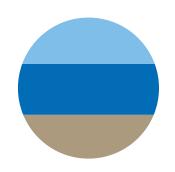
GEORGIAN BAY FOREVER



WINTER 2021 VOL 12, ISSUE 1

Protecting your water.



ARE YOU LIVING GROUNDHOG **DAY OVER AND OVER?**



By Adam Chamberlain, Chair of Georgian Bay Forever

If you have seen the film Groundhog Day you will understand what I mean when I say I feel like Bill Murray's character, Phil. In the movie, Phil experiences Groundhog Day over and over again.

The movie chronicles his efforts to find a way to escape from a seemingly neverending replay of February 2nd, and to get to February 3rd and days beyond. As the movie progresses, Phil goes to bed each night having relived a slightly different version of the same day (Groundhog Day). Each "next" morning he is awakened by the same alarm clock at the same time on February 2nd and sets out (again) to try to change something...anything...that will allow him to move on with his life beyond that day. Sound familiar?

We are all in a reality that feels a little like Phil's as we try to move beyond our own COVID-19 Groundhog Day. It would seem, fortunately, that there is some light at the end of our tunnel that Phil did not have. With a little luck, vaccines, better treatment and warmer weather will bring better times. Whether that comes before, during or after the summer remains to be seen but it will come and life will soon begin to feel less like an endless feedback loop.

When that happens we will get back to where we would more normally be, and (most importantly) back together with those we love — our family and friends.

GBF has managed remarkably through this strange period thanks to the hard work of our staff and volunteers and through the steadfast financial support of many of you. On behalf of GBF, I extend a heartfelt thank you for all that hard work and support. The challenges are continuing and we need your ongoing support; but we can see the future in the approaching distance — our collective February 3rd.

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 Janet Burt Adam Chamberlain, Chair Terry Clark Paul Emond

Doug Heintzman Neil Hutchinson Anne Randell Joe Tucker

EXECUTIVE DIRECTOR David Sweetnam

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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.

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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 PO Box 504, Gates Mills, OH 44040-0504, USA

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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 website and Facebook page.

GBF.ORG

Design by Key Gordon (keygordon.com) Editor: Heather Sargeant Cover Photo: Brooke Harrison

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Charitable Number 89531 1066 RR 0001



IMPROVING COMMUNICATIONS



Dear Friends of Georgian Bay Forever,

As the new chair of the GBF Communication and Marketing Committee, I'd like to know if and how we might improve communications, especially about our research on the Bay and our education programs.

We initiated an email survey in October. If you didn't fill it out by email last fall, we want to extend that invitation to you — it just takes a couple of minutes to complete. Please access the 5-minute Communication

and Marketing survey at: bit.ly/CommsSurvey2 If you believe everything is just fine, we'd love to hear that too, perhaps by way of a note to me, Paul Emond, at pemond@emond.ca.

Thank you for your time, your feedback on communication and for your continuing support.

Sincerely,

Paul Emond





ASSESSING AND ENHANCING COASTAL WETLAND RESILIENCE TO CLIMATE CHANGE

By David Sweetnam, Executive Director of Georgian Bay Forever

Georgian Bay Forever is part of an important **Environment and Climate Change Canada** (ECCC) project to protect our globally unique and important coastal wetlands. These wetlands help to keep our water clean and provide food and shelter for migrating birds, fish, turtles, and numerous threatened or endangered species who call Georgian Bay home.

The three key questions the ECCC project has set out to address are: wetland resilience of what, to what and how can we build it?

In her 2020 report to the ECCC entitled "Assessing and Enhancing Coastal Wetland Resilience to Climate Change: Focus Group Discussions", Linda Mortsch points out that "wetlands are crucially significant locally, provincially, and federally as well as internationally with respect to migratory birds or RAMSAR sites, for example. Many coastal wetlands are large and provide disproportionately higher quality habitat than inland wetlands. Wetlandsupported activities such as recreating, birding, nature viewing, and waterfowl hunting offer broad economic benefits. Moreover, wetlands function as "natural" or green infrastructure providing shoreline erosion protection, flood mitigation, water quality improvement averting losses and/or reducing capital costs. The most frequently cited negative consequence of not protecting resilience was habitat or biodiversity loss. Economic losses (infrastructure, property values) and exacerbation of erosion followed."

Don't let anyone tell you that our wetlands are threatened by being pushed against rock shorelines or that the trees and bushes that grew lakeward at times of low-water levels but are now flooded and drowned are enemies to these dynamic spaces. What image of a wetland is complete without a family of turtles sunning on a fallen log? In fact, wetland restoration experts commonly rely on adding such root-wads and logs to provide habitat to protect young fish fry.

Our globally unique, high-quality wetlands have evolved in the places we find them today because conditions are satisfied for a wide variety of plants and animals to thrive. They are filled with a profusion of plants and animals suited to rises and falls of the recorded 6.33 feet variability we experience in Georgian Bay and while wetlands react individually to the local conditions they experience, the numerous wetlands on Georgian Bay collectively are not adversely impacted within that historic waterlevel range. In our 2016 NASA report on the impacts of water levels in Georgian Bay on our coastal wetlands, we saw proof that as water levels declined from 1987 to 2013 there was actually an increase in wetlands of 7% in the northern parts of Georgian Bay but a decline of 10% in the southern portions of the Bay (development in the south over that time may also have increased that adverse impact).

But these precious, biodiverse spaces have been under increasing pressure for the past two centuries as bad business practices, development and economic exploitation have dominated public policy. But since the implementation of the Great Lakes Water Quality Agreement signed first in 1972 and renewed in 2012, public policy has changed.

More alarmingly in recent history, the driving conditions necessitating this study arise from the measurably increasing impacts of anthropogenic climate change on the global and regional ecosystems and the uncertainty this poses for the health of our precious wetland ecosystems. Canada has experienced almost double the global average temperature increase and that is resulting in: increasing storm intensities and record rainfalls; more volatile and extreme (high and low) water levels; higher wind speeds, increasing wave energies resulting in erosion, run-up flooding and infrastructure damage; and increasing surface water temperatures, and declining ice coverage in Georgian Bay, our Great Lakes and across the entire country.

HOW IS GBF HELPING?

The aim of the project is to reduce vulnerability and increase resilience. Mortsch elucidates, "From an ecological perspective, resilience represents a tendency to maintain integrity when subject to disturbance."



Above Picture: An isobath image example of Treasure Bay, Georgian Bay National Islands Park.

The Project's Four Wetland Locations are: Key River (North), Francis Point (near Pointe au Baril), Tadenac Bay (South of Twelve Mile Bay), Treasure Bay (near Honey Harbour).

"An ecosystem's resilience is shaped by its adaptive capacity: the ability or potential of species or a system to respond successfully to climate variability and change," notes Mortsch going on to point out that "internal factors such as wetland functions, structure, components, and processes influence this capacity as well as external influences such as human stresses, disturbance regimes, and size and complexity of the ecosystem."

This project supports the ECCC Great Lakes Protection Initiative's Program to understand and model wetland response to water level changes associated with climate change scenarios. This is where GBF is helping out. GBF has been collecting high-resolution bathymetry and side scan sonar imagery at four selected wetlands. These locations are representative of coastal wetlands along the eastern coast of Georgian Bay in the granite archipelago.

Aided by the extreme high-water levels over the past summer, GBF has been able to get our sonar outfitted Baykeeper into wetlands that just seven years ago would have been high and dry. The imagery collected has been sent to ECCC for incorporation into their digital elevation models. These models can then be used to examine how climate change and the rise and fall of waters along our coasts will impact the wetland inventory and functions.

For a fuller version of this article, and info on wetland structure, please visit: bit.ly/AssessWetlands

PARTNERING ON REDUCING MICROPLASTIC POLLUTION IN THE WATERSHED



By Naomi Saunders, Manager of Environmental Education at the Nottawasaga Valley Conservation Authority

The Nottawasaga Valley Conservation Authority (NVCA) strives to work with community partners to deliver innovative, integrated watershed management that is responsive to the environmental, economic and social sustainability in the Nottawasaga Valley Watershed.

With support from GBF's Divert and Capture program, NVCA's environmental educators will meet with 800 Collingwood students from Grade 6 to 8 (400 per year) to show them microplastic pollution, the problems it causes and what they can do about it.

GBF asks: What do you want kids to learn about microplastics in the watershed?

We would like the Collingwood youth to come away with these key ideas and actionables:

- 1. Single use plastics and clothing fibres are building up in our environment and being ingested by animals and humans. We want students to understand that to help with this issue, we need more people to know
- 2. If each student shares what they learned from the microplastics (Divert and Capture) program with at least one person, then we can double our impact with student help.
- 3. We want them to know that they are a vehicle for positive change, not only through sharing knowledge but by practicing the 7Rs (Refuse, Reduce, Reuse, Repair, Recycle, Rot, Rethink)

After teaching a few classes, this principal let us know that our program was working.

"I was in a grade 6 class today because they were upset that we have been using styrofoam cups for water.

They wrote letters to me to convince me not to use these cups any more. They weren't expecting the answer that they were bought 10 years ago and we were filling a need. Should we have just thrown them out or use them and then discard?

This lead to a discussion about micro plastics and bio accumulation. They were really interested in the work being done with the grade 7/8 classes.

I am sharing this with you because these students had written very detailed opinion letters to me regarding this issue. Because of the work with the Tiffin centre, we were able to go beyond their writing to a real world activity that will possibly change their behaviours in the day to day life.

This is what we do! Growing change. Love it!!"

Tina Holroyd, Principal Admiral Collingwood Elementary School

GBF asks: What educational methods are you using to breakthrough to kids?

After an introduction to the program, each class takes a hike to the lakeshore or other areas where water collects in their community to further understand how water moves through the water cycle and across the land.

Seeing the locations where plastics can accumulate in the same beautiful spaces where species live, makes the learning experience more impactful.

The second portion of the program involves scientific discovery using microscopes. The students will take soil samples from a beach in Collingwood and a beach in Wasaga, cook the samples at a low temperature to kill any pathogens, and then peer through the microscope lens to find microplastics in the samples. Students will also examine waste taken from a *Divert and Capture* washing machine filter to see the microplastic fibres from clothing.

When time permits there is also a game to help illustrate wastewater in an urban community.



One of several samples of sand from the watershed that a Grade 8 Collingwood class magnified finding microplastics (in this case blue).

GBF asks: How does the NVCA educational component work with the goals of the overall Collingwood diversion program?

The NVCA education program helps by informing at least 400 students per year about this issue. Knowledge is power, and it is difficult to change actions without knowing the facts and why change is important. Moreover, each child is asked to share the information with at least one person—ideally an adult.

Water connects us all. Engaging youth to observe, clean, and protect the community where they live is a chance to educate the adults in their lives as they share what they have learned, and work together as a family.



The author Naomi Saunders, Manager of Environmental Education at the Nottawasaga Valley Conservation Authority.

Thank you NVCA. And there is more - the GBF **Collingwood** *Divert and Capture* program includes: affixing 300 filters on washing machines in 300 Collingwood households, the NVCA educational programs for grade 6 to 8ers, educational opportunities for summer campers, volunteer opportunities to participate in analyzing captured litter from Seabins, and/ or join Plastic-Free Georgian Bay. To learn more about this program and to join it, please visit:

Thank you to these funders who have made this program possible.

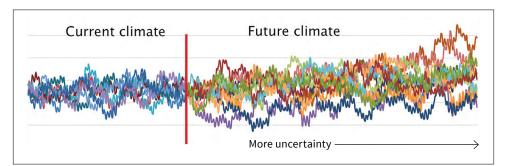
bit.ly/CollingwoodPlasticProgram.

This project was undertaken with the financial support of the Government of Canada through the federal Department of Environment and Climate Change.Ce projet a été realisé avec l'appui financier du gouvernement du Canada agissant par l'entremise du ministère fédéral de l'Environnement et du Changement climatique.

The LeVan Family The Weston Family Foundation Georgian Bay Forever donors

FUTURE LAKE LEVELS UNDER A CHANGING CLIMATE

By Heather Sargeant, GBF Communications Director and David Sweetnam, GBF Executive Director



On October 24th, Georgian Bay Forever and the Georgian Bay Association co-hosted an online symposium to have scientists and stakeholders inform us of what is known about water level fluctuations, the status of data-capturing, and what improvements could be made. Over 400 people "zoomed" in and based on the out-survey, 89% said that it met or exceeded their expectations.

3 BIG CONCLUSIONS

1. Should we be concerned or not about future water levels?

Yes. The existing models suggest water levels will exceed record levels in the future and that the average water level will be increasing though the rest of the century. Some models predict up to fifteen inches higher than historically recorded levels. Environment and Climate Change Canada is set to release a new model that will update these.

Water levels over the next decade will depend on the balance of the rate of increase of precipitation and evaporation. However, nothing in the historical record could have predicted what is happening now — record precipitation levels in the basin especially over the last 3 years and groundwater reservoirs at or near capacity. High levels of rain in October when evaporation usually takes place tend to elevate levels.

Conditions on the Great Lakes are now subject to a significantly different energy and climate regime due to human-induced global warming; past conditions are not a reliable indication of future conditions due to this discontinuity. Future water levels will be higher

and lower and flashier leading to increasing times of flood and drought.

For an overview on forecasting go to: http://bit.ly/ForecastWL

2. Is there anything that should be done in the near term (1-10 years)?

Yes. Any improvements to control regimes that might be made in the future will be distant and limited if implemented. Still important to pursue (see point 3), but given the volatility we are already experiencing, adaptation measures should be considered to avoid risk. The GBA and GBF will be collecting, consolidating, and sharing information on adaptation strategies over the next year both for property and for wildlife. As a start, GBF put together this 15-minute short video in June 2020: Building resiliency into your property for the new realities at bit.ly/GBFresiliency

3. Over the long-term 20 to 50+ years

a) Pursue changes in the current system of control

The water levels are not controlled by governments; they are primarily driven by precipitation and evaporation. And yet there are seven 'control' structures in the Great Lakes, none of which were designed for the current climate. Changes to current structures and multiple agreements to influence water levels in Lakes Michigan-Huron would take years to achieve, negatively impact important communities, and may only be a small benefit that could be overwhelmed by intense rain or large snowmelt. However, it is a theoretical possibility, that changes in the

Long Lac/Ogoki regime in Lake Superior could take an estimated 1.8" off water levels in Lake Huron-Michigan annually and that potentially over time it may be cumulative.

A finding from the symposium was that the Great Lakes — St. Lawrence Cities Adaptive Management Committee has little information on high water impacts to you. While they are looking at simulations, you are invited to document your impacts from high water at ijc.org/en/glam/questionnaire

b) Advocate for additional structures in the system

With the 2016 AECOM engineering study, GBF showed that some inches can be trimmed on the extreme high or low side in Michigan-Huron through examples of technologies arising in the 50 years since the last engineering design work was done. We are recommending that governments work together to explore these types of options immediately (See the summary at bit.ly/AecomGBF).

Both prior points (a and b) are limited but worth going after to take the edges off, and the GBA and GBF will work collaboratively with your support to continue to pursue these.

c) Work with you collectively and individually to reduce greenhouse gas emissions and reduce the rate of global warming by the end of the century.

On December 2nd, the United Nation's Secretary General Antonia Guterres delivered a searing speech around the world's need to reset priorities on climate change and environmental protections.

"Humanity is waging war on nature. This is suicidal. Nature always strikes back — and it is already doing so with growing force and fury." News followed that 2020 has tied with 2016 for the planet's warmest year, capping off the warmest decade ever observed. But you know this; you're seeing the effects of global warming in Georgian Bay already with record-setting water levels, increased wind and storm activity, and higher surface water temperatures to name a few.

Actions that you can take now range from planning to move to electric vehicles and boats, reducing your consumption of meat, reducing your use of single-use plastic like packaging, and consider purchasing clothing (if you have to) from companies that consider their environmental footprint and are transparent and best-case local. For more information:

- Visit this link for the slides from the symposium and answers to about 259 questions on water levels: bit.ly/Oct24WLEvent
- Check out more on the symposium and water levels, see the recent GBA newsletter.

MAJOR PROGRESS ON INVASIVE PHRAGMITES



Contributors: GBF Coordinator Brooke Harrison and Communications Director Heather Sargeant

		Diminishing # of sites		Large Sites Diminishing on Their Way to Eradication			
Last Year Vs. This Year	Approx # sites cut	Eradicated/Monitoring		Under 10 m2 (small)		Above 10 m2 (Med to Large)	
		# sites	% of total	# sites	% of total	# sites	% of total
2019 (579 sites mapped)	195	43	7%	339	59%	197	34%
2020 (those same 579 sites)	170	266	46%	221	38%	92	16%
		Huge Increase To Treated ✓ Stands Not Coming Back		More Small Manageable ✓ Big Stands Decreasing ✓ Stands Than Large			
*last year we stated 588, now 579 stands within 2% error							

Last year, we told you we had a 5-year plan for the 570+ sites mapped (found) on the eastern coasts of Georgian Bay where we have been fighting Phrag with you for over 7 years. Invasive Phragmites is a plant from Europe that if left unmanaged, outcompetes native plants and can grow into 15 ft. dense 'walls', making largely unusable habitat for many species like turtles. Invasive *Phragmites* stands are eliminated on the coasts in a manual cut process that takes place annually in the summer over 2–5 years until the stand is gone. The process is working.

2020 shows remarkable progress towards the goal of 505 being eradicated by 2025, and the rest being so small that they could be treated exclusively by the community.

Other highlights include: Truxors, amphibious machines used for massive Phrag sites, were deployed in spots in Tay removing over 50,000 pounds of Phrag. Due to increased efficiency, GBF identified 132 more sites largely in new areas, which if funding is achieved will also be

managed by 2025. We truly appreciate the 87 volunteers that contributed 460 hours. And, our 3 staff did an amazing job executing well over half the cuts and helping communities. Congratulations to everyone who participated for such great results!

A full report by region is in work. For more information on invasive Phragmites, please go online to bit.ly/1PgjnuO, and please donate if you wish to support this program and others that work to protect the water.

"Any student would agree, the ability to work outside, in your field of study, and contribute to a vital cause sounds like a dream. My three years at GBF is only further proof of how vital these experiences are. ,,

Jack Giroux, GBF 2020 summer student. Read what he has to say online at: bit.ly/JackReflects

Email info@gbf.org if you are interested in applying for a Phrag job this summer.

INVESTING MORE INTO DIVERTING PLASTICS FROM GEORGIAN BAY

Contributors: GBF Coordinator Nicole Dimond and Communications Director Heather Sargeant

GBF is pleased to announce 'Diversion 2.0' to add to our projects mitigating plastic and waste getting into the aquatic environment, thanks to contributions from Environment and Climate Change Canada, the Weston Family Foundation and GBF donors.

The goal is to capture 6,577 kilograms of litter, provide information to 2000 people, engage 40 volunteers, and help hundreds of people change their behaviours to reduce more waste. The program started in Oct 2020 and ends March 2022 and involves these elements to reach those goals:

Expanding distribution of trapping trash devices to more municipalities and marinas. Catching pollution before it gets to water. The objective is to distribute at least 7 Seabins, 8 gutter bins and 3 trash traps.

- · Providing high school citizen science opportunities. If you are in high school volunteer your class to sort and classify types of plastic waste.
- · Teaching diversion of microplastic waste from washing your clothes.
- Offering presentations about ways to move towards zero plastic waste (including information on 'Dock Foam').
- · Creating a volunteer group called Plastic-Free Georgian Bay to brainstorm and execute actions that help businesses and institutions reduce waste.

To learn more about the program and see how you can help, please visit gbf.org/ divertplastics or email nicole.dimond@ gbf.org.









Environment and Environnement et Climate Change Canada Changement climatique Canada



Point Pleasant Marina owners, Drew and Sherry, have always been huge supporters of Georgian Bay Forever and our water protection initiatives. They feel it is "crucially important to protect our pristine water and this is GBF's core focus. We continue to support GBF because now, more than ever, we must continue to defend and learn new ways to protect our water with our ever changing world."

Georgian Bay, an integral part of the Lichtenheldt's lives, is in jeopardy and they know the importance of instilling in the "up and coming" generations, the critical need to protect the "sixth" great lake and the natural environment that surrounds it everyday.

Because of this core value. Point Pleasant is a marina that is constantly leading the way in environmental protection initiatives. Not only were they one of the first marinas to achieve Platinum status in the Clean Marine Program, but their values also "made" them upgrade most of their blue foam floating docks to steel ones; insist that all boats serviced by them have oil booms installed to avoid spills in to the water; and, commit to using only cleaning products that are eco-friendly and biodegradable.



But now they have taken their environmental actions to a whole other level. When they first heard about GBF's Divert & Capture program, they were unable to participate as they did not live in the town of Parry Sound, but on a beautiful island just south. However, as the program expanded out within a 10 mile radius of Parry Sound, thanks to a grant from RBC Foundation, the family was first on the list to receive a Filtrol 160. It is a device that attaches to the washing machine effluent to capture microfibres, effectively stopping millions from getting into their septic system and eventually into Georgian Bay water.

They also stepped up to the plate when approached to install and test a new in-water pollutant capturing device called a Seabin. When asked why they wanted to test both devices, this is what they shared, "We were very interested in installing the Filtrol 160 because we firmly believe in researching many ways that we can reduce microplastics getting into our water ways and we now know how many plastic particles our clothing sheds during each wash! We need to work towards keeping these particles out of our septics and our municipal treatment facilities, and advocating that all North American manufacturers factory install devices like this, just like France has recently mandated. Working and living on the shores of Georgian Bay, we have come to realize, unfortunately, just how much debris is floating in our water every day. We need to learn and implement new ways to reduce and capture these pollutants. This is why we wanted to be a part of the Seabins project. We hope, by quantifying and classifying the types of debris and plastic that is being captured, the program will help prompt governments to realize how big the problem is and will help them legislate and find ways to reduce this problem."

"Even though we, the 'older' generation, are looking to make changes, we know that it is with the younger environmental stewards that we will find our solutions" say Drew and Sherry, "and it is this knowledge that helps to drive the eco-education of our children".

Georgian Bay Forever agrees and we also know that we can all learn something through the eyes of children. Their innocent views can help focus our efforts for the future, so we posed some questions to Ella and Chloe, Drew and Sherry's daughters, about their concerns for the Bay and how they feel they can make a difference in the future. This is what they shared,

"We hope to see less blue foam, less plastic and fewer gas spills polluting our waters because we don't want to see the fish and other water creatures dying from eating foam and plastic."

People don't necessarily see the beauty that surrounds us, so take people for a boat ride — show them why it's so important to make changes and protect the water! We, as a family, do not use disposable plastic bags for anything. We reuse wherever and whenever we can. We had to replace our dock, so we chose steel tubes which do not pollute and are completely recyclable. We avoid singleuse plastic whenever we can. We also use a food cycler to reduce food waste, which also reduces the amount of garbage we produce. We can't compost on the island due to bears and 'coons so the food cycler solved that issue. Basically, we would like everyone to stop wasting. Take care of your garbage. And don't leave it near the shore to deteriorate."

Well said, Ella and Chloe, and thank you for being water protectors like your parents!

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