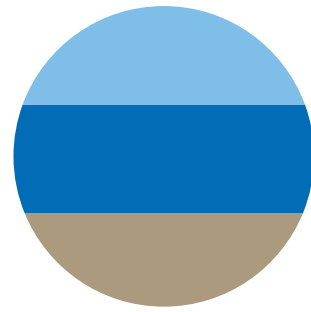


# GEORGIAN BAY **FOREVER**



**AUTUMN 2014**  
VOL 5, ISSUE 3

Protecting your water.

WATER LEVELS, WATER QUALITY, ECOSYSTEMS AND INVASIVE SPECIES

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Georgian Bay Forever is a proud member of the Waterkeeper Alliance.



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Georgian Bay Forever is a community response to the growing need for major research and education projects to sustain the Georgian Bay aquatic ecosystem and the quality of life its communities and visitors enjoy.

We help monitor the Bay's well being, throughout the seasons, year after year.

We fund the research needed to protect the environmental health of Georgian Bay and the surrounding bodies of water. Using our research findings, we inform and educate the general public and governments about any threats to environmental health and propose possible solutions.

Through conferences, workshops and seminars we are educating the Georgian Bay community. By teaming up with reputable institutions we enhance the credibility of our research and we strengthen our ability to protect what's at stake.

Georgian Bay Forever, formerly the GBA Foundation, is a registered Canadian charity (#89531 1066 RR0001). We work with the Great Lakes Basin Conservancy in the United States, as well as other stakeholder groups all around the Great Lakes.

Deeply rooted and broadly drawn, Georgian Bay Forever is steered by lifelong devotees of the Bay. We are committed advocates, educators, environmentalists, realists, idealists, and of course, residents.

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Derek Bowen	Michael Hensel
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Adam Chamberlain	Gail Krantzberg
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U.S. citizens wishing to make a donation to support our work can do so by giving to:

Great Lakes Basin Conservancy  
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.....  
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**[GeorgianBayForever.org](http://GeorgianBayForever.org)**

.....  
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**AUTUMN 2014**



By *Brenda Drinkwalter*

## LOOKING FORWARD TO A YEAR OF PROTECTING OUR WATER

So much has happened since last newsletter—some great, some not so great! The great—a much longed for rise in water levels, water sharing from Lake Superior and cooler temperatures impacting evaporation. The not so good—worrisome Great Lakes algal blooms and several big storms delivering both above average precipitation and at times, sewage spills into the Great Lakes. The warnings about climate change impacts, from business, governments and NGOs intensified bringing with them the beginnings of a noticeable shift in the US Great Lakes policy landscape.

Of significant importance is the new White House plan for the Great Lakes, which will require that all Great Lakes infrastructure projects after 2017 be climate resilient. And in a bid to protect the Great Lakes Navigation System, the new Water Resources Reform and Development Act calls for contemporary materials and construction techniques and an integrated approach to managing the system. An approach and solution that Georgian Bay has always supported!

Governments would do well to revisit the dated IJC Advice to incorporate climate resilience, in particular, into the scope of the engineering study of structural options.

The Wynne government in Ontario appointed Canada's first Minister of the Environment and Climate Change—Premier Wynne shares her thoughts on protecting the Great Lakes in her guest article.

And on June 26, the Council of the Great Lakes Region (CGLR) released Low Water Blues, the Economic Impact of Declining Great Lakes Water Levels, with an almost \$20B estimate of costs if we fail to mitigate for plausible lower Great Lakes water levels. Mark Fisher, CGLR's CEO reports on the study and what's next, in his article.

In August of 2014, close to 500,000 people on the Great Lakes lost access to their drinking water as a result of a climate-linked toxic algal bloom.

Conversations across the nation and around the world shifted to the need for infrastructure changes, not when disaster strikes, but years ahead of time to avert worst case disasters—the kind of thinking that Georgian Bay Forever and a host of others have been calling for to protect our water.

What's next on our agenda? Our focus in the coming year and beyond will be on adaptation strategies for protecting our water—with both structural and non-structural measures.

We will continue to work on informing the process of selecting the best climate resilient, flexible structures and locations to manage water levels—discussions are underway about forming a CGLR/GBF lead consortium of cross border interests to fund some of the pre-engineering work required if it would accelerate the process.

Georgian Bay Forever's Executive Director, David Sweetnam, and Wendy Leger of Environment Canada were chosen to be on the Steering Committee of a University of Michigan study of non-structural adaptation measures—the only two Canadians. GBF can contribute our early research on causation of Georgian Bay algal blooms, on the innovative genetic bar coding tool to measure changes in biodiversity, the work that we are beginning with NASA on wetlands and the link to water levels—these projects and more will be part of our adaptation research that will inform policy in the years ahead.

Lastly, we are very pleased to welcome new Board Members, Jennifer Ferguson (Collingwood), former VP Communications at Toronto Rehab who will Chair our Communications Committee, and our second US Board member, Terry Clarke (Pointe Au Baril), a lawyer who has previously held positions as Chair of the Board of both the Pointe Au Baril Islanders Association and the Ojibway Club.

Many thanks for your ongoing support of Georgian Bay Forever's work to protect the Bay for our kids' kids' kids!





By David Sweetnam

# IMPROVEMENTS ARE ON THE HORIZON THANKS TO RESEARCH AND STUDIES

**L**ike CSI-Georgian Bay, Georgian Bay Forever is continually investigating state-of-the-art technologies to help protect our water. Genetic tools like DNA barcoding to catalogue species biodiversity and identify organisms and food webs have been successfully tested; studies of blue-green algae bloom biochemistry published; satellite imagery used to identify wetlands plant communities; and non-chemical methods of eradicating phragmites through community education and involvement have been successfully demonstrated.

Back in the early 1990s during my time educating the public on the cancerous effects of ultraviolet (UV) radiation and the ozone hole, we had our fair share of naysayers and deniers refusing to admit the existence of human induced chemical changes in the upper atmosphere.

Fortunately, as with all good science, the facts won out and the business of reducing ozone depleting gasses began in earnest. UV Indexes in Canada, the US, Australia and a number of other countries helped make the developed world aware of this issue and allowed people to take the appropriate steps to protect against sun exposure with elevated levels of UV that didn't exist when I was a kid.

And as I write this article today, the United Nations has announced that for the first time since the alarm was raised the ozone layer is finally improving: 20 years later.

Today we have our deniers and naysayers on the climate change front, but the science will prevail. GBF has taken a leadership role with environmental issues like water levels because climate impacts on our aquatic ecosystems and economies require long term leadership and visionary thinking.

These changes can also have significant impacts on our drinking water supplies as seen this past summer when almost half a million people lost their tap water due to toxins from blue-green algae blooms in Toledo.

GBF funded studies on Georgian Bay blue-green algae blooms have been published by York University with Environment Canada and the Ontario Ministry of Natural Resources.

GBF has also reviewed and overhauled the Township of Georgian Bay water quality monitoring program because even our pristine Georgian Bay waters are not without risks—in the fall of 2012 Sturgeon Bay experienced a significant blue-green algal bloom resulting in no-use water warnings for the entire community.

As a follow-up to our 2012 bacteriological testing in Church Bay at Honey Harbour, GBF deployed new state-of-the-art scientific tools using DNA amplification techniques and specific genetic markers to identify the animal source for bacteria in the environment. The thresholds of detection for this testing are at or below the levels set out by the province for water quality monitoring.

The presence of bacteria in the water depends upon a variety of factors including having a contamination source, the quantity of contaminated discharge, circulation of the receiving water, UV exposure of the bacteria, predation by non-pathogenic organisms and other factors. The samples tested showed no sign of human, bird or dog contamination—the three sources tested for.



Georgian Bay Forever has been focused on protecting the aquatic ecosystems of Georgian Bay—and by extension our Great Lakes—for almost 19 years now. During my time here I have seen the organization grow from a small regional group to a robust, scientifically focused, internationally respected, professional charity capable of fulfilling our responsibility to serve the public interest. But there are a number of significant challenges remaining before us.

Georgian Bay Forever will continue to investigate technologies to protect our water and make it swimmable, fishable and drinkable.

GBF has taken a leadership role because climate impacts on our ecosystems and economies require visionary thinking.



By Debra Stuart

# 100 YEARS ON THE ISLAND



Original cottage, William W. Smith (William H's dad) in front

In 1910, George Smith, a Toronto pediatrician, along with several of his friends, purchased island number 62 on the nautical chart, a thirty-acre property on Georgian Bay, in the water-based community of Cognashene.

After visiting the island and being seduced by its splendour, George's brother, William Henry Smith, purchased nearby island 61, in 1914. WH

was a tailor on Queen Street, in Toronto, and a serial entrepreneur who founded the landmark Dominion Coal and Wood Company.

The Smith brothers' islands were crown land, and their descendants inherited the government deeds and retain ownership to this day. WH and his wife, Sarah, originally stayed in the boathouse. They built the first cottage on island

in 1919, after World War One.

WH Smith had 3 daughters. Edna married Walter Drinkwater. Margaret wed George Saunderson, and Lillian became the wife of Harold Bolsby. The Bolsby's sold the small island adjacent to 61, which they owned until the 1970s.



### The Chamberlain, Drinkwater and Saunderson families now share island 61

One hundred years after WH took possession, island 61 remains instantly identifiable by the painted rock on its southern most “Breezy Point,” the location of the original cottage. New flags flutter in the wind, marking the families’ recent centennial celebration.

Four cottages now stand on the island, housing three generations of relatives, ranging in ages from 82 to seven. David Drinkwater, Edna’s grandson, owns the cottage on the site where his great grandfather first built. David’s brother, Eric, also owns a cottage on the island.

Bill Saunderson, Margaret’s son, who has come to the island every summer for over eighty years, has a place here as well. Bill’s sister, Mary Chamberlain (nee Saunderson), also has a cottage on 61, along with three sleeping cabins. This communal congregating spot is a summer home away from home for the family.

Adam Chamberlain, Mary’s son, is an environmental lawyer and board member of Georgian Bay Forever. He, his wife Janet, their three children, and the rest of the clan spend time paddling their fleet of red cedar canoes, picnicking up the shore, kayaking and surfing on paddleboards. The water has always been the centrepiece of their activities.

Adam reminisced about his grandmother, Margaret Saunderson, recounting, “When she was a little girl, she said she could walk between the islands because the water was so low. When I was a kid that was not the case. You could drive any boat between island 61 and 62, however that has changed. Last year we had to get out of our canoes and lift them on to shore. This summer, the levels are noticeably up again.”

Adam continued, “Because of our long family history here, we have an emotional attachment to Georgian Bay. We have witnessed the ebb and flow of the cycles, and changes in the environment and biodiversity.”

### A centennial celebration was held on the August long weekend

The weather was idyllically hot and sunny for the families’ August long weekend celebration. More than two hundred and fifty people attended, including immediate and extended family, some from as far away as Cornwall, England. There were 32 direct descendants of WH. Friends showed up in droves, as did invited local cottagers. Boats were anchored in the sheltered bay and guests were ferried to the island by a crew of boys.

This milestone event was David’s idea. Plenty of food and beer was on hand, and wine was brought in from Niagara-on-the-Lake, complete with a keepsake custom label featuring a map of the island.

David said, “It was a fantastic, multigenerational party and it was befitting to have it at the point, where WH’s original cottage once stood. I have spent every summer here for over sixty years. Some things haven’t changed, such as the spectacular landscape, family-oriented leisurely activities, and life’s simple pleasures, like boating and fishing.”

Bill said, “It was a grand occasion in a magnificent setting. Fortunately, WH had the foresight and wisdom to buy this island where we have all had so much enjoyment as a family.” He continued, “This area was logged out in the late 1800s, before my grandfather bought the island, but now the trees are big, abundant and beautiful. The water levels are definitely lower, and the pattern of rising and falling has seemed to stop.”

Later that evening, each family hosted dinners at their respective cottages, where multiple generations reminisced, shared fond memories and began creating new ones.



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"THE BAYKEEPER" INDICATES THAT GEORGIAN BAY FOREVER IS A MEMBER OF THE WATERKEEPER ALLIANCE, A GLOBAL MOVEMENT OF ON-THE-WATER ADVOCATES WHO PATROL AND PROTECT OVER 100,000 MILES OF RIVERS, STREAMS AND COASTLINES IN NORTH AND SOUTH AMERICA, EUROPE, AUSTRALIA, ASIA AND AFRICA. FOR MORE INFORMATION GO TO WATERKEEPER.ORG

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By Kathleen Wynne,  
Premier of Ontario

## A MESSAGE TO GEORGIAN BAYERS FROM THE PREMIER

Ontario is a province of breathtaking geography. Of the many natural qualities that make Ontario so wondrous, perhaps none is more central than our water. Indeed, our province's name is likely derived from a First Nations word meaning "beautiful water" or "beautiful lake."

Water has always been central to Ontario's story. Our towns and cities were built along rivers and lakes, natural highways for First Nations and early European explorers.

As an enthusiastic canoeist, I have enjoyed many of Ontario's lakes and rivers for years. Nothing matches the sense of peace you find paddling through our magnificent wilderness.

And we mustn't take it for granted. Georgian Bay Forever's mission to protect our water is a goal shared by our government and I appreciate the work you do on this critical issue.

When I named my new cabinet in July, I made an important change to signal how seriously we take the growing threat to our fragile world. The Ministry of the Environment is now the Ministry of the Environment and Climate Change. This is more than just a name change. It's a deliberate approach to confront climate change in a systematic way. This new Ministry will work across government to coordinate a provincial response to climate change. We will encourage

everyone to do their part—that means all three levels of government, business, the non-profit sector and citizens alike.

I'm very proud that this year, Ontario became the first jurisdiction in North America to eliminate coal as a source of electricity generation. This is the largest single climate change initiative in North America. It is the equivalent of taking up to 7 million cars off the road, which means we will have cleaner air to breathe and a healthier environment.

Our province depends on the Great Lakes for our strength and success. We have released Ontario's first road map, called Ontario's Great Lakes Strategy designed to keep our lakes drinkable, fishable and swimmable. Part of this strategy is engaging with groups such as Georgian Bay Forever, to help keep our water clean and ensure Ontario's prosperity and quality of life for today and for future generations. Previously our government proposed The Great Lakes Protection Act to give new tools to help preserve and protect our Great Lakes. Thank you for your support on this important piece of proposed legislation. We will also re-introduce The Invasive Species Act. It will help efforts to combat non-native plants, fish and other organisms before they harm our lakes, rivers and waterways.

Your organization and the Council of the Great Lakes Region, with the sponsorship of the Ontario government, took an important step forward in the recent report by the Mowat Centre outlining the estimated economic impact if water levels in the Great Lakes remain low. I understand that extreme water levels affect the economic, social and environmental well-being of communities across the Great Lakes-St. Lawrence River Basin.

I will keep raising the health of our Great Lakes and the economic systems they support when I attend the meetings of the Great Lakes Governors. And we will continue to work with them to take action.

My family has a cottage in eastern Ontario and some of my happiest memories are the times I spent there with my family. I know that many families along Georgian Bay are dedicated to preserving the beauty of the Bay for their children.

Thank you for all that you do and I am confident that working together, we can help protect Georgian Bay and Ontario's beautiful lakes and rivers for future generations to enjoy. I look forward to continuing to work with you in the future.

“Georgian Bay Forever's mission to protect our water is a goal shared by our government and I appreciate the work you do on this critical issue.”



By Mark Fisher,  
CEO, Council of the  
Great Lakes Region

# LOW WATER BLUES: AN ECONOMIC IMPACT OF FUTURE LOW WATER LEVELS IN THE GREAT LAKES-ST. LAWRENCE REGION

This summer the Council of the Great Lakes Region delivered its “Low Water Blues” report authored by the Mowat Centre at the University of Toronto and funded with the generous support of the Ontario government and Georgian Bay Forever.

The report was designed to answer the question “What is the economic impact on the Great Lakes St. Lawrence River region attributable to a plausible and realistic worst-case future low water levels scenario projected mostly at the low end of the historic range for sustained periods?” It is an important question that previous studies of Upper Great Lakes water levels did not address.

The prediction of water levels is inherently difficult, and the estimation of economic impacts necessarily contains assumptions and uncertainties. The Council arrived at a plausible and realistic worst-case future water level scenario through work completed by the Great Lakes Integrated Science and Assessment Center—a collaboration between Michigan State University and the University of Michigan—that concluded that “most climate models project

that evaporation from the Great Lakes will outpace increases in precipitation,” and that “with more water leaving the basin than there is returning, the result could be less water remaining in the Great Lakes.”

Based on this plausible scenario, the analysis suggests the impacts could be significant as well as sobering: \$9.61B over the period from the present through 2030 and \$18.82B over the period from the present through 2050 (Full details are available on the Georgian Bay Forever and Council of the Great Lakes Region websites).

Given these results and the importance of the Great Lakes both economically and from an environmental services standpoint, policy makers, experts and stakeholders need to begin weighing the potential policy and engineering responses to water levels fluctuations.

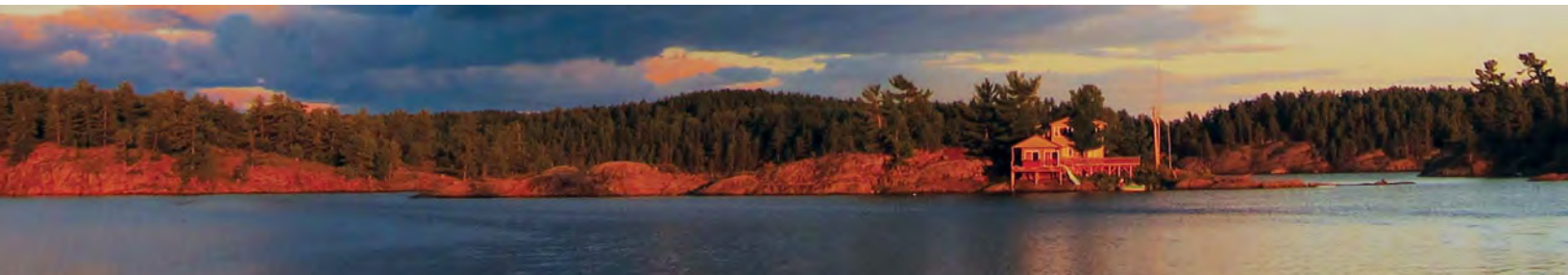
This report is an example of the Council’s mandate to collaborate with the many successful organizations already working in the region to highlight, enhance and support their projects. The Council also looks to inform state, provincial

and federal decision makers in both countries about the region’s long-term economic, social, and environmental goals and provide a trans-border forum for its members to share their collective voices.

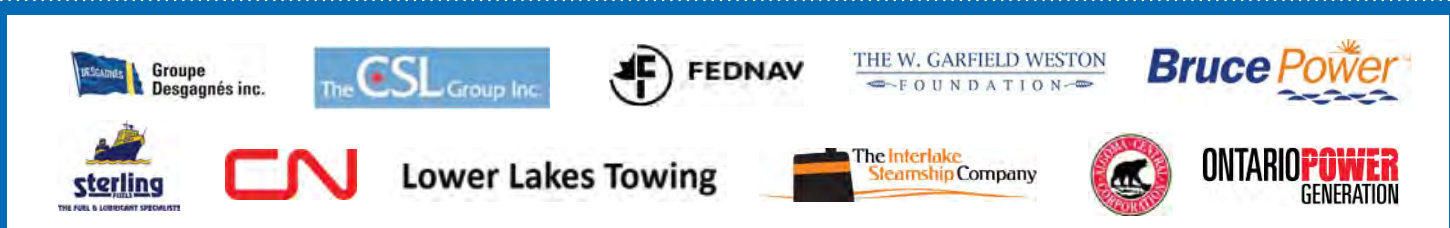
I have been out over this past summer with GBF speaking to cottage communities as well as meeting with political leaders in Ottawa and Washington to bring these study findings to the forefront. Over 1000 copies of the report have been circulated within the Canadian and US governments including Vice-president Joe Biden’s office.

Phase Two of the Council’s work in this area is already set to begin through funding received from Natural Resources Canada and will draw on the findings, data analysis, and methodology of the “Low Water Blues” report to conduct a cost-benefit analysis of proposed adaptations to this low water reality.

We hope the Council of the Great Lakes Region’s reports will serve as a foundation for dialogue and future work on possible responses to fluctuating water levels.



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THE GENEROUS SUPPORT OF OUR CORPORATE DONORS.





By David Sweetnam

# NASA TO INVESTIGATE GEORGIAN BAY WATER LEVELS AND WETLANDS.

**G**eorgian Bay Forever has been invited to partner with NASA who will be conducting research on the extent and health of wetlands in the Great Lakes region and how it relates to climate change. The three areas of focus for the study include Georgian Bay, St. Lawrence River – Lac San Pierre, and Lake Michigan. The goal is to create a more accurate land cover classification using Landsat and other NASA Earth Observing Satellites (EOS).

Wetlands cover in the Great Lakes region has changed dramatically over the centuries. Back before the fur trade began it is estimated that there were between 60 and 400 million beavers. These industrious animals maintained thousands of hectares of upstream wetlands feeding into Georgian Bay. With populations presently estimated at about ten percent of historic levels, most of these important water reservoirs and filter systems have been lost. In Georgian Bay, coastal wetlands are also being impacted—in this case by prolonged low water levels. Fish communities are dependent on the coastal wetlands for habitat, forage and refuge. Over the past 15 years, much of the historic fish habitat and best locations for various fish species have moved away from historic locations. But where have they gone?

In order to better understand the consequences on our native fish, we need to map coastal wetlands so that we can see the changes in wetland coverage and plant communities impacting habitat quality as water levels change. Georgian Bay Forever has completed a number of projects on this front, including the McMaster Coastal Wetlands Inventory (MCWI). This inventory attempted to quantify the coverage of wetlands along the Northern and Eastern coastline of Georgian Bay.

In addition to this work, Georgian Bay Forever staff collected detailed coastal bathymetry measurements (depth of water) at a number of these wetlands to determine if water level fluctuations would result in changes in wetland coverage. GBF also funded research looking at the ecology of formerly coastal wetlands impounded by beavers as water

levels declined. This work was time consuming and required specialized teams in the field as well as access to expensive IKONOS satellite imagery.

The reporting suggested that wetland coverage would be lost as water levels fell, but even the researchers involved agreed that we really could not be sure what the net changes on wetland inventories would be as water levels rose and fell.

In less complex coastal regions such as the Midland Bay, other techniques can be used to measure changes to wetlands. Severn Sound Environmental Association is using a remote underwater vehicle and side scanning sonar to survey the coastline as has been done on most of the US Lake Erie shoreline.

But in the complex coastal archipelago of Georgian Bay, GBF identified the need for more detailed coastal bathymetry data collection through tools like LIDAR (Light Radar) that can scan through the water from a low flying airplane and produce accurate maps of the coastal lake bed. LIDAR is an expensive system and the need for ongoing monitoring of wetland inventory changes resulting from these water levels changes means that no single agency would be able to afford this tool. (Environment Canada has suggested that a consortium of groups collectively invest in this project.)

This data is needed to allow more accurate computer modelling of the region and to identify this inventory in order to ensure it is proactively protected and available as water levels fall due to plausible future climate change impacts.

In order to acquire this data cost-effectively we need tools that can look at the entire region and accurately determine the water levels, wetlands contours and plant communities. This requires satellite imagery and some state-of-the-art software tools.

## Enter NASA

GBF was recently approached by NASA to help with a 10 week project. The goal of the project is



to highlight the changes in wetland extent over time by creating time series maps and determine if NASA EOS can monitor lake level changes in the study areas mentioned to match that with the change in health and extent of wetlands. At last GBF's vision is about to be realized!

GBF will provide important information for NASA such as the current state of the Georgian Bay, and current conservation measures in place to protect the wetlands. GBF will also offer general suggestions throughout the project. GBF will be provided with the methodologies produced by the team and the resulting maps and figures. This feasibility study is designed to determine if NASA EOS data can supplement and fill in gaps of current in-situ data.

The Great Lakes and St. Lawrence Cities Initiative is also partnering in this project in hopes that it offers a more cost-effective means of monitoring wetland extent and health. The results of this work will be reported in upcoming newsletters.

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**- Peter & Cathie Singer,**  
GBF Patrons, Sans Souci

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