

THE SOUFFLEUR

YEARLY NEWSLETTER 2018 Vol. 27

Group for Research and Education on Marine Mammals



Greater Understanding for Better Protection





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BETTER UNDERSTANDING + INCREASED AWARENESS = GREATER PROTECTION

The fate of whales is linked to the value that we place on them. Getting to know them is the best guarantee for their future.

This is the essence of the mission of the Group for Research and Education on Marine Mammals (GREMM). Founded in 1985 and based in Tadoussac, GREMM is a non-profit organization dedicated to scientific whale research and marine conservation education.

BETTER UNDERSTANDING — Whales have a life expectancy comparable to our own and lead complex social lives. To understand them, we need to study them from generation to generation. To crack their mystery, one must penetrate their universe.

INCREASED AWARENESS — Whales have fascinated us since the earliest of times. Nourishing and perpetuating this fascination for these giants is what drives our team. We combine research and education to convey messages that are simple and often humorous, yet always scientifically accurate and conservation-oriented. The «whale tales» that we share pertain to individuals that we have known for over 30 years.

FOR GREATER PROTECTION — The threats faced by whales are many, varied, and increasingly well understood. Protecting their habitat requires concrete actions carried out over the long term. Our team and the know-how we have acquired have played a key role in developing strategies and implementing action plans for protecting whales.

First and foremost, **GREMM** is a team of researchers, technicians, naturalists and other passionate individuals that still believe in giants. GREMM is a registered non-profit organization. If you believe in giants like we do, help us to better understand and raise awareness of the whales of the St. Lawrence...so that we can better protect them...

Follow us online :

gremm.org/en/
whalesonline.org
cimmtadoussac.org

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IF, LIKE US, YOU BELIEVE IN GIANTS

Every summer, we have the opportunity to spend hundreds of hours at sea with the whales of the St. Lawrence. We are lucky enough to enjoy the company of these black, blue and white giants. Just like the giants of our childhood books and our myths and legends, the giants of the St. Lawrence still fascinate us and nourish our dreams.

That fascination is driven by what we learn every year. The 2018 season, our 34th year with the whales of the St. Lawrence, was no exception. In this latest issue of *The Souffleur*, we are pleased to share some of our discoveries and dreams with you. To be with the belugas, we have multiplied the platforms to study them, with two boats sailing in the estuary and a temporary tower sitting in the heart of a bay in the Saguenay fjord. You will also read the sequel to the story of the young narwhal that thinks it is a beluga and another about the feisty beluga that was transported from New Brunswick to Cacouna and found... in Nova Scotia this summer and in Prince Edward Island in December.

Our dreams are supported by technological developments that continue to open new doors for studying whales and sharing their stories, like through tags placed on their backs to record their acoustic environment. These developments also allow us to directly stream the images and sounds captured from our research platforms to visitors of the Saguenay Fjord National Park. With the large rorquals, we are implementing new tools to analyze the richness of our data in depth. This new knowledge and these new activities are our tools for better understanding these giants, increasing awareness of them and better protecting them.

It is with this in mind that GREMM is coming out with shovels and hammers in 2019. We are starting the third version of our Marine Mammal Interpretation Centre (CIMM) in Tadoussac. The first one was held in a hangar in 1989, a few metres from where the current CIMM has stood since 1991. Little by little, we filled our Centre with our knowledge and whale skeletons that had finished their journey on our shores. Gradually, it became the home of the giants. But here they are cramped: our Centre has to be enlarged to accommodate three new giants!

For months now, our team has been working on assembling the skeletons of a fin whale, a right whale and a humpback whale. These three whales have finished their adventure in the St. Lawrence and will soon tell their story to the thousands of visitors who come to see us every summer. Our feature story will give you a taste of their life story.

To realize our colossal project, we need your help. We must raise \$200,000 by spring 2020. If, like us, you believe in giants, discover how your donations can give us a whale of a boost in the last section of *The Souffleur* or on gremm.org. Together, we will celebrate the inauguration of the new CIMM in 2020, just in time for GREMM's 35th anniversary!



© Gundula Friesse

Robert Michaud

Robert Michaud
President
Scientific Director

FEATURE STORY

BONES STORY

By the summer of 2020, three whale skeletons and a 10,000-year old beluga fossil will be added to our already impressive collection on display at the Marine Mammal Interpretation Centre in Tadoussac. Below, we present you these three skeletons that will be given a new lease on life.

The Enormous Fin Whale

Date carcass reported: September 17, 2008
Length: 16 metres
Weight: 32,500 kg
Weight of skeleton: 830 kg

This individual is our longest specimen, even longer than the 13-metre sperm whale that is already on display at the CIMM. Found dead in September 2008 floating off the coast of Tadoussac, this young fin whale most likely succumbed to the impacts of a red tide.

In the summer of 2008, thousands of seabirds and fish, a hundred or so seals, at last 10 belugas, several harbour porpoises and this fin whale were found dead in the Estuary. A toxic algal bloom, also known as a red tide, caused this significant wave of mortality. By feeding on small prey that themselves had ingested toxic algae, the fin whale suffered from contamination.

The second largest cetacean in the world, the fin whale is also the most emblematic species of the St. Lawrence. According to the Species at Risk Act, the situation of the fin whales that visit us is designated as "Special Concern". In Quebec, the Mingan Island Cetacean Study (MICS) and GREMM jointly manage the photo-ID catalogue for this species. This individual was not previously known to researchers.



The Young Humpback

Date carcass reported: May 3, 2017
Length: 9 metres
Weight: 7,400 kg
Weight of skeleton: 339 kg

Amidst the season's last lingering blocks of ice, a humpback whale was found stranded on the beach in Godbout in May 2017. Stéphane Lair, professor at Université de Montréal's Faculty of Veterinary Medicine, and his team were able to conclude that the animal was between 10 and 14 months old when it died. This young female was probably born in the Caribbean in the summer of 2016. Since humpbacks are nursed for 6 to 10 months, the whale must have been recently weaned.

On its skin were numerous barnacles—small crustaceans that attach themselves to the hulls of ships, rocks or whales—a sign that the animal had only recently arrived in our waters. Indeed, when exposed to cold water, Caribbean barnacles fall off the skin of humpbacks.

The young humpback had a sup-optimal layer of fat; in other words, it seemed overly thin. Moreover, only the terminal part of the digestive tract contained digested content, while the remainder of the digestive system was empty, indicating that this whale had not recently eaten. The first two years of life are particularly difficult for baleen whales. They need to learn to fend for themselves quickly.



Piper the Right Whale

Date carcass reported: June 24, 2015
Length: 13.9 metres
Weight: 34,600 kg
Weight of skeleton: 1,600 kg

Piper is a female North Atlantic right whale known to researchers at Boston's New England Aquarium under the ID number 2320. When she was first encountered in 1993, she had to have been at least 2 years old. This means that Piper likely died before the age of 25.

The life of this whale was anything but easy. In 1994 and in 2002, Piper found herself entangled in fishing gear. The ropes of 2002 held until 2006 despite repeated attempts to free her. Nevertheless, Piper successfully gave birth three times: in 2006, 2009 and 2013.

On June 24, 2015, off the coast of the Gaspé Peninsula between Bonaventure Island and Cap Blanc, a recreational boater called

in to 1-877-7baleine to report her floating carcass. The carcass was towed to L'Anse-à-Beaufils and then to Chandler, where it was hauled out of the water for analysis (necropsy). Given the carcass' advanced state of decomposition, the exact cause of death could not be determined. However, Piper was rather plump, meaning that she must have died quickly. The hypothesis of poisoning related to the presence of toxic algae was raised considering that two other carcasses were also observed in the days that followed, and the fact that no markings indicating a traumatic shock such as a collision or entanglement could be detected.

We would like to express our sincere gratitude to the 5 Étoiles farm in Sacré-Coeur for providing a temporary home for the skeletons. Additionally, an enormous thanks to all our volunteers and collaborators who participated in carcass recovery, necropsies and skeleton cleaning.



GREATER UNDERSTANDING



WITH THE BELUGAS

St. Lawrence Beluga Project

What a year it has been for belugas! Our long-term projects are flourishing, new collaborations are getting underway and important announcements are creating new opportunities.

This summer, our two boats plied the Estuary in search of the St. Lawrence belugas. On board the *Bleuvert*, crew members continued collecting photos for the purpose of identifying belugas. Additionally, in collaboration with Fisheries and Oceans Canada, they placed tags designed to gather acoustic and behavioural data. Biopsy samples were also taken. To add a new component to the family album, aerial photos were taken by drone in order to measure the belugas' body condition and attempt to determine which females are pregnant.

On board the *BpJAM*, two research assistants used drones to capture beluga behaviour in an effort to study the social interactions of these highly gregarious animals. They also performed photo-identification. Will they manage to recognize which beluga is doing what from the videos?

For a second consecutive season, researchers collaborating with GREMM atop the temporary tower erected in Sainte-Marguerite's bay enjoyed a unique window into the world of belugas through the use of a drone and a hydrophone. Photo-ID work was also carried out. Their photos are added to those taken from aboard boats, for a combined total of 13,000 snapshots to be analyzed by our matching specialist, Marie-Hélène D'Arcy. In fact, in 2018

she celebrated her 20th anniversary with our team.

In July, the Government of Quebec announced a \$2 million investment to create a decision-making tool that models navigation in the St. Lawrence and marine mammal movements while also incorporating acoustic data.

The GREMM team also pursued its collaboration with the US National Oceanic and Atmospheric Administration to assist researchers studying the belugas of Cook Inlet in Alaska.



The beluga "Nepi" and his companion. © Levon Drover

"Nepi" the Wandering Beluga

On December 7, professional diving students were shocked when they spotted a beluga during an outing in the Prince Edward Island port town of Summerside. Picked up by CBC, the story caught our attention. By comparing images taken by the journalist with those taken over the past two years, our beluga experts were able to confirm what they suspected: it was indeed "Nepi".

This beluga got itself trapped in New Brunswick's Nepisiguit River in June 2017. A major relocation operation was carried out in the hope that this young male would reunite with its peers and contribute to the recovery of the St. Lawrence population.

However, in July 2018, Nepi was observed in Ingonish, Nova Scotia. He was in the company of another male beluga belonging to the St. Lawrence beluga population. Then, no further news until December 7, when students were able to observe the animal at close range, this time alone. He has not been seen again since.

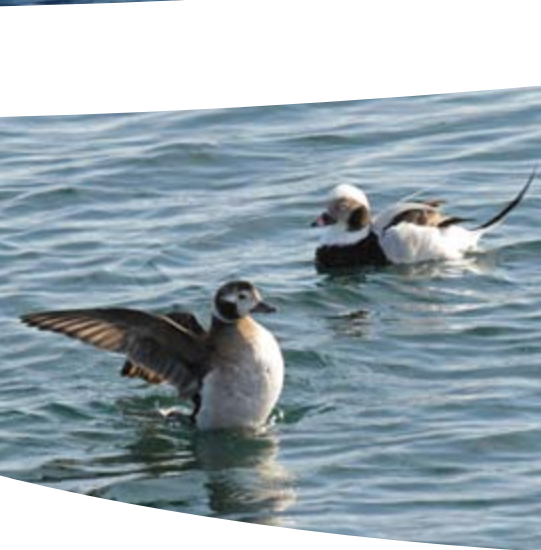
The beluga appears to be in good health. He is swimming vigorously and appears fit. Nepi's adventure is therefore not over yet. We will attempt to gather more information on this vagrant beluga in order to understand why it strayed from the St. Lawrence Estuary and whether or not it will eventually return to these waters. Where will he be spotted next?

Narwhal Still Among the Belugas

For the third year in a row, we observed a male narwhal in the St. Lawrence. We even managed to film it with a drone in the context of a project on social interactions in belugas. Thanks to photos taken the previous two years, we were able to confirm that it was the same individual.

[Drone videos](#) show the narwhal swimming with St. Lawrence belugas as if it were one of them. Both the narwhal and the beluga belong to the cetacean family Monodontidae. Amongst other shared traits, females of both species are known to experience menopause. However, in the Arctic, these two cousins are rarely observed together.





Thanks to our collaborator Renaud Pintiaux for these photos.
 Discover his field notes on www.whalesonline.org
 To contact him: renaudpintiaux@gmail.com



GREATER UNDERSTANDING

OF LARGE RORQUALS

Volunteer research assistants used our cameras to census the large rorquals that visit the Saguenay–St. Lawrence Marine Park. They were welcomed on board by boat captains from the companies AML, Essipit and Écumeurs du Saint-Laurent. "Extraordinary" was the buzzword of the field season... and our lab work confirms this.

Approximately forty fin whales were identified this summer, a high figure compared to recent years. Visiting humpbacks seem to be increasingly plentiful in the Marine Park. Throughout the summer, whale-watching outfitters were able to admire groups numbering up to nearly a dozen of these majestic animals, including well-known individuals such as Tic Tac Toe and Gaspar. Additionally, several new "faces" were photographed in our waters.

GREMM's lab work on blue whales has not yet begun, but we already know that the season was particularly rich, especially farther downstream. In fact, the Mingan Island Cetacean Study and its collaborators tallied 7 blue whale mother-calf pairs, which is unprecedented in the St. Lawrence! Only about thirty mother-calf duos have been observed since 1979.

The winter of 2019 promises to be particularly exciting: we are wrapping up the consolidation of our databases from the past 33 years! In the process, we will be able to take a closer look at the distribution patterns of fin whales at the head of the Laurentian Channel. To do so, each photo is analyzed, qualified and compared to our central catalogue containing every individual identified since 1986. This long-term project requires a great deal of patience. The effort is worthwhile, as the conclusions of these analyses will be used in part to help Parks Canada managers adopt adequate conservation measures for large rorquals as part of the Conservation and Restoration (CORE) project.

Among the forty or so fin whales recognized, here are the stars

Boomerang, Bp078, called "Ligné", Bp903, Bp913, Bp918, Bp929, Bp942, called "Piton", Bp945, Bp955, called "Ti-croche", Caïman, Orion, Trou and its calf and Zipper

Among the ten or so humpback whales recognized, here are the stars

Gaspar, H824 Calf of Quills from 2015, H855 calf of Tic Tac Toe from 2017, H858 calf of H489 from 2017 and Tic Tac Toe

And at least 7 blue whales are identified, including...

B203, B332, B335, B445 and B476



GREATER PROTECTION



Marine Mammal Emergencies

In 2018, the Quebec Marine Mammal Emergency Response Network handled over 600 calls representing 300 cases. From the harassment of young seals to an entangled humpback to vagrant belugas outside their normal range, the call centre handled a multitude of highly varied cases.

The live humpback found stranded on the Magdalen Islands caused much emotion amongst locals and left an impression on our team. When first discovered beached in L'Étang-du-Nord on March 25, 2018, the young female was emaciated. According to Dr. Stéphane Lair, the veterinarian who oversaw the necropsy, the whale was unable to adapt to the post-weaning period during which she should have learned to feed on her own. For this case, the Network worked to raise awareness and ensure public safety.

The Network faces numerous challenges, which are tackled through a concerted effort between the call centre, numerous partners and specialists in Quebec, across Canada and even in the US, and a team of 180 volunteers. Our dedicated volunteers invested over 750 hours to help collect data and raise public awareness. All the work performed and all the information gathered on each case create a virtuous circle. Data accumulated through previous cases are used for scientific research, which in turn gives us a better understanding of marine mammals and how similar cases can be handled better. In addition to scientific research, the Network believes in the importance of education and public awareness of the marine mammals that share the St. Lawrence.

The year was also marked by the departure of Josiane Cabana, who served as director of the Network's call centre from 2013 to 2018. We would like to take the opportunity to thank Josiane for her enthusiasm, leadership as well as the remarkable work that she carried out throughout her tenure. Méliissa Tremblay, who has been with the Network for several years already, has been serving as interim director since this past summer.

GREMM in publications

(2018) Poirier M, Lair S, Michaud R, Hernandez-Ramon E, et al. Intestinal Polycyclic Aromatic Hydrocarbon-DNA Adducts in a Population of Beluga Whales With High Levels of Gastrointestinal Cancers. *Environmental and Molecular Mutagenesis*. <https://doi.org/10.1002/em.22251>

(2018) Chion C, Turgeon S, Cantin G, Michaud R, Ménard N, Lesage V, et al. A voluntary conservation agreement reduces the risks of lethal collisions between ships and whales in the St. Lawrence Estuary (Québec, Canada): From co-construction to monitoring compliance and assessing effectiveness. *PLoS ONE*, 13(9): e0202560. <https://doi.org/10.1371/journal.pone.0202560>

(2018) Martins, C., Turgeon, S., Michaud, R. & Ménard, N. Suivi des espèces ciblées par les activités d'observation en mer dans le parc marin du Saguenay–Saint-Laurent de 1994 à 2017. *Le Naturaliste canadien*, 142(2), 65–79. doi: 10.7202/1047150ar

(2018) Lemieux Lefebvre, S., Lesage, V., Michaud, R., et Humphries, M.M. Classifying and combining herd surface activities and individual dive profiles to identify summer behaviours of beluga (*Delphinapterus leucas*) from the St. Lawrence Estuary, Canada. *NRC Research Press*, doi: 10.1139/cjz-2017-0015

EDUCATING AND FASCINATING

Whales Online: a growing community

Our e-magazine and living encyclopedia continue to grow! In 2018, [Baleines en direct](#) and [Whales Online](#) attracted over 60,000 new visitors. The platform's Facebook page now has more than 13,000 subscribers and over 1,000 curious individuals signed up this year to our newsletter, which is now enjoyed by some 6,000 readers. Our whale stories are reaching more and more people!

Whales Online also seeks to bridge the gap between the scientific community and the public. This spring, as part of the "24 Hours of Science" event, GREMM scientific director Robert Michaud fielded questions from the public during a live stream on the Whales Online Facebook page – a most interesting approach to reach those classes and groups that are unable to make the trip to Tadoussac to see us.

Internship with GREMM: a stepping stone

Since 2017, GREMM's head of communications Marie-Ève Muller has been coaching a team of interns. These credited internships offer students a chance to gain their first professional experience in science communication and scientific writing. We also hosted an intern from the Canadian Wildlife Federation (CWF)'s Canadian Conservation Corps (CCC) program. In 2018, three interns from different backgrounds enriched GREMM's publications while completing a crash course about the world of whales.

Bulletins for sharing the sea with whales

GREMM began publishing a new bulletin titled "Écho des baleines" (in French only). Financed notably by the Government of Canada and the Fondation de la faune du Québec, this bulletin shares the passion for marine mammals with kayakers and recreational boaters and encourages them to enjoy the waters while showing respect for whales. Eight bulletins were distributed to kayak outfitters and marinas within the Saguenay–St. Lawrence Marine Park, in addition to being distributed at no cost by email subscription.

On another note, the stewardship-oriented bulletin Whale Portraits – addressed to captains and naturalists working in the Saguenay–St. Lawrence Marine Park in addition to being distributed at a number of tourist sites around the region – was in its 17th season! For the occasion, the bulletin was expanded from two to four pages in order to enhance its content. GREMM's team also offered trainings at the start of the season to captains and naturalists working for companies that are members of the Eco-Whale Alliance.

GREMM in the media

Once again, GREMM's research, the cases handled by Marine Mammal Emergencies, the articles published on Whales Online and the activities of the Marine Mammal Interpretation Centre are enjoying broad media coverage. No fewer than 175 interviews were given to the print, radio, and TV media. This considerable presence in the media enables us to carry out our education and conservation mission: raising awareness of whales and their precarious situation helps place the environment at the forefront of public attention.

Marine Mammal Interpretation Centre

A young beluga is stranded on the shores of the St. Lawrence... and it's alive! Scientists attempt to save it. This is the opening scene of the documentary Call of the Baby Beluga, produced by Michael Parfit and Suzanne Chisholm and presented for the first time this summer at CIMM. It takes viewers to the heart of the St. Lawrence Estuary amid this small threatened population and the efforts being undertaken by researchers to protect it. This documentary is a shorter version (18 minutes) of the documentary that was broadcast on CBC and National Geographic.

The quality of our programs is helping us break our own records in terms of visitor traffic. Whale song classes, Marine Mammal Emergencies capsules, presentations for the family, interventions of scientists returning from the field, drone videos recently shot by our team: the public is thrilled.

The Quebec Ministry of Culture and Communications, in collaboration with the province's Ministry of the Economy, Science and Innovation, offered a one-time assistance to science museums. This contribution gave us a well deserved rest! We hope that the new government will recognize the contribution that science museums make to our society.

Marie-Sophie Giroux, our lead naturalist for the past seven years, took advantage of her maternity leave to hand off the baton to her replacement, Mélanie Bourque. Thank you Marie-Sophie for your contribution to both CIMM and GREMM!

Lastly, the entire team is getting ready for the CIMM's expansion. Construction will commence in spring and the inauguration of the new exhibit is slated for 2020. Throughout the summer of 2019, visitors will have a chance to see the assembly of the new skeletons first hand!

Baie Sainte-Marguerite: science in real time

In collaboration with SÉPAQ, GREMM launched a pilot project for the direct streaming of drone imagery and hydrophone-recorded sounds collected by researchers working atop the tower installed in Baie Sainte-Marguerite. Saguenay Fjord National Park naturalists Alexandra Martin and Andrée-Laurence Paradis-Roy interpret the images projected onto the big screen and the sounds that accompany them. The project required a number of technical tweaks, but in the end we managed to win over the public!



DO YOU BELIEVE IN GIANTS?

YOU BELIEVE IN GIANTS ...

HELP US GET OUR SKELETONS OUT OF THE CLOSET

\$200,000 this is what we must raise by spring 2020 to welcome three new giants in the CIMM. Their huge skeletons require the expansion of the Interpretation Centre, a colossal project. By adding a right whale, a fin whale and a humpback whale, we will have the most complete collection of cetacean skeletons in Canada! Help us take up the challenge, make a donation for the giants at gremm.org/donate! At the same time, discover our donor [recognition program](#).

MAKE A DONATION NOW

Each year, we spend thousand of hours at sea with the whales to better understand them and we meet thousands of people to tell them their stories. With your donations, we can do even better.

Giving to the GREMM is easy: you can mail us a cheque, make a credit card payment by phone at 418-235-4701, or make an online donation at gremm.org/donate. Our fund can also receive:

- Monthly donations;
- Stock donations;
- Material and capital donations;
- A charitable bequest.

The GREMM is a registered charity organization and an official donation tax receipt will be issued for any donation of \$20 or more. Contact Marie-Ève Muller at memuller@gremm.org or 418 780-3210, or Patrice Corbeil to explore other ways to give.

MAKE A DONATION FOR THE FUTURE

Whales have a life expectancy comparable to our own. To understand them, they need to be monitored from generation to generation. Their protection requires concrete actions sustained over the long term.

Our Research and Education Endowment Fund, managed by the Fondation Québec Philanthrope, has collected nearly a half a million dollars to date. Proceeds from these funds are used:

- To ensure the long-term pursuit of our research and education programs;
- To consolidate our permanent team as well as to ensure succession;
- To host master's and doctoral students.

ADOPT A BELUGA

The belugas' story is that of the St. Lawrence. Their future is our future. Belugas are the barometer of the health of the St. Lawrence and their population is declining.

When you adopt a beluga known to researchers,

- You support scientific research;
- You participate in the search for solutions;
- You increase awareness of belugas and their plight;
- You show your attachment to the St. Lawrence and its inhabitants.

Discover how you can join the family by visiting adoptabeluga.org.



PRECIOUS DONATIONS

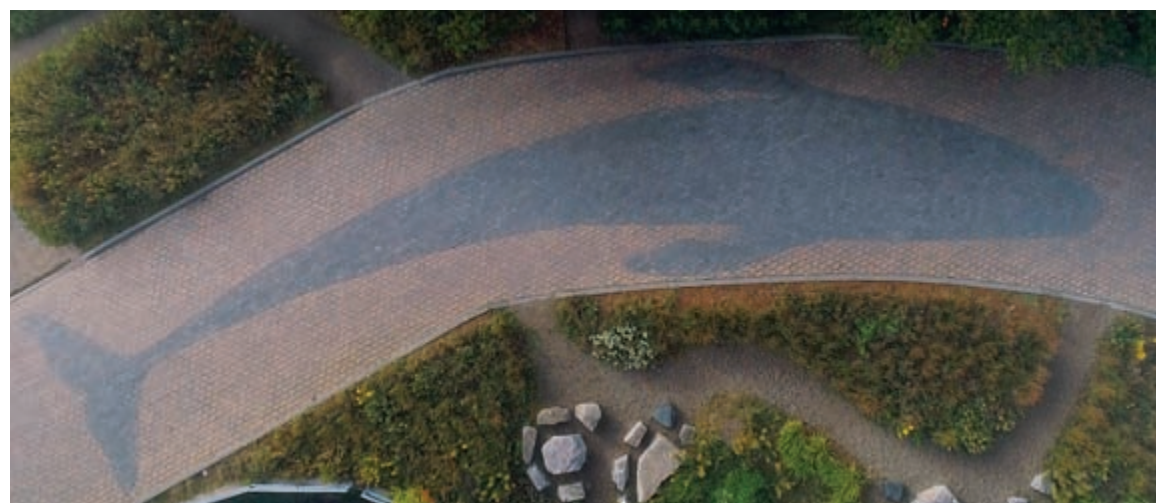
Each and every donation is a source of motivation and pride. But certain donations transport us and give us the courage to press on. Here is one that was particularly moving for us.

David Vachon, in memoriam

This fall, GREMM received a charitable bequest. It came from the late David Vachon, a journalist who had a passion for whales. During the years he resided in the Gaspé, he acquired a Zodiac-type watercraft for observing cetaceans. David Vachon left us his craft as well as a truck and trailer to transport it. Such recognition drives us to persevere in our work. Thank you, David. In your honour, we will forge ahead in our efforts to protect the whales of the St. Lawrence.

NEW! DONATIONS THAT WILL GIVE US A WHALE OF A BOOST!

Show your support for marine mammals on a plaque in front of the Marine Mammal Interpretation Centre (CIMM) in Tadoussac. The plaques will be inlaid in one of 600 cobblestones composing the blue whale silhouette gracing the Jardin de la Grève. Each plaque represents a donation of \$1,000.





A part of the 2018 GREMM team

GREMM'S SUCCESS IS BASED ON ITS CREATIVITY, BOLDNESS, EFFICIENCY, RIGOUR, BUT ALSO ON ITS PARTNERS AND COLLABORATORS. THANKS TO YOU, WE ARE ACHIEVING OUR MISSION.

«GREATER UNDERSTANDING FOR BETTER PROTECTION»

Thanks to

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