



Unsmoke: Curbing
Cigarette Butt Pollution

Nuisance Algae and Citizen Scientists

A Tribute to Peter Hatcher Long-time GBF Supporter

ADAPTIVE BEHAVIOUR

Through research, education, and progressive action, we hope to illuminate opportunities for personal reflection and adaptive behaviour change within the capability of each individual. Without cautious optimism and knowledge that change is possible with realistic solutions, organizations like Georgian Bay Forever would not exist.

Scientific knowledge of Georgian Bay's ecosystem, along with studies and research from countless other credible sources, tells us that change is needed in a world where natural resources are being over-exploited to the detriment of all life on Earth. What mass-media and accessible information often fail to provide, however, are realistic opportunities for change and growth in the face of environmental crises.

Sustainable goals on a mass scale can be achieved when individuals are empowered to represent this change themselves, but information alone will not inspire that change. People must be incentivized through personal connectivity, before caring enough to change their behaviour. Taking on a sense of accountability is more likely when presented with ideas of hope and empathy, and when we understand that our actions can indeed effect change.



A Message From Terry Clark, Chair of Georgian Bay Forever



Numerous forms of wildlife, species at risk, precious elements of the environment, and an essential freshwater ecosystem on Georgian Bay require preservation and protection. Human activity continues to take a toll on these vital elements sustaining the Bay; yet much can be done to prevent and mitigate the effects of that impact.

Because human impact can be incremental and devastating, it's incumbent upon us all to consciously focus on our actions – and inactions. Everyone can help, for example: (1) be alert, be aware, and leave whatever space you go to better than when you found it; (2) proactively participate in the many available projects or programs such as shoreline and other clean-ups, invasive species control, and joint family or community educational projects.

Whatever your chosen effort, we all have the ability to take some form of action to preserve and protect the Bay. This requires us to inform ourselves, ask what we can do, and hold ourselves accountable for doing our part to keep the Bay pristine and thriving. For the privilege of its enjoyment, we have the obligation to preserve the Bay; the opportunities for protection and preservation are there to be acted upon.

Please reach out to us to find out more about how you can volunteer or take part in any number of sustainability initiatives. Our hope and encouragement at GBF is that all who inhabit, visit, and experience this unique part of the world will be responsible stewards.

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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 Georgian 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; we then propose possible solutions.

Through workshops, seminars, and online communication, 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.

Georgian Bay Forever is steered by our esteemed board of directors, a group of dedicated individuals who are committed to ensuring the functionality and purpose of our organization. They bring their experience and expertise to all aspects of operation, with the common goal of protecting and conserving Georgian Bay.

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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

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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 Facebook page and website:

Design and Editing by Laura Thipphawong

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Cigarette butts are perhaps the last remaining socially acceptable form of littering, and they also happen to be the most littered item on Earth.

Our anecdotal research finds that while most people who would never think to drop a used coffee cup or plastic bag on the beach or in a park, think nothing of flicking their cigarette butt onto the ground and then walking away. This habit is deeply ingrained in many smokers, to the point that it is done automatically; people seem to absolve themselves mentally of the profound damage this act contributes to the worldwide pollution crisis.

While they may be small, the volume

and composition of cigarette butts make them one of the most hazardous forms of pollution in the world.

The butt, or filter, of the cigarette is made of cellulose acetate, a plastic that does not decompose, but breaks down and eventually microplastic that becomes contaminates the environment. Filters also contain dozens of toxic substances including carcinogenic chemicals, arsenic, lead, formaldehyde, and cadmium.

These components leach into the earth, water, and air, where they are absorbed or consumed by plants, animals, and humans.

We gathered 7,461 cigarette butts during our beach cleanups in the summer of 2022. While we are proud of this result, we know that in order to achieve a sustainable solution, cigarette litter needs to be stopped at the source.

Georgian Bay Forever's Unsmoke project, in conjunction with TerraCycle and the Town of The Blue Mountains, aims to inform the public of the damage done from cigarette butt pollution and provide practical resources for discarding litter.





In 2023 we will install ten cigarette butt receptacles in popular public shoreline areas. These receptacles are monitored through TerraCycle, a free program that recycles some of the material that municipal waste programs do not handle.

On a broader scale, we

will work to educate and inform the public on the impact of cigarette litter and how to responsibly dispose of cigarette butts. The most meaningful and long-term solution will come from changing our habits, and reframing the way we think about the scope of our impact on the world.

Anthropocentrism Rethinking the Human Hierarchy

By Laura Thipphawong

The core concept of Western European anthropocentrism is that humans are separate from nature and have been granted dominion over the Earth; this way of thinking is still the paradigm in contemporary Western culture, and at odds with the possibility of sustainable development.



The socially rooted Western perception of nature is framed by a relationship model in which humans are not only superior to nature, but also entitled to it. The rise of this perception in the Early Modern Era, in which nature was viewed as something to be controlled by humans, continues to legitimize overdevelopment, pollution, and excessive habitual waste with little to no concern for the effects of these actions on the environment. Rather, the environment is seen as collateral damage or as a commodity in terms of exchange-value.



A recent example of such collateral damage is the northern white rhinoceros, which became functionally extinct in 2018, when Sudan, the last male white rhino in captivity, was euthanized due to rapid deterioration in his old age. Sudan lived at the Ol Pejeta Conservancy near Nairobi with the last two surviving females of the sub-species, both of whom are unable to produce offspring.

The tragic loss of this sub-species is a result of armed conflict in the rhino's natural habitat, and rampant systemic poaching for their horns, which have only socio-economically prescribed value. The ancestors of the black and white rhinos dates back roughly ten million years, while the sub-species of northern white rhinoceros as we known them can be dated back as far as 3 million years, but despite its ability to adapt and evolve on such a grand timeline, it could not survive the damage



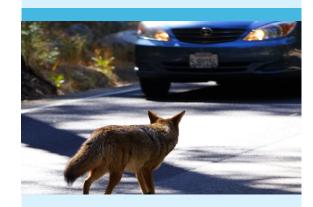
inflicted by humans in the last half-century.

The fate of the northern white rhino demonstrates not only the consequences of human actions, but the root of those actions as an intrinsic sense of human entitlement anthropocentrism, philosophy that posits humans as the primary or only life-form of value, while other life-forms are valuable only for their potential to benefit humans. These beliefs are demonstrated conspicuously by poachers, who kill rare animals because of the market value informed by social status signifiers and belief that animal parts possess restorative properties humans. Likewise, poachers in the Georgian Bay area hunt and capture at-risk species for novelty meat and for sale on the black-market pet trade. While poaching is one of the more conspicuously extreme forms of human-centered destruction to the natural world, a more subtle and insidious demonstration of anthropocentrism, however, is exemplified by casual littering, over-development of land, and overtourism.

The anthropocentric mindset emboldens people to scatter their trash outside, and to call for the extermination of urban wildlife where that wildlife is directly affected by human sprawl. The absent-minded crowd behaviour of flocking to park land and ecological tourist destinations results in the alteration of those environments due to littering, noise pollution, and heavy foot-traffic, but the masses continue to encroach on wild spaces seemingly without respect or appreciation for the natural world.



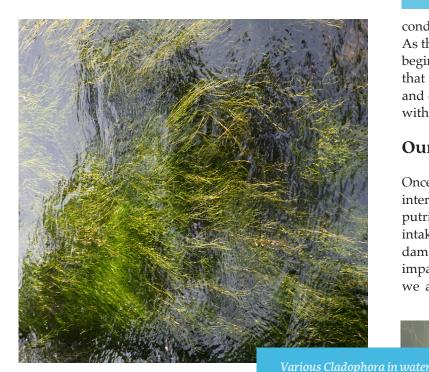
The current Western paradigm of humans in relationship to nature is incompatible with sustainable development in that anthropocentric behaviour demands short-term and quantifiable benefits for humans above all else, where sustainable efforts are only reactionary and corrective rather than presupposed in dialogue with the environment.



True long-term sustainability is a goal that cannot be achieved within the ideology of human entitlement. Rejection of an ingrained sense of superiority and a restructuring of the current paradigm to account for the benefit, concern, and welfare of all life within the greater ecosystem is necessary for the effectiveness of Peaceful sustainability measures. integration with nature and co-existence with wildlife is possible, but the steps towards bettering our relationship with the world around us starts with a change in perspective.

Nuisance Algae in Georgian Bay

By David Sweetnam



conditions favourable to other potentially harmful algae. As the decomposition continues, the algae break off and begins to drift in the currents, collecting in larges mats that sometimes wash up on the shore where humans and other terrestrial animals and infrastructure interact with the water.

Our Nuisance Algae Project

Once near or on the shore, these decaying algae can interfere with access to the water and foul the air with putrid smells. Boats and other systems with water intakes can be clogged, which can result in property damage, health concerns, and other adverse ecosystem impacts. These observations and anecdotes are what we are hoping to get the public to help us with this

The Significance of Algae

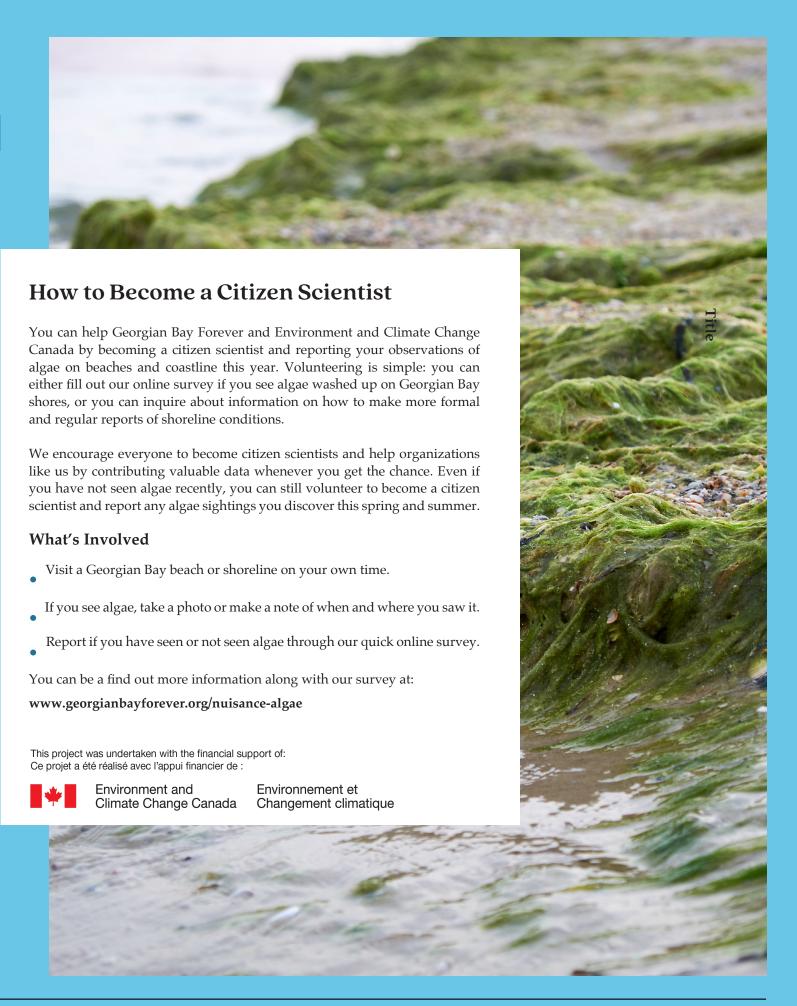
Algae is an important part of the ecosystem. Algae convert light energy into chemical energy that other organisms can use, much like a plant. Algae can be unicellular, and, in some cases, comes together to form more complicated multicellular structures that often look like plants.

A type of algae that indicates when the Great Lakes ecosystem is out of balance is called *Cladophora*. *Cladophora* grow attached to rocks surfaces in a filamentous colony and are naturally present in the Great Lakes. In the presence of excess phosphorus conditions like those arising from agricultural fertilizer runoff or wastewater treatment plant outflows, *Cladophora* can rapidly grow in abundance. We call this a bloom. Blooms can choke out suitable habitat of other organisms living in the lakes, resulting in adverse ecosystem conditions, and leading to reductions in biodiversity and impacts on infrastructure like water intakes.

As *Cladophora* completes its life cycle it begins to decompose in a process that removes oxygen from the surrounding waters leading to increased nutrients being released into the water and aiding growth of anaerobic organisms providing a possible home for pathogens and creating



spring as part of our nuisance algae survey project with Environment and Climate Change Canada (ECCC) as part of their assessment of the nearshore waters of our Great Lakes. Suspected locations of *Cladophora* growth have been identified using satellite images and computer modelling, and GBF has been asked to make ground truthing observations using our underwater drones, samplers, and vehicles to verify the accuracy of these remote sensing tools. This survey will allow ECCC to determine the nutrient sources causing an unusual bloom, which will inform plans of action to address and prevent these releases.





By: Leora Berman, COO and Founder of The Land Between

I had only heard about the science of behaviour change in recent years when I worked with Danielle Lachance, a master's candidate in environmental psychology from Trent University. I would like to thank her and her mentor, Dr. Lisa Nisbett, for leading the way into this new realm of seeing and understanding.

The science of behaviour change is used by many corporations to sell their goods and services and entice people into buying often-unneeded products. It informs food companies about where to put those luscious chocolate bars in grocery stores, dictates that the wrapping is shiny and bright, and that their internal constitution is multi-dimensional with differing textures to excite the mind and palate. Behavioural science also informs marketing through

social media, encouraging us to want to look and live like the Kardashians, Hollywood wives, and muscly and powerful overlords - or otherwise feel inadequate. Behavioural science has become increasingly popular in self-help and personal development circles as we try to implement new habits when faced with the results of overeating candies and refined carbs, or because we don't look or live like the icons on our smart devices, and generally because we are becoming more depressed as a population.

The science of behaviour change has been used in ways that have led us to over-consume and increase our ecological footprint, becoming more isolated in our psyches and less effective at community-change and cooperation. However, the science of behaviour change is now being applied



The Land Between charity is a grassroots organization that works to help people gain knowledge, skills and lead the way in conservation for their communities. We have Community Science programs through Turtle Guardians, where individuals can adopt road sections, or babysit nestingmothers. Other programs are nightjar bird surveyors, in our Bird Buddies program. We also have Shoreland Garden workshops and templates to share and follow.

Get in touch with us at www.thelandbetween.ca

to the conservation sector with the goal of caring for our planet, and can help us save the living planet, in our backyards and beyond.

People often desire to change when they model after one another, but not simply to copy or take direction from strangers; the people who influence us are those we are close to, or well-regarded people who we respect. People can effect change in others by acting and leading by example in their community and network, or otherwise talk to and convince a respected community leader to act, and then promote that action. Recognition and promotion of good deeds is naturally inspiring, as people often engage with positive human-centric stories. We are, after all, social beings and are affected by one another whether consciously or not.

When my mother naturalized her subdivision garden in Richmond Hill, planting over 2000 native shrubs, trees, and herbs, in a small fenced in space of about 20 square meters, it was amazing to see that the birds and so many butterflies found her oasis on Vivaldi Street amongst the desert of new builds. Soon after her pro-

ject was complete, the effects were clear; while visiting I would pass by Mozart Avenue (a dead zone), then Chopin (devoid of life), but when I reached Vivaldi, the entire street was alight with songs, chirps, winged wonders, and gardens galore. A small measure made a vast difference to those surrounding her.

Another necessity for behavioural change is skill-development. People may want to help, participate, or keep up with the Jones, but they may not have the skills to do so. For skills to be integrated, knowledge is needed, and this knowledge cannot simply be taught; it

must be accessible and meaningful to become part of person's experience. Community science and volunteering is one way to access knowledge and learn new

skills. Seeing for oneself the impacts of Phragmites on a lakeshore ecosystem, or directly handing a snapping turtle, trumps talking about these things any day!

Interactive discussions are better for learning compared to sitting in on a lesson. Dialogue and storytelling, questioning, probing, and building empathy and understanding is the best way to learn, grow, and inspire people to have experiences they can share and talk about knowledgably and with passion.

Social connections, leader-ship, and skills are important for behavior change – and the rest is icing. Adopting good cues and stacking habits, for example: cues are simple prompts, such as having the birding checklist by the window, and stacking habits can be simple actions done in tandem, such as placing the recycling bin next to the garbage.

These additions in any program and any house-hold help ensure behaviour change is intuitive and long-lasting.



Winter Wonderland: Frogs and Turtles



Amazing Animal Adaptations

By Laura Thipphawong

It's winter in Ontario, and that means our non-migratory species have settled in for the long, dark, cold days of the season. While some of these species are true hibernators, others have evolved highly specialized physical traits that allow them to navigate the uncertainties of winter in states of light hibernation, or brumation. The natural resilience of animals through adaptive evolution is present all around us, even in seemingly desolate and unforgiving landscapes. Here's a look at a few of the incredible Ontario reptiles and amphibians who have adapted to a harsh cyclical climate, braving the winter to greet us again in the spring.

Perhaps most magical adaptive trait seen during Ontario winters is the ability of reptiles and amphibians to survive underwater or frozen above ground for the entire season. While the freezing process causes most animals to perish as ice crystals form inside the body, damaging tissue and preventing oxygen from being delivered to vital organs via the bloodstream, the terrestrial wood frog performs the astonishing feat of freezing for up to eight months a year.

The wood frog produces high amounts of glucose, providing the water molecules in their cells with a veritable antifreeze concoction that prevents their organs from freezing solid, even while ice crystals form between the



skin and muscles. The frogs remain alive, but with no movement, no heartbeat, and no breathing, until the warm spring weather thaws them out.

Aquatic frogs and turtles go a different route by nuzzling into the murky bottoms of oxygen-rich lakes and rivers where the water is cold, but not freezing; there, they go into a state of brumation which involves little activity and a slowed down metabolism throughout the winter months. They survive by breathing oxygen in the water through their skin. Frogs breathe mainly through the skin on their backs, and turtles breathe through the thin skin on their throat and anal areas. If the water becomes depleted of oxygen, species like the snapping turtle begin to metabolize the calcium in their shells to neutralize the lactic acid buildup in their bodies due to low oxygen intake. They recover in the spring and summer by basking in the sun.

Finding a safe place for brumation can be difficult, and research has shown that



turtles habitually nest in the same place yearly over winter. Habitat loss, low water levels, pollution, and increased water temperatures can drastically affect the turtle population as their winter homes become increasingly unsustainable. Conservation of wetlands and reduced pollution go a long way towards helping our turtle friends.

Fun Fact: Wood frogs, chorus frogs, and spring peepers all hibernate on land in mulch and leaf litter, a good reason to keep shorelines natural and not clear all the fallen leaves from the ground in fall.



By The Hatcher Family with assistance from Amber Gordon

Peter Hatcher, a Father, Husband, Friend, and Champion

It was an exciting day in Virginia, over 52 years ago, when Peter and Judy Hatcher made a life-changing decision to move to Toronto. After 26 years, saying goodbye to their family home, friends, hobbies, and of course, their precious ocean, was extremely difficult. It wasn't long, however, before they found new adventures, new friends, a new tennis club, and another extraordinarily wondrous, pristine, wild, and beautiful body of water – Georgian Bay.

Peter and Judy knew, after falling in love with the natural and rugged beauty of Georgian Bay, that this unique place would play a huge role in their lives – a place where they would create a lifetime of irreplaceable memories with their kids (Beau, Stuart, and Ben) and eventually, their grandchildren. Some of their favourite memories include swimming, fishing, sailing, enjoying precious times with family and friends at the family cottage, boating to favourite places, and exploring new ones.

They bought their family cottage in 1987 and quickly became an integral part of the local community. Both Judy and Peter got involved with the Sans Souci Copperhead community, running the SSCA Annual Regatta. Later, Judy was an SSCA Board Member, in 1994, Peter helped to establish the SSCA Tennis Club, which carved 2 courts from the Canadian Shield granite.

Those who knew Peter knew that all types of racquet sports were a huge part of his life. He enjoyed success in tennis, singles and doubles squash at the club, provincial, national, and international levels. Racquet sports became integrated into Peter's and the entire family's lives in a seamless way. It was part of his social life; it contributed to his business

and it became a conduit for his service of giving back. Peter was president of the Badminton and Racquet Club in Toronto, and earned an invitation to join the Jesters - an international order dedicated to growing squash and other racquet sports.

But there was another side of Peter (and sometimes Judy) that some may not have seen, the side of a full-blown prankster. When visiting Beau at college, Peter and Judy dressed up in full costume and surprised Beau in his first year residence dorm, to the delight of his fellow students. In another instance, cottage guests had laid out on the kitchen counter a beautiful spread of smoked salmon for lunch. Peter quietly took an identical platter, laid it on the floor and sprinkled a few capers around the empty platter. When the guests came in to serve lunch he started berating the family Black Lab for eating the entire lunch. Eventually he pulled the original full luncheon platter from the cupboard.

As Peter's love for Georgian Bay grew, as did its importance in the Hatcher's kids and grandchildren's lives, Peter dedicated many years as a board member and passionate volunteer of Georgian Bay Forever. As tributes poured in to celebrate his life in the fall of 2022, it was clear that he had touched many people in genuine and memorable ways.

He will be missed now and forever by all who knew him, but we can find peace knowing that his legacy and love for Georgian Bay will continue through his children and grandchildren as they grow up enjoying the waters that Peter worked so ardently to protect.



champion, our friend and the most dedicated advocate for Georgian Bay that we will likely ever know.

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Amber Gordon

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