a sample before the river rises significantly, at the peak of the flow and several intervals while the stream is returning to normal. More phosphorus is washed out during these peak flows than during normal low flows. Now we know how much more.

A typical set of stream flow data from the MDEQ gauges on Cedar River and Cold Creek is shown here for a two-week period. The week begins with a big rainfall event. The level in both streams goes up significantly, Cold Creek reaching a peak more quickly, and both return to normal a bit more slowly. Some of the smaller rain events occur in both watersheds but some occur in only one.

Once we have the flows and know the land use in the individual watersheds we can estimate the amount of phosphorus coming from agricultural, riparian, forested, residential, or other types of use. As these uses change over time, we will be able to predict their effect on the phosphorus input to our lakes. In fact land use changes are likely to cause the most significant long-term changes in the phosphorus coming into our lakes.



Norton Bretz

Summer Intern Program:

For the fourth consecutive year TLA will sponsor summer interns from our community high schools. This summer's 'class' consists of Jamie Lanter and John Frantti from Central Lake High School, and Kristine Vliet, Rachel Proudfoot, Bethany Springsdorf, and Jesse Belanger from Bellaire High School. The students will contribute a minimum of 60 community service hours while engaged in our Predictive Water Quality Model Project. They will work along side our water quality experts and learn how to collect samples from lakes streams and groundwater wells. They will be measuring stream flows, recording Hydrolab data, and gathering aquatic plants from Clam Lake. Upon completion of their summer fieldwork they will prepare a report of their experiences and findings to the TLA Board of directors and to their respective school boards. The students fulfill the community service requirement for graduation and receive 0.5 credit hour of Independent Study on their transcript. TLA will provide lunches, mileage, and a small stipend for each student. We need women chaperones to accompany the various field teams during the summer's work. We meet every Thursday from 8 am -2 pm. No scientific experience is necessary, just a willingness to participate. Call the TLA office at 533-4852 or contact us by email at: info@3lakes.com if you can help.

Magic Powders For Septic Tanks:

I had a remarkable phone chat recently with a salesman for Magical Super Septic Dust, Inc. (not the real name). It seems I am an obstacle on their royal road to riches: they keep running into people who won't buy their stuff because somebody named Norris at TLA disapproves of it. So, one fine morning this frustrated

fellow called to convert me into a true believer.

According to his sales pitch, his magic powder, full of Special Enzymes and Friendly Bacteria, converts septic tank contents into pure water and ordinary carbon dioxide -- the same stuff that makes the pretty bubbles in champagne.

This was a more remarkable claim than the one I'd had from this lad's predecessor a couple years earlier -- no champagne bubbles that time, just a final end to costly pump-outs.

"And the Nitrogen, Phosphorus, Sulfur, etc" I asked, "what becomes of them?"

"They are liquefied and disappear", according to this minstrel, saving home-owners the expense of costly repairs and pump-outs.

"If we just used the stuff in our coffee instead of sugar or cream", I suggested, "maybe we wouldn't need septic systems at all?" There was apparently nothing written in the salesman's manual about that.

When and if you get one of these calls, have fun. Maybe one of the kids would like to check out the chemistry in science class as a light-hearted project. But don't ruin your septic system.

Seriously, your septic tank has plenty of enzymes and bacteria already, and it receives more whenever it's used. If you feel you must tinker with it, put in a cup of yoghurt. The best way to extend the system's life and keep it working is to get it checked every 3 - 5 years by your professional septic service guy.

If, by any chance, somebody actually puts this stuff into the septic system, we can rejoice in the fact that it really doesn't do what is claimed.

If all the contents of the septic tank were actually to be liquefied, catastrophe would soon follow, as the adsorptive power of the distribution field would be rapidly and uselessly overwhelmed. And the magic powder user would wind up replacing the whole shebang.

Now, there's this crystalline liquid that turns ordinary air into strawberry shortcake .....

Jack Norris

The Third-Most Twisted History:

We hear it from all sides -- T-shirts, postcards, optional license plates, even from a website named for it-- that Torch Lake is the third most beautiful lake in the world, on the basis of the National Geographic's edict to that effect.

But that's not the only source credited with the "third most beautiful" claim.

When I was a mere sprout, planting watermelon seeds for grampa, there were two little clippings in the house, one on the mantel piece and one pinned to the screen on the bread safe. One came from the local newspaper, the other from a church bulletin. On each clipping, enclosed in a checkerboard frieze, was the message that Torch Lake, according to the National Geographic Magazine, was the third most beautiful lake in the world, behind Switzerland's Lake Geneva and Canada's Lake Louise at Banff.

No home around the lake was complete without such a clipping, carefully scissored from one or another of several publications, which, like ours, was revered through it's curling and yellowing and final demise as dignified dust. Wish I still had one.

Arduous research has made it clear that The National Geographic does not judge or rank lakes according to their beauty and never did, and that the still-respected myth arose out of the personal opinion of a free-lance writer some of whose writings had been published by that magazine. Whether that happenstance should have allowed him to borrow the magazine's imprimatur is open to debate.

As for checking with the National Geographic, my recommendation is that you don't. You might get a cheerful and inexperienced staff member who will gladly consult the records before giving you a negative report; but on the other hand, you might draw one of the more seasoned staff, who has had this inquiry approximately a thousand times a year and will be very short with you on the phone.

But our free-lancer was not alone! He had company in the effort to promote the beauty of Torch Lake. They probably didn't know each other – at least their productions were noticeably uncoordinated.

During its heyday, the "third most beautiful" lyrics found many outlets, one of which was a hand-painted sign at the then-famous Was-Wa-Gun Restaurant and Resort at Eastport (now the site of Peterson's Restaurant). It was to be thrown out during a remodeling frenzy, but Dan Boone asked for it, because of its historical significance, and has saved it since then in his barn.

As repeated below, it's the only surviving historical text that I'm aware of that speaks to the traditional "third most" ranking. But you will note the glaring differences between this version and the one of oral tradition.

The sign reads:

TORCH LAKE . . .

This lake, though not the largest in surface area, contains a greater volume of water than any other of our Michigan inland lakes. It is in many respects similar to the Finger Lakes in New York State...

In beauty it rates very high among the inland waters of the world. We are told that on a bronze plaque in Switzerland some of the best known lakes of the world are rated according to beauty and that there Torch Lake ranks third, being surpassed only by two Swiss lakes. Some who have seen the three lakes feel that the Swiss have been over ambitious, that an unprejudiced observer would rate Torch Lake above either of those Alpine waters. Truly, there are no castles to adorn the shoreline of our lake, but the blue water and the gentle hills across the horizon excel any man-made adornments.

At any rate, Torch Lake and its adjoining waters are fast becoming a Mecca for tourists and resorters.

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This is an excerpt from the Bureau of Fisheries Research Report No. 12, issued Jan 4th, 1931.

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The bronze plaque is a nice touch, as is the fact that the three lakes under comment are Torch and two unnamed Swiss lakes. In the more familiar license-plate version, the three lakes are Torch, Lake Geneva and Lake Louise at Banff.

I found some of the language in the quoted excerpt unusual for an official document, and tried to get a copy of the Bureau of Fisheries Research Report No. 12, only to be assured by the U.S. Agriculture, Interior, EPA, and Fisheries departments that there was no such bureau in 1931, and that there is no report No. 12 in any relevant files.

So, have these happy fables served us well? Matter of opinion.

Closer to home, it's nice to know that many people think Torch the most beautiful lake in the world and work to keep it so.

Jack Norris

Membership Drive:

We continue to work toward our goal of 500 members for 2006. Zone directors met on May 10 to discuss ways to increase membership in their zones. They will meet again on June 24 to report progress. Please help us to reach our goal. **First, check the mailing label on your newsletter. If the label is highlighted, you are not current on 2006 dues**. Your renewal is important. Secondly, encourage your neighbors and friends to join us. Three Lakes is your voice for water quality in Antrim County. We need you and you need us!

If you know someone who might be interested in becoming a member of Three Lakes Association, membership forms are available from the TLA website: www.3lakes.com or use the one found in this newsletter. Thanks for your help.

Alan Hickman, Membership Chair

Executive Director's Corner

They say travel broadens, it most certainly informs. I recently returned from Connecticut where Sally and I spent time on the shore of Long Island Sound. We were based in a small sleepy community called Stony Creek, made famous by it's quarries that supplied the pink granite that sits under several historic sites, one being the Statue of Liberty. As we drove into the town center I noticed lawn signs proclaiming "No to Condos". Apparently the residents were up in arms about a potential sewer and future development. They had always relied upon septic systems and didn't need a municipal sewer, according to an old timer. While kayaking around the Stony Creek harbor, which is sheltered by the Thimble Islands, I noticed that water clarity was less than six inches. A few miles down the road where salt marshes bordered a state park and there were no septic systems for miles, the water clarity was measured in many feet. Conclusion? Septic systems in soils derived from granite are probably not able to remove any more phosphorus than the poor sandy soils of Antrim County.

The construction of a phosphorus-based predictive model for our lakes should provide enough scientific information so local officials can make informed decisions concerning our watershed and how to best manage the inevitable growth that will occur within it's boundaries. We certainly don't want our lakes to ever look like Stony Creek harbor. There is much work to be done, and not a minute to lose. See you out on the water.

Tim Hannert