

GEORGIAN BAY **FOREVER**



FALL 2018
VOL. 9, ISSUE 3

Protecting your water.

WATER LEVELS, WATER QUALITY AND ECOSYSTEMS

COASTAL WETLANDS WHY WE NEED TO PROTECT THEM

Also Inside:

**AN INTRODUCTION TO
COASTAL WETLANDS
PAGE 3**

**WHY WE NEED TO PRO-
TECT OUR COASTAL
WETLANDS
PAGE 4**

**FRANK & PATRICIA
MILLS
PAGE 7**



MESSAGE FROM THE CHAIR

As I write this, we are enjoying the last few days of summer in Pointe au Baril on beautiful Georgian Bay. It was my family's 40th cottage summer here and it was full of lots of relatives, friends and fun.

At the same time, it was a worrisome summer, with the Parry Sound 33 forest fire burning just a few kilometres north of us. We were saddened by the loss of the beautiful mature trees, many homes and precious wildlife. But thankful for the firefighters, many from afar, who fought valiantly to bring the blaze under control. As of mid-August, there were 1028 forest fires in Ontario, an 87 per cent increase over the usual number.¹ While the Union for Concerned Scientists notes that wildfire prevalence may not be the same every year due to cyclical weather conditions, they warn that, "As the world warms, we can expect more wildfires." Wet areas are becoming

wetter, and dry areas are becoming drier. Climate change is having an impact around the world, including right here in Georgian Bay. Georgian Bay Forever is helping to evaluate, educate, and mitigate stressors caused by human activity including climate change.

We collaborate with partners and communities to do research, education, and restoration projects to protect the water of Georgian Bay. Our current areas of focus are fish farming, microplastics and the ongoing fight against Phragmites, in addition to many others.

We hope you can join us for an in-depth look at these issues at H₂O 2018. An educational conference in Toronto on Oct.20 presented by GBF, Bruce Power, and the GBA. Check gbf.org for registration details.

ENOUGH IS ENOUGH

BY DAVID SWEETNAM,
EXECUTIVE DIRECTOR



"Georgian Bay is beautiful." "We love Georgian Bay."
"Georgian Bay is a special place – a treasure."

Sentiments I heard all summer up and down the Bay: on the dock in Parry Sound; at the cottages of caring, generous donors blessed with perfect views; and waist deep in *Phragmites* stands in Collingwood, Tay, Honey Harbour and The Massasauga Park with dedicated Phragbusters and our fabulous Summer Ambassadors Conor, Katelyn, Jack, Patrick, Tamara, Vicky, Katherine, Christina and Brady.

I had to agree. The Bay is special – a unique home to millions of members of thousands of other species who have no voice. But the curse of being a scientist leading a dedicated team of caring volunteers, students, and staff is being aware of what is going on in the water.

I need to talk to you about what is going on, what we are doing in many intentional, innocent or naïve ways. It's not bad enough that we are adding new contaminants to our waste water like microfibres from synthetic fabrics that are so small that 10% pass through the treatment plant into our beautiful Georgian Bay. It is not bad enough that increasingly intense storm deluges caused by fossil fuelled greenhouse gasses are overwhelming our storm water and sewer

systems dumping raw sewage into the Bay. It is not bad enough that in those bypasses 100% of whatever went into our drains is washing directly into our special place – including 100% of the microfibres.

What is enough, I hope, is that those microfibres...are now in your cool refreshing Great Lakes beer and drinking water. In a recent study of Great Lakes communities, researchers found microfibres in 88% of the sampled tap water and 100% of the Great Lakes beers tested. They say we involuntarily consume over 5800 microfibres per year.

Microfibres end up in fish and other organisms. Microfibres attract other chemical contaminants and may release them when ingested. The health effects of human exposure to microfibres are unknown. But we don't need to wait until the research is completed. Microfibres in our water and beer are just yucky. So Georgian Bay Forever is embarking on a multi-year project to reduce microfibres entering our water.

It is time to stop saying "they need to" and start saying "I need to". Read on – we look forward to your help.

¹ <https://www.ctvnews.ca/canada/more-than-1-000-forest-fires-in-ontario-this-year-116-still-active-1.4049830>

GEORGIAN BAY
FOREVER



Georgian Bay Forever is a community response to the growing need for major research and education 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 threats to environmental health and propose possible solutions.

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

Georgian Bay Forever 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.

DIRECTORS

Helen Bryce	Jennifer Ferguson
Adam Chamberlain	Laren Stadelman
Anne Randell, Chair	Neil Hutchinson
Derek Bowen	Paul Emond
Doug Heintzman	Terry Clark
Janet Burt	

Executive Director

David Sweetnam

OUR CONTACT DETAILS

Georgian Bay Forever
PO Box 75347, Leslie St., Toronto, ON
M4M 1B3
tel: 905-880-4945

You can reach David Sweetnam, our Executive Director, at ed@gbf.org or at 905-880-4945, ext 1.

Canadian citizens may send their donations to the address above.

U.S. citizens wishing to make a donation to support our work can do so by giving to:
Great Lakes Basin Conservancy
PO Box 504, Gates Mills, OH
44040-0504, USA

This newsletter is just a snapshot of our work. For the most up-to-date information on our projects, longer versions of newsletter articles and breaking news about Georgian Bay, please become a regular visitor to our website and Facebook page.

GBF.ORG

Design by Key Gordon (keygordon.com)

Editor: Heather Sargeant

Cover Photo: Canadian Wildlife Service

Follow us on



COASTAL WETLANDS: WHY WE NEED TO PROTECT THEM

This edited report is from the **Canadian Wildlife Service**, publication “Where Land Meets Water: Understanding Wetlands of the Great Lakes”.² Additional funders for the original report include The Great Lakes National Program Office and The Nature Conservancy of Canada. The editing was done with help and permission from Greg Grabas, a wetlands habitat ecologist with the Canadian Wildlife Service.

The Canadian Wildlife Service, a branch of Environment and Climate Change Canada, manages wildlife matters that are the responsibility of the federal government. These include protection and management of migratory birds, nationally significant habitat and endangered species, as well as other wildlife issues of national and international importance.

4 BASIC TYPES OF WETLANDS

1. Swamps



Canadian Wildlife Service

2. Bogs



Michigan DNR: Chris Hovering

③ Marshes



Canadian Wildlife Service

4. Fens



Ken Sturm/ USFWS

There are four basic types of wetlands. **Coastal marshes (wetlands)** ③ account for at least 90 per cent of the number of provincially and regionally, significant wetlands found on Great Lakes Shores.

Wetlands can be defined as lands that are seasonally or permanently covered by shallow water as well as lands where the water table is close to or at the surface. This presence of water has caused the formation of hydric soils and allows the dominance of water-tolerant plant species.

Wetlands are some of the most ecologically diverse and productive ecosystems on Earth, providing habitat to thousands of species of wildlife. In the Great Lakes, more than 60 per cent of all lake fish species spawn in coastal wetlands and numerous endangered and threatened birds, reptiles, and amphibians use coastal wetlands for all or part of their life cycles.

Over the past two centuries, over two-thirds of southern Ontario’s original wetland area has been lost. Unfortunately, wetland values are still not widely recognized. To effectively conserve coastal wetlands, more must be known about their ecology and their values must be more widely understood



Watercolour artist: Bert Liverance
Fragrant Water Lily, *Nymphaea odorata*

HOW ARE COASTAL WETLANDS DIFFERENT?

They are wetlands that are directly influenced by the waters of one of the Great Lakes making their hydrology and vegetation structure different from that of their inland counterparts. Coastal marshes (wetlands) ③ account for at least 90 percent of the number of provincially and regionally significant wetlands found on Great Lakes shores in Ontario. Marshes are wetlands that are almost always flooded and are characterized by a mixture of emergent, floating, and submerged aquatic vegetation such as reeds, sedges, pondweeds, and water lilies. **CONTINUED.**

WHY WE NEED TO PROTECT OUR COASTAL WETLANDS:

WHY ARE COASTAL WETLANDS THE WAY THEY ARE ?

Climate and glaciation (rocks and sediment deposits) played significant parts in location and quantity but there is one key factor that drives Great Lakes coastal wetlands - the rise and fall of lake water levels.

Since 1860, the Canadian and United States governments have tracked Great Lakes water levels, and the record is one of constant change. The variations can be broken down into three groups: temporary fluctuations generally caused by wind and atmospheric pressure-driven 'tides' or seiches, seasonal fluctuations are of longer duration and reflect the yearly hydrologic cycle in the Great Lakes basin (generally reaching highest in summer and decreasing in the fall), and multi-year fluctuations are changes in water levels from year-to-year and are caused by basinwide, continental, or global changes.

Unpredictable and variable water levels tend to result in greater overall plant diversity in coastal wetlands. Wetlands that exist with these waterlevel changes are known as pulse-stable systems - their plants and

animals are adapted to and depend on a highly changeable wetland environment.

The most noticeable effect of changes in water levels is on plant life, which in turn will impact the animal life that relies on wetlands as habitat.

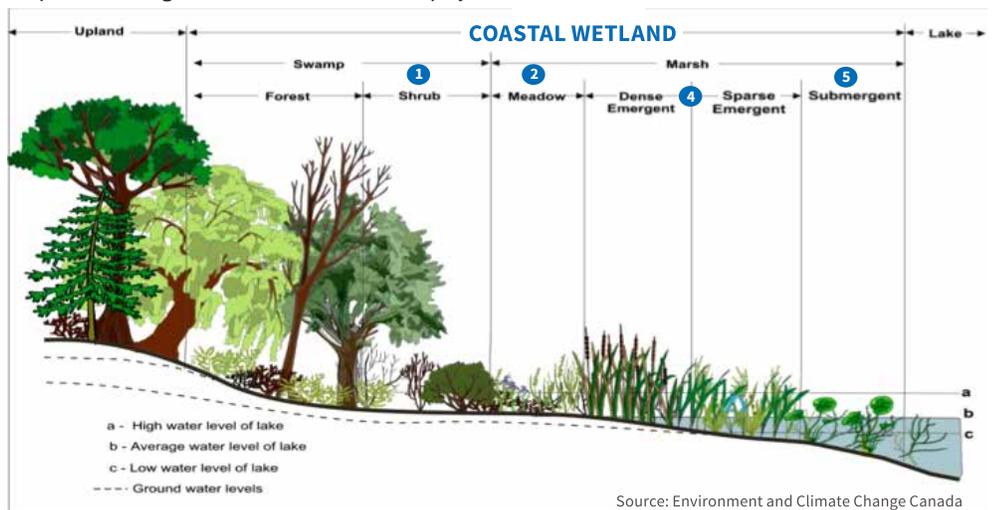
THE FUNCTIONS AND VALUES AND SPECIAL COMMUNITIES OF COASTAL WETLANDS

Coastal wetlands provide habitat for a wide range of species residing in the Great Lakes basin and play

As a result, coastal wetlands are essential to maintaining Great Lakes water quality - a critical issue for the millions of people in Canada and the United States who drink this water.

COMMUNITIES IN WETLANDS

There are numerous species that use coastal wetlands including **plants**, **fish**, **birds**, **reptiles**, **anurans**, **mammals**, and **invertebrates**. We'll examine 5 of these bolded categories in a more detail.



GBF PROJECTS THAT HELP COASTAL WETLANDS:

- Training and enlisting Georgian Bay communities to remove invasive Phragmites from shorelines and wetlands. Over 64,000 kilograms removed.
- Commissioned AECOM to find structural solutions to mitigate future water level extremes brought on by climate change. The report findings continue to be circulated.
- Driving various projects to complete bathymetry of Georgian Bay in order to measure and understand the watershed and model impacts to it.
- Working with the University of Guelph to catalogue all the aquatic species in Georgian Bay for improved monitoring as stressors increase.

1) SHRUB	2) WET MEADOW	3) FLOATING	4) EMERGENT	5) SUBMERGED
Woody plants less than six metres tall that grow above the water line. Influenced by periodic flooded conditions. Examples: willows, sweet gale.	Found between the wetland and terrestrial environment. Flooding is seasonal, in spring and moist to dry by summer. Examples: jewelweed, grasses, and sedges.	May be rooted under water but have leaves that float on the surface, such as yellow pond lily and duckweeds. * Not pictured in schematic above.	Roots that might be under water, but grow and flower above the water's surface. Common examples include cattails and bulrushes.	Submerged plants are rooted under the water and grow entirely underwater. Examples: coontail and wild celery.

an essential role in water quality improvement. They help regulate stream flow, improve water clarity by reducing nutrients that lead to algal growth, settle sediments from upstream erosion, and decrease contaminant concentrations through sedimentation and uptake by plants and animals.

PLANTS

Climate, bedrock, land use, and the impact of the lake vary markedly between regions around the Great Lakes shoreline. As a result, each coastal wetland evolves as a unique community of plant species, with different

plants determined by these local physical conditions. In northern Lake Huron, wetlands are characterized by low densities of bulrush and burreed in the emergent zone and blue-joint grass and sedges in the wet meadow areas.

FISH

There are over 100 native Great Lakes fish species, many of which use wetlands for feeding, cover, spawning, and nursery habitat. Wetlands are habitat for cool-water and warm-water nearshore fish species such as northern pike, walleye, and sunfish.

Fish that spawn in wetlands have one of two dominant reproductive strategies - those who leave and those who stay with the eggs. Spawners who leave immediately after depositing eggs (for example, muskellunge) spawn in the early spring after the ice melts. This strategy takes advantage of the warmer shallow-water temperatures and high dissolved oxygen levels required for egg respiration. Other fish, such as largemouth bass, spawn in the late spring or early summer. In this case, the male remains with the eggs, fanning them in order to provide oxygen and guarding the eggs and juvenile fish from predators. Some adult fish occupy Great Lakes marshes for much of the year (eg. bowfin), but seasonal use is more common.

ANURANS (FROG AND TOADS)

Great Lakes coastal wetlands are essential habitat for 13 species of frogs and toads. They depend upon the essential mix of land and water that wetlands provide, playing an often unseen, yet critical, role in the coastal wetland food web. Many wetland fish eat tadpoles, and adult frogs are prey for wading birds, such as the black-crowned night heron. In turn, adult frogs feast on wetland insects, especially as

According to the State of the Great Lakes 2017 Technical Report, “**the current status of coastal wetland health based on wetland breeding frogs is poor, with the current status of Lake Superior and Lake Huron being fair and Lake Michigan, Lake Ontario, and Lake Erie being poor.**” The report goes on to note that “**there are particular species, such as the western chorus frog (*Pseudacris triseriata*), which has experienced long-term declines at various scales in the Great Lakes.**”¹

they emerge en masse from their aquatic larval stages to their adult, airborne forms.

REPTILES (TURTLES AND SNAKES)

Coastal wetlands are habitat for about a dozen species of reptiles. The most common include the snapping turtle, painted turtle, eastern garter snake, and northern water snake. These reptiles are crucial wetland predators, and in turn, their eggs provide food for upland mammals.

Coastal shoreline hardening, the construction of breakwalls and retaining walls – is particularly damaging to turtle reproduction because they require soft sandy areas in which to dig holes to deposit their eggs.

INVERTEBRATES

Wetland invertebrates (animals without backbones) are best known by one bloodsucking representative, the mosquito. But these small animals - from tiny plankton to larger insects, mollusks, sponges, crayfish, and snails - are the largest and most diverse group of coastal wetland creatures. Like amphibians, many invertebrates have two distinct life stages: a larval (the immature form of the animal) aquatic one and an adult one that is aerial or terrestrial.

Many larvae and some adults are benthic or bottom dwellers, feeding on decaying plant material and bacteria. For example. Midges, a type of small fly, begin life as bottom-dwelling blood worms. The water column and aquatic vegetation support invertebrates such as the predatory giant water bug. A wetland’s water surface is also rich in invertebrates, such as water striders. The air above wetlands is alive with adult dragonflies and mayflies.

Given their large numbers and diversity, invertebrates play a critical role in coastal wetland food webs. They are often the food link between wetland plants and larger animals such as birds, fish, amphibians, and mammals.

COASTAL WETLANDS EXPERIENCE BOTH NATURAL AND UNNATURAL STRESS

Like many ecosystems, coastal wetlands of the Great Lakes are, by nature, stress-dependent systems. In fact, species diversity is largely driven by natural habitat changes

over time. To develop rehabilitation efforts, it is necessary to distinguish between natural changes and those that are caused by people. Forces such as water-level fluctuations stress wetlands as part of a natural cycle allowing exposure and germination of seeds during periods of low water. In contrast, the pressure of draining and filling wetlands, and receiving agricultural and urban runoff, are unnatural stressors resulting in a loss of area and quality of wetland habitat.

Human-induced stress is generally more harmful to overall wetland health because it tends to be more persistent and of greater magnitude than natural stress. For more than 200 years, Great Lakes coastal wetlands have been filled, drained, and converted to allow urban, agricultural, and industrial use of these areas. A 1982 study estimated that segments of Lake Ontario’s shoreline between Niagara Falls and Toronto has lost coastal marsh area ranging from 73 to 100 percent.

Great Lakes shorelines are heavily used for agricultural, urban, industrial, and recreational activities. Affected shorelines are **‘hardened’** by the construction of breakwalls, groynes, and retaining walls to resist erosion and flooding. Studies show that as much as 75 percent of Great Lakes basin shorelines have been hardened in some areas and is most evident in the lower lakes and connecting channels (e.g. the St. Clair River). Shoreline hardening damages coastal wetlands and processes by changing sediment movement and availability. Some shoreline erosion is necessary to maintain many coastal wetlands, as the eroded sediment supplies the material for protective bars, beaches, and spits.

A major health issue for people who live in the Great Lakes basin, water quality, is also critical for coastal wetlands. The range of water quality issues includes nutrient enrichment, the accumulation of toxins, increased turbidity, and changes in water temperature.

Nutrient enrichment, the addition of nutrients such as phosphorus and nitrates from agricultural and residential runoff and sewage discharge, is one of the most widespread water quality issues in the lower Great Lakes. Excessive levels of nutrients damage wetlands by dramatically increasing some plant growth, particularly that of algae or phytoplankton. Excessive growth allows algae to shade-out submerged and emergent vegetation and can cause massive die-off of certain principal

(CONTINUED)

(CONTINUED)

species. It also produces a significant amount of organic material that will eventually decompose and use up valuable oxygen.

Toxic chemicals also stress wetland biological systems, especially the fauna communities. Through the processes of bioaccumulation and biomagnification, the impact of toxic chemicals is greatest on species at the top of the food web - predatory birds, fish, and mammals. Animal health and reproduction

GBF is raising money to test a solution to reduce microfibres, a type of microplastic from entering into Georgian Bay from washing machines. The University of Toronto's Rochman lab is looking into the effects of microfibres and how associated contaminants bioaccumulate in a food web. Read more at gbf.org.

can be damaged by contaminants and affected sediments may be toxic to fish eggs and benthic organisms. Fish-eating birds of the Great Lakes are known to experience thinning of eggshells and deformities. Although levels of DDT and PCBs (polychlorinated biphenols) have declined significantly since their use was restricted in the 1970s, the effect of the continuing discharge of other persistent toxic chemicals on the water quality of ecosystems is not well understood.

Invasive Species. Non-native, species have threatened the Great Lakes ever since Europeans settled in the region in the 19th century. To date, more than 180 exotic aquatic organisms³ of all types including plants, fish, algae and mollusks - have been found in the Great Lakes, many of them in wetlands.

GBF NOTES:

Georgian Bay Forever works with organizations, governments, communities, volunteer and donors to protect coastal wetlands. **With your help, we've made a +64,000 kg. (more than 16,000 kg in 2018) difference removing invasive *Phragmites* from deteriorating the Georgian Bay coastal wetlands.**



Watercolour artist Bert Liverance
Swamp rose, *Rosa palustris*

Human-accelerated, global climate variability could have a major impact on Great Lakes coastal wetlands. Air temperature in the Great Lakes Basin is expected to increase 1.5° to 7° by the 2080 depending on the climate scenario used.⁴ This magnitude of temperature change will likely create atmospheric and hydrologic conditions that will significantly impact the water levels of the Great Lakes. While estimates vary, some studies show that lake levels may drop from 0.2 metres in Lake Superior to 1.6 metres in lakes Huron and Michigan.

Great Lakes coastal wetlands are especially sensitive to any fluctuation in water levels. The rate of the water level change, the magnitude of the change, the role of groundwater supply, the composition and presence of a healthy seed bank, and the offshore bathymetry of individual wetlands will determine the impact on the biodiversity and area of wetland vegetation.

A change in wetland vegetation will affect the fish and wildlife species that depend on wetlands. Reduction in the proportion of open water in wetlands and an increase in dense emergent and wet meadow vegetation means a loss of optimum habitat for some species of fish, waterfowl, and other marsh birds.

In addition, the predicted increase in air temperature may greatly affect plant growing seasons and distribution. Certain plant species that are adapted to the current climate may not find suitable climatic conditions in the coming century. In general, as temperatures rise, plant communities are likely to shift north to follow their preferred climatic range.

WETLAND REHABILITATION STARTS WITH CHANGES IN HOW WE THINK

Great Lakes coastal wetlands continue to be among the richest habitats in North America despite significant abuse since European settlement. These natural assets simultaneously provide clean water, habitat for abundant wildlife, and outstanding recreational opportunities for canoeing, nature appreciation, birdwatching, hunting, and fishing, which contribute millions of dollars to the economy.

GBF: BUILDING CLIMATE RESILIENCE INTO WATER LEVEL CHANGE

Georgian Bay Forever commissioned AECOM to identify and assess a variety of engineered structural solutions to determine the most effective and suitable configurations for the task of maintaining the water levels of Lake Michigan-Huron and Georgian Bay within a prescribed historic range at all times. The report was called: *Providing Structural Solutions for Adaptive Management in the Great Lakes*. A summary can be found at gbf.org.

To ensure wetlands persist into the future, conservation efforts must be enhanced to relieve wetlands of their many stressors and curtail ongoing habitat loss.

¹Environment and Climate Change Canada and the U.S. Environmental Protection Agency. 2017. State of the Great Lakes 2017 Technical Report. Cat No. En161-3/1E-PDF. EPA 905-R-17-001. Page 151 (156 in pdf) Available at binational.net, https://binational.net/wp-content/uploads/2017/09/SOGL_2017_Technical_Report-EN.pdf.

²Environment Canada and Wilcox, Douglas A., "Where Land Meets Water: Understanding Wetlands of the Great Lakes" (2002). Government Documents. 37. http://digitalcommons.brockport.edu/wr_misc/37³GBF insert of stat taken from the NOAA website at http://www.regions-noaa.gov/great-lakes/index.php/great_lakes-restoration-initiative/invasive-species/ McDermid,⁴ J.L., S.K. Dickin, C.L. Winsborough, H. Switzman, S. Barr, J.A. Gleeson, G. Krantzberg, P.A. Gray. 2015. State of Climate Change Science in the Great Lakes Basin: A Focus on Climatological, Hydrological and Ecological Effects. Prepared jointly by the Ontario Climate Consortium and Ontario Ministry of Natural Resources and Forestry to advise Annex 9 - Climate Change Impacts under the Great Lakes Water Quality Agreement, October 2015. page 5

FRANK & PATRICIA MILLS



The Mills and family: Top Row - Frank, Simon, Sonia, Patricia, Russel, Cayley. Bottom Row: Eve (the daughter of Nikki Mills who is not pictured), Owen and baby Quinn. Photo credit top & bottom photos: Nikki Mills

From their favourite vantage point, looking northwest over the open waters of Georgian Bay, Frank and Patricia Mills quietly contemplate the circumstances that brought them here to their Georgian Bay paradise.

For Frank, it was his father's need to have a destination and mooring place for his cruiser in the 1950's that led to the purchase of the property on Thibodeau Island, located in Cognashene. Frank and his four brothers attended Camp Hurontario – Frank as a camper and later, as a counsellor. It was there, on the coast of Georgian Bay, where Frank's love of the Bay truly started to grow.

Several years of exploring the shores and canoeing the isolated and splendid niches and crevices along the Key River and beyond is how Patricia found her soul-healing love for the Bay. Little did she know, during those youthful days, what a huge role the Bay would play in the years to follow.

Patricia and Frank were married in 1978. Their family grew in 1980 with the birth of their daughter, Nikki. This was also the year that they started to build their “city-escape” on the island Frank's father had purchased so many years earlier. Then in 1983, twin boys, Simon and Russell, were born and the many family memories of times on the Bay truly began. Memories like exploring Giant's Tomb and Hangdog Island, having picnics by the water, hiking the trails on Beausoleil Island, canoeing, sailing, kayaking and swimming, watching the intense storms roll in on both sides of the cottage and sharing their amazing adventures as they gathered together in their favourite room in the cottage, the sunroom.

As their children grew, so did everyone's love for Georgian Bay. Their paradise, now shared with their children's three children, is the best place on the planet—the spot where everyone comes to reconnect, recharge and destress. Patricia and Frank have travelled

a lot, but to them there is no place like this in the entire world—the rustic way of island living, the uniqueness of the trees and rock formations, the beauty and fury of the Bay, are unparalleled. They are extremely passionate about this place, and about ensuring that the water surrounding it for as far as their eyes can see, stays clean for everyone to enjoy. They believe in the scientific methodology of Georgian Bay Forever and its unique contribution to the deeper scientific explanation of the changes affecting the Bay. They understand that getting results, and creating the right collaborations to ensure sound science takes time. They support Georgian Bay Forever because without the water, there is no Georgian Bay.



GBF is pleased to recognize the members of the Georgian Bay Forever Circle

Honoring our loyal supporters for their cumulative donations of \$15,000 or more to April 1, 2018

HELP US PROTECT GEORGIAN BAY. FOREVER.
USING THE ENCLOSED ENVELOPE, SEND IN YOUR
DONATION TODAY!

GBF.org | 905-880-4945

PROTECTOR | \$250,000+

Great Lakes Basin Conservancy, Inc.
RBC Foundation

DEFENDER | \$100,000-\$249,999

Bruce Power
The CSL Group Inc.

Doug and Ruth Grant
The Geoff Hyland Family

Husky Injection Molding Systems Ltd.
Jackman Foundation

The McLean Foundation
The Schad Foundation

GUARDIAN | \$50,000-\$99,999

Echo Foundation
The Langar Foundation
The Judy and Wilmot Matthews
Foundation

R. Howard Webster Foundation
Marye McCaig
Michael McCain
Anthony Munk and Amie Rocket Munk

Robin and Robert Ogilvie
Francie and John Pepper
William and Meredith Sanderson
Sterling Marine Fuels

Philip and Eli Taylor
The W. Garfield Weston Foundation

HERO | \$25,000-\$49,999

David and Shelagh Blenkarn
Derek and Nancy Bowen
Tony and Janet Burt
The Carrick Family
Brian and Janey Chapman
The Catherine and Fredrik Eaton
Charitable Foundation
The Charles and Rita Field-Marsham
Foundation
Michael and Jacquie Green

Donald Guloien and Irene Boychuk
Peter Hatcher and Family
Robert Hay and Family
John Honderich
Ernest Howard
Renata Humphries
Roger Jones and Joanne Muther-Jones
Peter and Margie Kelk
Kopas Family Foundation
Lloyd's Register Canada Ltd.

Ruth Mandel - WHO GIVES Fund
Mason Family Foundation
The McDonald Family
Hugh and Sylvia McLelland
James Meekison and Carolyn Keystone
Frank and Patricia Mills
Jeffrey Orr and Suzanne Legge
John and Penny Pepperell
Margot Roberts and David Williamson
The Ruby Family

Peter and Catherine Singer
Larry Smith
Mary Thomson and Jan Ruby
Rob and Val Thompson
John and Josie Watson
The Michael Young Family Foundation

PATRON | \$15,000-\$24,999

Algoma Central Corporation
Jennifer Ivey Bannock
J.P. Bickell Foundation
James and Erica Curtis
Philip Deck and Kimberley Bozak
Michael and Maureen Douglas and
Family

Richard and Dawn Drayton
Fednav Limited
Mary-Elizabeth Flynn
Patagonia Environmental Grants Fund
of Tides Foundation
Robin and Sted Garber
John Irving and Janet Turnbull-Irving

Sam Kohn and Mary A. Ciolfi-Kohn
John and Phyllis Lill
Robert and Patricia Lord
Dougal and Barbara Macdonald
Paul and Martha McLean
Hugh and Ada Morris
Christopher Pfaff

Lloyd and Pat Posno
Bill and Carol Prior
Gail and Tim Regan
David Roffey and Karen Walsh
Jennifer Rogers
Brian and Sabine Thomson
Cameron Wardlaw

THESE LOCAL BUSINESSES STEPPED UP TO HELP PROTECT THE BAY.

Sound Boat Works Ltd.
Your FULL SERVICE MARINA in Parry Sound



**GEORGIAN
BAYKEEPER**

OTHER BUSINESSES INCLUDE:
PARRY SOUND MARINE

"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