



FALL 2019

# THE LAKE GUARDIAN

Tom Darnton

## Water, Water, Everywhere!

*Jennifer Buchanan and Joel Van Roekel*

According to Henry David Thoreau, “A lake is the landscape’s most beautiful feature.” It’s probably a safe bet that most of us around here would agree with him. For years, we could look out from anywhere along the shoreline and admire our sandy beaches dotted with docks standing high above the crystal-clear water.

For many, the high-water record of 1986 was a distant memory. The levels began to recede in the late 1990’s and life on the lake was good. But the recession didn’t stop until 2013 when the lake reached a record low. Then came the cries that the lake was drying up and demands for the State and the Army Corps of Engineers to do something to stem the flow. Shortly after that people began to notice that water levels had started to rise more and more and then even more. They rose again this summer until they were one inch below the record 1986 levels.

Seasonal fluctuations are the norm for our lake. The annual rise and fall in lake levels can be a foot or more, depending on temperature, precipitation, and snowmelt. The projected increase was 4 to 6 inches over last summer’s levels. In reality, the increases in July and August hovered a mere inch below all-time high-water levels.

What does the future hold for the water levels in Lake Charlevoix? I asked Jennifer Buchanan, Watershed

Protection Director for Tip of the Mitt Watershed Council for her thoughts. What follows is her response.

“It is understandable that shoreline property owners get more than a little frustrated when lake levels are so low, they have to buy extra lengths of dock to make sure their boats don’t run aground, and perhaps even more so when lake levels are lapping at the foundation of your home. So, while lakefront residents come to expect the seasonal

variations in lake levels, it’s the longer-term variability that tends to give even the most seasoned riparians a bit more anxiety. These variations have been cycling for thousands of years, but climate data suggests these variations may be more extreme and cycling through over a shorter period of time. Time will tell. What we do know is lakeshores are dynamic and are all subject to external forces that influence their state.

From a human perspective, most natural lakeshores may appear unchanging from year to year, but lakes and lake basins are by no means static and permanent. Changes to the shore outline and lake depth are ongoing as the result of erosion and sedimentation occurring from both inside and outside of the lake. This process is working toward an equilibrium in which the shoreline irregularities are smoothed, and headlands washed away, and bays filled in with sediments eroded from headlands.



Joel Van Roekel

*continued page 7*

## President's Corner



*We have all enjoyed another wonderful summer season on Lake Charlevoix and now it's time to hunker down for winter, look forward to the winter activities that Northern Michigan offers or head south to warmer climes. Or maybe some of all three!*

Summer this year brought us a most unwelcome guest – record or near record high water courtesy of much rainfall in our watershed and our connection to Lake Michigan. Not since the mid 80's have we experienced water levels this high and this just a handful of years since we were all alarmed about the low water levels. We have seen a difference of well over five feet. Just think of the volume of water that is over the expanse of Lakes Michigan and Huron! To read more about our high water levels, see article on page 1 authored by Jen Buchanan of Tip of the Mitt Watershed Council.

We kicked off our summer with a June 9th dedication of the shoreline gardens at the Boyne City Sunset Park. Except for a sprinkle or two the weather was ideal. It was a great opportunity for LCA board members to engage with a number of our Association's supporters. Of course the high water situation has impacted these gardens as well. See the article on page 7.

We have now received the comprehensive report of the drone video shoreline survey conducted early last fall. Comparing the results of this survey with previous surveys, the percentage of developed shoreline parcels increased somewhat and although erosion remained somewhat similar to 2012, we expect erosion to be an increasing problem due to our near record high water conditions. One worrisome trend is the increase in the number of shoreline parcels exhibiting cladophora, an algae indicative of nutrient loading. For a more in depth discussion of the survey results see the article on pages 4 and 5.

The Plastic Reduction Project became very visible last spring with the signing up of businesses that agreed to reduce plastic pollution by replacing single use plastic with eco-friendly substitutes. I hope you have seen the LCA reusable grocery bags being used in place of the plastic ones.

The summer was capped off with the annual Lake Charlevoix Association Poker Run. This was the fourth one and it seems to get better every year. A new wrinkle this year was to make it a low plastic and trash impact event. You can find out more about this in the article on page 3. Many thanks to our major sponsors, the local businesses and individuals that donated auction items and to co-chairs Dave Germond and Dan Misher and their committee and volunteers. Great work!

Keep your eyes open for the new LCA website that's expected to go live sometime over the winter.

Wishing all of you a very enjoyable Northern Michigan winter season.

*John Hoffman, LCA President*

### Mission:

Protect the natural quality and beauty of Lake Charlevoix.  
Promote understanding and support for safe and shared lake use.  
Advocate sensible and sustainable practices for lake use and development.

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of Trustees**

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# LCA POKER RUN 2019

Dan Mishler



Joel Van Roekel

*The fourth annual LCA poker run is in the books and the feedback we have received indicates it was the best one yet. The weather was perfect, the food was tasty, the auction items were a big hit.*

Special thanks to our Gold Sponsors, Lake Charlevoix Brewing, Irish Boat Shop, Boyne Boat Yard, Bulmann Dock and Lift, Lake Michigan Products, Mobile Marine, The Landing Restaurant, Sommerset Pointe, Pat O'Brien & Associates and West Marine of Petoskey. Each sponsor either sponsored one or more card pick up locations or donated gift certificates for poker hand prizes.

Many local merchants and members also donated items for the auction, which is a fun part of the event and a big part of our fund-raising.

We would also like to thank our many volunteers without whom we could not provide this fun event. Dave Germond, Laurie Seibert and Suzie L'Heureux spent many hours in planning and set up. Many people helped out by handing out cards and other jobs. If anyone would like to be

on the list to help out with LCA events and projects, please let us know at [info@lakecharlevoix.org](mailto:info@lakecharlevoix.org)

Congratulations to our card hand winners, the Allens had the winning hand with three 6's, the Brandts came in second with three 4's and the Ellwangers earned third place with three 3's. The always popular worst hand went to the Charnowskis. Prizes for card hands were gift certificates from Irish Boat Shop and West Marine.

The bottom line for the 2019 Poker Run is a net of over \$7,000 which will be placed in our Lake Charlevoix Protection Fund at the Charlevoix County Community Foundation. The proceeds will be used for projects that work to preserve and protect this wonderful lake we all love.

Also, of special note this year is the fact that, in keeping with our new plastic reduction

program, the event used compostable tableware. Nearly all of our waste was compostable using the commercial recycling program in Emmet County. The state-of-the-art recycling facility in Emmet County, along with the very helpful people there, made this possible. Their program has drawn praise for all over the country and could be a big help to our conservation efforts.

A special thanks to Lake Charlevoix Brewing and Boyne City Tap Room for providing the catering and working with us to produce as little throwaway waste as possible. Participants were also encouraged to bring only reusable cups and from what we witnessed, compliance was very good in that area. Please see the article below on the topic of our new Reduce, Recycle, Reuse, Plastics reduction program.

We hope you will plan to participate in the poker run in 2020.

## Our Reduce, Reuse, Recycle Program - Both Serious and Social

Joe Kimmell



The LCA Reduce, Reuse, Recycle Program continues to make progress across Charlevoix County. In addition to distributing hundreds of reusable shopping bags at area businesses, the LCA has launched additional efforts to encourage

area businesses and individuals to reduce or eliminate the use of plastics. This means fewer single-use carryout bags, straws, and clamshells.

As described in Dan Mishler's Poker Run article above, LCA teamed with Emmet County's Recycling program to make the event as plastic and trash free as possible. All plates, utensils and cups were paper or compostable. Food scraps were collected for the community composting program, while drink containers and beverage cans were recycled.

The event successfully demonstrated that individuals, groups, and businesses can positively impact our lake environment with thoughtful planning. When we

consciously commit to reducing our use of plastic, shopping with reusable bags, and recycling as much as we can, we make a difference. LCA plans to build on our Poker Run efforts in keeping invasive plastic from our lake and watershed.



Emmet County Recycling

# THE 2018 LAKE SHORELINE SURVEY

## HOW HEALTHY IS THE WATER'S EDGE?

*Joel Van Roekel and Dan Mishler*

*Your healthy shoreline supports wildlife, filters pollutants, reduces erosion, and improves water quality.*

In early 2018, the LCA partnered with Tip of the Mitt Watershed Council and Zero Gravity Aerial to conduct a shoreline survey over the summer. The goal was to determine the current state of our lake's greenbelt and shoreline. The study focused on three significant threats to lake health, nutrient pollution, greenbelt loss, and shoreline erosion.

The condition of every parcel on the lake was recorded by observing the shoreline from the water's surface and through drone imaging. Evaluation of the data was conducted by the Watershed Council.

We hope this data will help property owners improve their shore-land in ways that will help protect and preserve the lake. LCA is grateful to the Charlevoix County Community Foundation for their assistance in funding this survey.

## NUTRIENT POLLUTION

Lakes, like humans, require a certain amount of nutrition to stay healthy. Like humans, lakes can also run into trouble with the intake of too many nutrients. Excess nutrients in lake water promote the growth of both aquatic plants (macrophytes) and algae. While too many aquatic plants in your swim area might be annoying, excess algal growth can cause a host of problems including depleted dissolved oxygen, toxic algal blooms, and nutrient pollution.

Cladophora is a green alga that is used as an indicator for the presence of nutrients in lakes. It proliferates on solid substrates (rocks and logs) when excess nutrients are present, making it easily seen along shorelines.

According to the survey, "noticeable growths of cladophora and other green algae were observed along the shoreline at 624 parcels (36.8% of the parcels surveyed). More than half of the parcels had "light or very light" growth while 78 of the parcels were labeled "heavy or very heavy."

## PROTECTIVE GREENBELTS

There are 2,199 parcels on Lake Charlevoix with 1,983 of them considered as "developed." Of these properties, 1,371 have been altered with rock, boulders, beach sand, or sea walls.

In general, when shorelines are altered from their natural states, water quality suffers. When natural, deep rooted vegetation is removed from the greenbelt, stormwater runoff increases as does sedimentation from erosion. Lack of vegetation also reduces the abundance and diversity of aquatic life from minute crustaceans to game fish.

Greenbelts were scored from 0 (little or no greenbelt) to 7 (exemplary). Properties receiving a poor ranking (0, 1, or 2) totaled 37% of those surveyed, while 29% of the properties received a moderate ranking (3 or 4), and 34% of the parcels received a good (5-6), or excellent (7) rating. Large parcels along the eastern shoreline showed excellent, healthy greenbelts, however these tended to be largely undeveloped properties.

## SHORELINE EROSION

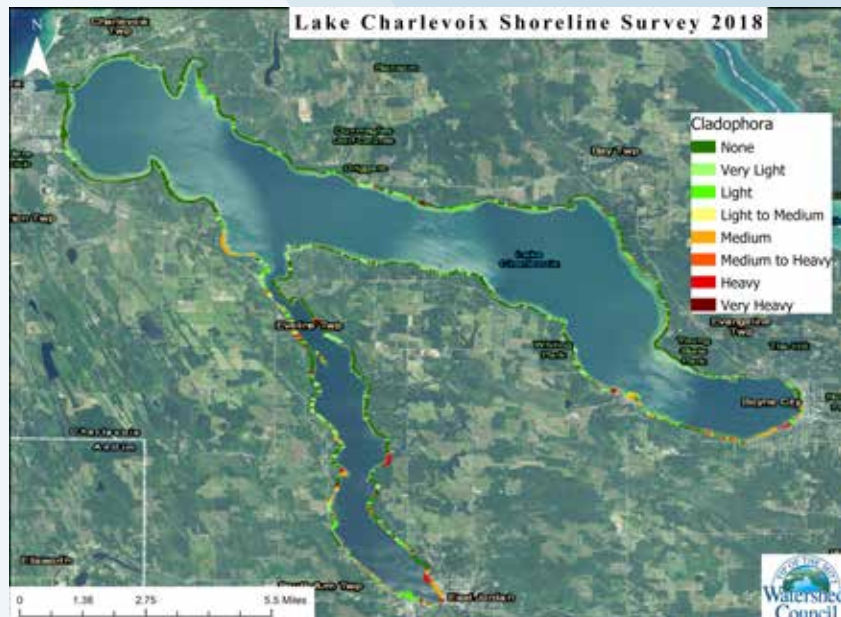
Shoreline erosion causes a host of problems for lakes. Sediment clogs the gills of fish, insects, and other aquatic creatures. It smothers fish spawning beds and fills the spaces between rocks where small aquatic organisms live. Surprisingly, nutrients, like phosphorous, adhere to the sediments further compounding the algae problem. Healthy shoreline greenbelts with woody and herbaceous plants are an essential element in preventing erosion.

Symptoms of erosion included areas of bare soil, leaning or downed trees, exposed tree roots, undercut banks, slumping hunks of sod, excessive deposits of sediments, or muddy water.

Parcels were placed in four categories, none, minor, moderate, and severe. Erosion was found on 34% of the parcels, with 57% of those ranked "light" and 7% in the "heavy" category.

It was noted that properties with patches of grass at the water's edge experienced some undercutting from wave action and ice shove. Parcels with artificial beach sand typically experienced loss of sand into the lake.

A site to better view your property is currently under construction and will be available in 2020. Updates will be posted on our website: [www.lakecharlevoix.org](http://www.lakecharlevoix.org)



## LOOKING AT TRENDS

The current survey provides us with a snapshot of our lake's shoreline health. By comparing the results from 2007 to the present survey we learn the following:

- The percentage of developed shoreline parcels increased from 85.1% to 90.4%.
- The total number of shoreline parcels with Cladophora increased from 17% to 37%.
- The number of parcels receiving a very poor or poor greenbelt rating declined from 45% to 37%.
- The number of parcels receiving a good to excellent greenbelt rating increased from 0% to 34%.
- The percentage of shorelines that have been altered with rock increased from 27% to 45%.
- The number of parcels with erosion issues has remained approximately the same.

## NEXT STEPS

The overarching goal of this survey is to encourage and help homeowners improve their property in ways that protect the lake. With that in mind, the full report will be available on our website later this fall. Eventually, we will also be providing owners with private access to the data for their property. We encourage everyone to honestly consider their impact on the lake and then explore options to be better stewards of Lake Charlevoix.

Using data from our 2018 shoreline survey, and information from studies done on other lakes, our LCA environmental committee will commission a more in-depth study of nutrients and plant growth in Lake Charlevoix beginning in 2020. This study will include work that isolates the sources of nutrients entering the lake, especially failing septic systems and fertilizer run-off. We will also be working to procure grant monies to support this in-depth and expensive research.

Cladophora, habitat loss, and erosion are all issues associated with the development of shorelines for recreation and habitation. Recognizing the importance of a healthy greenbelt and shoreline can go a long way in improving your shoreline. Property owners can contact the Watershed Council for more information on how to improve greenbelts and/or correct erosion problems.



Ed Post

# BIBCO Dock Report

Tom Darnton

The City of Charlevoix's proposal to place a new dock for the Beaver Island ferries at the City's Ferry Avenue beach and ramp location on Lake Charlevoix was a hot topic at our annual meeting. The proposal raised immediate public outcry when first announced and was withdrawn within a week. An independent consulting firm was then brought in to do an in-depth study.

Part of the study included a public meeting at the Charlevoix Public Library on Thursday, August 29th. Gregory Weykamp of the consulting firm Edgewater Resources, Inc., speaking to a packed room, reported on their work to date and laid out their plan for moving forward.

**Three sites were identified as meriting further study:**  
 (1) improvements to the existing site  
 (2) the Ferry Avenue site  
 (3) a site between the City of Charlevoix water treatment plant and the St. Mary's Cement Plant.

The presentation laid out goals for the study, listed concerns about the existing situation, presented evaluation criteria and described the study process.

## A third and final public meeting is scheduled for Wednesday, November 13th, 6:00 p.m. at the Charlevoix Public Library.

Your Board continues to believe putting the ferry operation at Ferry Avenue is ill-considered and unwise. We are attending the meetings, have had a formal input session and are in continuing email communication with the principal investigators. There are "stakeholders" who remain interested in using the Ferry Avenue site. We will continue to develop and present the counterarguments. We also listen to what others are saying. We believe that active participation in the process is the best way for our views to make a difference. Links to ongoing developments will be on our website as they become available.

# LCA Boat Count 2019

Joel Van Roekel



Joel Van Roekel

Normally, an early morning boat ride means finding calm water for skiing, heading for a favorite fishing spot, or peacefully paddling down the shoreline. On August third, an intrepid group of LCA volunteers left their docks at 8:30AM. Instead of tow ropes, fishing poles, or kayak paddles, they were equipped with clip boards, binoculars, and a list of watercraft categories. The LCA has conducted a biennial boat count regularly for more than two decades. This survey keeps the Association, marinas, marine enforcement, and boaters apprised of the latest trends in boating and the number of vessels currently on our lake.

The shoreline was divided into eight sections with each section surveyed by boat with a captain, spotter and a recorder. The goal was to count every type of watercraft visible from the water. This includes boats on moorings, lifts, at slips, at anchor and on the

VESSEL TYPE	2017	2019
Unpowered watercraft (kayaks, canoes, SUPs)	182	1549
Small boats with motors (tenders & rowboats)	174	168
Sailboats under 26 feet	273	273
Sailboats over 26 feet	176	206
Powerboats at/under 26 feet	1450	1478
Powerboats over 26 feet	767	925
Multi-hull Boats (pontoon)	274	298

beach. In addition to vessels surveyed on the lake or on shore, boats in marinas were counted by walking the docks, and boats at launching ramps and campgrounds were also tallied.

As you can see, there are a lot of boats on our lake. (More than 5,700) However, the acre/space used by the different types of boats varies significantly. Unpowered boats typically use less than one acre of lake space. Sailboats and powerboats use 6 to 8 acres of water space, while waterski/wakeboard boats use 15 to 20 acres. Given the variety of vessels found on Lake Charlevoix, the good news is that our lake is very large and there are relatively few days when the water seems crowded.

It took a small village of drivers, spotters, and recorders to gather all of the data. A shout out and thank you to all of the volunteers who made this survey possible.

# LCA/BC Shoreline Demonstration Garden Lessons Learned

Tom Darnton and Joel Van Roekel

On Sunday, June 9th, the LCA/Boyne City Shoreline Demonstration Gardens were dedicated under overcast skies. The winds were calm, the lake gently lapped the riprap and seawall at the edge of the gardens. While the rain held off until the end of the ceremony, it foreshadowed an historic rise in water levels in the Great Lakes and our Lake Charlevoix. Some who attended the ceremony viewed that day as the culmination of a two-year project involving a lake association, the city, landscape professionals, and interested citizens.



Joel Van Roekel

In reality, it was the beginning of a long-term experiment in how to design and install shoreline vegetation that can withstand the forces of nature while retaining its natural beauty. Within two months, the garden plots were inundated by Great Lakes water levels which either surpassed or came within 1/2 inch of the all-time highs of 1986, in stark contrast to the waterfront conditions when the plots were designed. The high-water levels created a number of problems including wash out of bark mulch and drowned plants near to the sea wall. The waves displaced oversize stone

(4" to 5") cobble from the beds across the sidewalk and into the park. The stone bed in the LCA grasses garden disappeared completely, its whereabouts unknown.

Our LCA Demonstration Garden Committee is dedicated to keeping the gardens going and learning what we can from the experiment. We've already made some important observations. We've been reminded of our lake's uniqueness. No other inland lakes in our region have experienced over a 5-foot

rise in lake levels over the last 5 years. This means standard inland lake solutions may not work for us. We've learned that sea walls do not afford the protection their visual image suggests. Our most successful plot, by Charlevoix Landscaping, started with larger (3-5 gallon) plants, set closer together in a woven landscape fabric and used larger stone cobble. The plants that were washed out suffered the worst with the impact of the waves breaking over the seawall. Those which were just washed over survived, although without the growth we'd expected to see in the first year. Given the conditions these plants experienced, their survival points to the validity of what we are trying to do.

How best to deal with the high water is an issue which is receiving a lot of attention. Our committee members will continue to study and experiment, as will our cooperating landscapers. What we learn will help inform the ongoing work being done on both public and private shorelines. Our long-term commitment to preserving our gardens and our lake will continue and we will continue to share what we learn with our membership and the larger community.

*Continued from page 1*

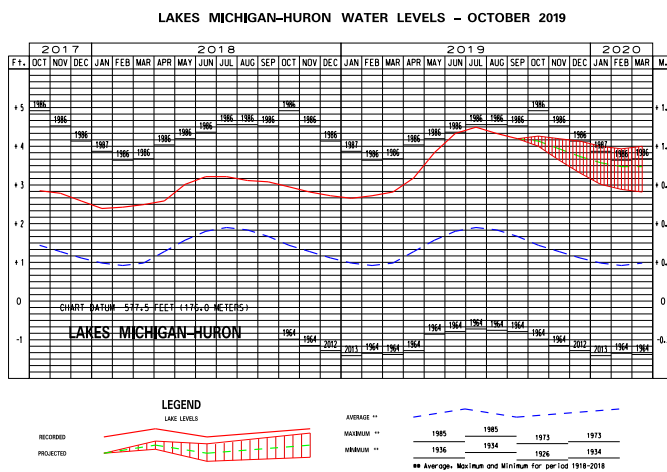
The rate and extent of erosion are dependent on the size of the lake, the size and direction of waves, the strength and direction of currents, the characteristics of ice, the depth of water nearshore, and the shape and composition of the shoreline. Not surprisingly, the greatest erosion usually occurs during highest lake levels, because larger waves may be able to break closer to the shore. If the lake level is high enough above normal, more easily erodible materials (not well-washed and sorted by previous waves or protected by a beach) may be exposed to wave action. Erosional processes continue until a new sort of shoreline equilibrium is reached. In most cases, lake levels drop before this happens, but not before shorelines are significantly altered.

As riparians, these facets of lake level variations and shoreline responses can be challenging. Rest assured, you

are not alone. What may bring you some sense of comfort is knowing that your lake, Lake Charlevoix, is responding to the same forces it has faced for thousands of years and will face for thousands more. What we can do in the meantime is to allow the shoreline to be resilient against these forces by letting it remain as natural as possible. We do this by retaining or restoring deep-rooting vegetation that helps strengthen the shoreline and by limiting all modifications, such as beach sanding and hardened sea walls."

Lake Charlevoix is like no other inland lake in our state. Fluctuating water levels require us to work responsibly and thoughtfully with organizations like LCA and Tip of the Mitt Watershed

Council. Using these resources and hiring landscapers who are knowledgeable in shoreline preservation practices will protect our lake for decades to come.



US Army Corps of Engineers



Mike Schlitt



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Join now!

## LCA THANKS YOU!

**In Memory of Brian & Lynne Coughlin**  
By Michael E. Coughlin

**In Memory of Patty Gunn**  
By Anthony & Julie Foust

**In Memory Jesse H. Halstead**  
By Pine Point Property Owners Association

**In Memory of Bud & Fran Kohler**  
By Janet Kohler-Dueweke

**In Memory of Adam Kovall**  
By Ed & Dorothy Segowski

**In Memory of Jack Schulman**  
By Elizabeth Martin

**In Honor of Jonathon Friendly's Birthday**  
By Stephen Little & Barbara Wotila

## SWIMMER'S ITCH UPDATE

*Dan Mishler*

LCA once again contracted with Freshwater Solutions to study our lake for infestation with the parasites that cause swimmer's itch. For this study, waterfowl were counted, and water samples and fecal samples from birds were collected to analyze for the presence of the parasites. The full report for this year's study will be available next month, but preliminary findings show similar waterfowl numbers to last year. Interestingly, the water samples collected on July 3 were found to have significantly more parasites than did the second set of samples collected on July 30. We look forward to learning more and sharing the full report on our website as soon as that is possible.



Julie Stratton

## NEWS BITES...

**Annual Meeting:** The Charlevoix Train Depot was the site for our 2019 LCA Annual Meeting. In addition to committee reports and member concerns, Ron Reimink of Freshwater Solutions informed the group about the 2018 Swimmer's Itch Study and the follow-up study this summer. If you were unable to attend our Annual Meeting this year, you can find a recap on our website, [www.lakecharlevoix.org](http://www.lakecharlevoix.org), where the meeting minutes and power point are posted.

**LCA Committee:** We are exploring the idea of a Governmental Affairs Committee. This committee would be active with local county, township and city governmental units in order to keep our organization abreast of lake issues. The committee would have a designated group to liaison with these governmental units when needed. If you have experience dealing with local government and would enjoy helping out in this capacity, please email us at [info@lakecharlevoix.org](mailto:info@lakecharlevoix.org).

**Thank you:** Many thanks to our LCA Members. It is through you that we are able to continue to protect our beautiful Lake Charlevoix.

**Membership Year:** Please remember the LCA Membership year runs from June 1- May 31. Donations made in December will be applied to the current year in which they are made and cannot be applied to the next membership year.

**Questions?:** Please feel free to contact us anytime online at:

[www.lakecharlevoix.org](http://www.lakecharlevoix.org)