



2019 SEASON ACTIVITY REPORT

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MARINE INDUSTRY ENGAGEMENT FOR WHALE DATA COLLECTION

Canadian East Coast Sector

Prepared by :



In collaboration with :



ABOUT

In 2011, the first collaboration between the Marine Mammal Observation Network (MMON) and the Shipping Federation of Canada (SFC) culminated in the successful preparation and distribution of the reference entitled *A Mariner's Guide to Whales in the Northwest Atlantic*. This guide is an information and awareness tool designed to encourage mariners to be extra vigilant in order to minimize the risk of collision with cetaceans. Driven by this positive experience, MMON, which since 1998 has managed a network of member observers mostly from the whale-watching industry, teamed up with Green Marine to develop a whale data collection and training program adapted to the reality of ship owners/operators. The response has surpassed our expectations: currently, eight companies with a combined fleet of over thirty vessels are actively participating in the program and collaborating with us to ensure continuous improvement.

This report presents an overview of activities conducted in 2019 as part of this program, which is helping provide invaluable information on the presence of whales in key shipping lanes. Thanks to their participation in data collection efforts, ship owners/operators that are members of Green Marine, a voluntary environmental certification program, can fulfil the Level 3 criterion of the Underwater Noise performance indicator. The overall objective of this indicator is to lower underwater noise levels produced by operating ships in order to reduce their impact on marine mammals.

The project is an MMON initiative and is being carried out in collaboration with the World Wildlife Fund Canada (WWF-Canada) and Green Marine.

North Atlantic right whale © MMON

This initiative is made possible in part thanks to funding received under Fisheries and Oceans Canada's Habitat Stewardship Program (HSP) for Species at Risk.



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PART 1 • MMON ACTIVITY REPORT



Beluga whale
© GREMM

PROJECT HISTORY

The first steps toward developing the whale data collection and training program tailored to the needs of ship owners/operators were taken in 2015 with the involvement of the Desgagnés fleet and the Canada Steamship Lines vessel *Salarium*. Funding received under Fisheries and Oceans Canada's Habitat Stewardship Program (HSP) for Species at Risk made it possible to extend this program to other companies and develop training tools suited to the multiple realities of its participants. By the end of this four-year pilot project (2015-2018), approximately 3,475 data had been collected by a fleet of some thirty active ships operated by seven different companies. HSP funding was renewed for an additional 3-year period, which began on April 1, 2019. This funding is being used to maintain and further expand the data collection program as well as training, data management and data visualization tools to optimize the maritime industry's involvement and update the reference work entitled *A Mariner's Guide to Whales in the Northwest Atlantic*. The following activity report describes how work has progressed between April 1, 2019 and March 31, 2020.

GENERAL COORDINATION

In order to ensure that the developed initiatives convey the right conservation messages while at the same time being properly adapted to the reality of the maritime industry, a working committee co-directed by MMON and the World Wildlife Fund Canada (WWF-Canada) was set up. This committee is made up of representatives of government agencies, conservation organizations and ship owners/operators. An initial face-to-face meeting was held in Québec City in October 2019 to present the deliverables and define the program's main orientations. In order to facilitate work progress, a number of sub-committees were created. The next meeting had originally been scheduled for late spring 2020, but is being postponed to the fall due to the COVID-19 pandemic.



ON THE HORIZON: NEW WEB PLATFORM AND ELECTRONIC OBSERVATION TRACKING TOOL

One of the issues raised by the maritime industry pertains to where to find and how to consult whale conservation information intended for this sector. Likewise, one of the program's deliverables was to create a neutral web-based platform that would become a new reference source for issues relating to navigating whale habitat in eastern Canadian waters. The platform is divided into two portals, one addressed to recreational boaters and the other to ship owners/operators. Here, ship owners/operators can find key messages from organizations and ministries responsible for whale conservation as well as any tools developed under the program. A data entry and visualization tool for marine mammal observations will be integrated between now and the fall of 2020. Created by the St. Lawrence Global Observatory, this site has been up and running since spring 2020.

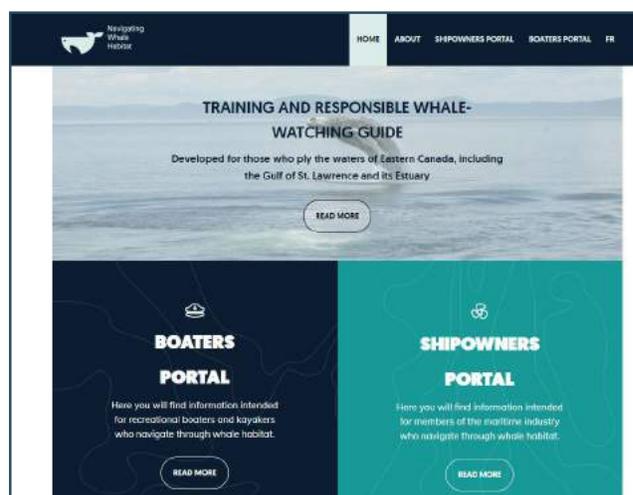
www.navigationbaleines.ca



The latter's corporate signature has been developed by Akufen studio (www.akufen.ca/en/).



Home page of web platform © MMON



Web platform
© MMON

Training Available

The objective of this training is to help you hone your whale identification skills for the various species present in the Estuary and Gulf of St. Lawrence, the Northwest Atlantic and the Eastern Arctic, as well as to collect observation data. These data allow for a more comprehensive understanding of the distribution and abundance of whales, thereby contributing to their preservation.

The training lasts approximately 30 minutes and includes a final test on which users must score at least 80% to be certified. A summary and a quiz are also featured in order to better prepare the user for this final evaluation.

The training can be adapted for integration with the training platforms used by ship operators. You can submit a written request for this training course at info@romm.ca.

[Click here to download the PDF version of the training. \(coming soon\)](#)

[Click here to download the maritime industry activity report](#)



Observation officer © V. Nallet, MMON



Data gathering © S. Giroux, MMON

ONLINE TRAINING

In Phase I of the project, biologists offered only in-person training to crew members of participating ships (e.g. presentations as part of seminars, on-board or dockside crew training). In light of the industry's growing interest in participating in the project and in order to facilitate continuing education within companies, it had become imperative to develop a bilingual self-training tool dedicated to whale identification and data collection. This tool will enhance both the accessibility and delivery of the training, notably with regard to rotating staff with variable schedules and international ship owners/operators.

In 2019-2020, a service contract was signed with Akufen and work was initiated to develop the tool. The "skeleton" of the website was developed, learning objectives were defined and texts were drafted and translated in collaboration with the working sub-committee. Visual content was researched and selected; recording of audio files is planned. Numerous technical meetings were organized with a view to defining the optimum format for tool development in order to ensure that it adequately

meets the needs of ship owners/operators. The option ultimately selected was the Shareable Content Object Reference Model (SCORM), which can be used to build educational content in such a way that it can be integrated into other systems already in use by ship owners/operators. Notably, a "bundled" version of the training, including static content, will be able to be shared in SCORM-compatible Learning Management Systems (LMS) directly on board the ships. A PDF summarizing the content featured on the tool will also be made available on the web-based platform:

www.navigationsbaleines.ca/en/home/

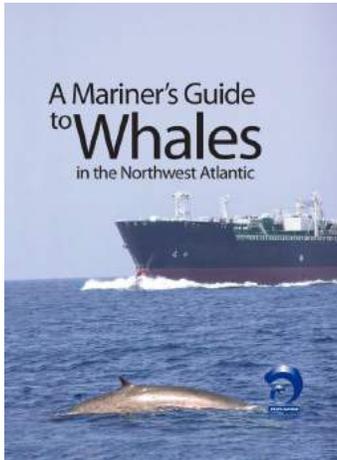
Akufen has recently completed the tool's artistic branding and programming is now underway. The tool is expected to be ready for release in late summer 2020.



Screenshots of the artistic branding of the training tool under development © MMON



A MARINER'S GUIDE TO WHALES IN THE NORTHWEST ATLANTIC UPDATED



In 2014, MMON and the Shipping Federation of Canada teamed up to produce a guide for mariners frequenting the waters of the Northwest Atlantic in order to provide them with information on the presence of whales and educate them on areas where extra caution is warranted. This tool features information on the issue of collisions as well as fact sheets and range maps for whale species present in the region. Widely used, this initial guide inspired the creation of similar works in the Arctic and the Canadian west coast. With hard copies of the first edition being nearly out of print, it was decided to take the opportunity to prepare an updated version of the guide. This decision

was justified due to the fact that, subsequent to the release of the first edition, a number of new regulatory and voluntary whale conservation measures have been adopted that are relevant to ship owners/operators. In 2019-2020, a scientific sub-committee headed by the World Wildlife Fund Canada (WWF-Canada) was formed to discuss how scientific data would be shared and used for the guide's updated maps and a contract was awarded to an external company to undertake the mapping analysis. Improvements to be made were defined and the guide's table of contents was modified. Drafting of texts has also begun. The new version of the guide is scheduled for release in the winter of 2020-2021.



Blue whale
© S.C. Pieddesaux,
MMON



Humpback whale © S. Duquette, Parcs Canada

PART 2 • 2019 FOLLOW-UP OF DATA COLLECTION PROGRAM

CONTINUOUS TRAINING EFFORTS



Captain under observation © MMON

Training of ship crews is an essential part of ensuring a successful data collection program. Indeed, training can help increase confidence levels in collected data, notably in terms of accurate identifications and a standardized data collection method. Pending the launch of the electronic training tool, MMON has pursued its training efforts in 2019:

- Training was given to the L'Isle-aux-Coudres – Saint-Joseph-de-la-Rive ferry crew on April 23 and 24, 2019.
- Training for captains of the *Bella Desgagnés* and an intern from Groupe Desgagnés was given in Rimouski on July 15, 2019. The said intern subsequently delivered the training to the crews of nearly a dozen participating ships of the Desgagnés fleet.
- The crew of the *Baie St. Paul* operated by Groupe CSL received training on July 21 and 22, 2019 directly on board the ship during its

transit between the locks of Montréal and Les Escoumins.

- A training was given on August 28, 2019 to the crew of the *Saaremaa*, which was providing ferry service between Matane, Baie-Comeau and Godbout in replacement of the *F.-A.-Gauthier*, itself out of service for repairs.
- MMON presented the results of the data collection program at the Groupe Desgagnés seminar in Québec City on February 19, 2020.



Training on board the *St. Paul's Bay* © MMON

MAJOR DEVELOPMENTS IN 2019

A few noteworthy developments occurred in 2019 concerning the data collection program:

- One new observer member joined the ranks of companies participating in the program, namely Marine Atlantic, which provides ferry service between Nova Scotia and the island of Newfoundland. The crews of 4 ships submitted approximately 411 whale observations to MMON in 2019.
- The Société des traversiers du Québec has been participating in the program since 2017 by collecting data from on board the Matane – Baie-Comeau – Godbout ferry and from the Godbout Ferry Terminal. Since 2019, the ferry service between L'Isle-aux-Coudres and Saint-Joseph-de-la-Rive has also been involved.
- Groupe CSL's *Salarium* has been participating in MMON's program since 2015. The year 2019 was marked by the addition of a new vessel, namely the *Baie St. Paul*.
- A student from Université Laval, Alexandrine Veilleux, conducted a survey with Groupe Desgagnés in order to clarify certain details related to data collection. This information was notably used to better evaluate data collection effort as well as maximum observation distances.



Leif Ericson © Marine Atlantic

(P. 9) PORTRAIT OF PARTICIPATING MARITIME COMPANIES

| | LOGO | DESCRIPTION | NUMBER OF PARTICIPATING SHIPS | AREA COVERED | FUTURE PROSPECTS |
|--|---|---|---|---|--|
| Société des traversiers du Québec |  | STQ is a Crown corporation that provides ferry services on the St. Lawrence. | 2 ships (Matane – Baie-Comeau – Godbout ferry and L'Isle-aux-Coudres – Saint-Joseph-de-la-Rive ferry) and 2 ferry terminals (Godbout and Saint-Joseph-de-La-Rive) | Estuary and Gulf of St. Lawrence | Addition of Baie-Comeau Ferry Terminal |
| Compagnie de navigation des Basques |  | CNB is a private company that operates the ferry between Trois-Pistoles and Les Escoumins. | 1 ship (<i>Héritage 1</i>) | St. Lawrence Estuary | Continued data collection |
| Groupe Desgagnés |  | Groupe Desgagnés operates a fleet of approximately twenty ships (liquid bulk, chemicals and dry bulk). | 10 to 15 ships a year | St. Lawrence Seaway, Maritime Provinces, Arctic and international | Continued data collection |
| Canada Steamship Lines |  | CSL operates a fleet of approximately 20 ships, mainly bulk freighters. | 2 ships (<i>Salarium</i> and <i>Baie St. Paul</i>) | St. Lawrence Seaway | Continued data collection |
| Fednav |  | Fednav specializes in the transport of solid and liquid bulk by means of bulk carriers, tankers (including oil tankers) and cement freighters | 2 ships (<i>Arctic</i> and <i>Umiak I</i>) | St. Lawrence Seaway and Arctic | Encourage renewed participation |



| | LOGO | DESCRIPTIF | NOMBRE DE NAVIRES PARTICIPANTS | TERRITOIRE COUVERT | PERSPECTIVES D'AVENIR |
|-----------------|--|---|---|--|---------------------------|
| Oceanex |  | Oceanex offers shipping to Newfoundland and Labrador from the rest of North America. | 3 ships (<i>Sanderling, Avalon and Connaigra</i>) | Gulf of St. Lawrence | Continued data collection |
| Algoma |  | Algoma Central Corporation owns and operates a fleet of over 20 dry and liquid bulk carriers. | 22 ships involved, including 7 actively involved in data collection | St. Lawrence Seaway, US east coast, Canadian and US west coasts | Continued data collection |
| Marine Atlantic |  | Marine Atlantic offers a ferry service between Nova Scotia and the island of Newfoundland | 4 ships (<i>Leif Ericson, Highlanders, Vision and Blue Puttees</i>) | Gulf of St. Lawrence, between Nova Scotia and the island of Newfoundland | Continued data collection |



Sedna © Groupe Desgagnés



Minke whale
© S. Pronovost, MMON

PART 3 • 2019 SUMMARY OF WHALE OBSERVATIONS

EXCELLENT DATA COLLECTION EFFORT

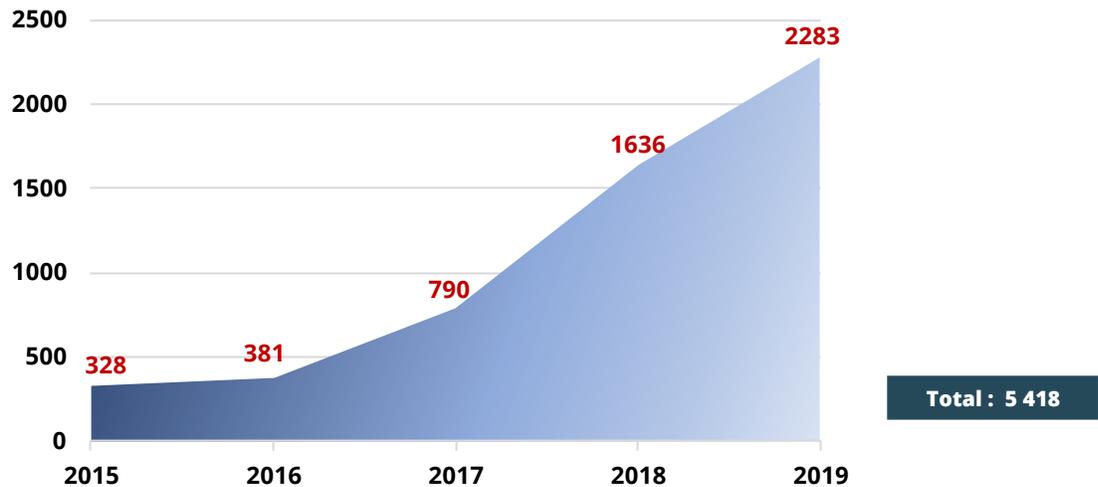


FIGURE 1. EVOLUTION OF OBSERVATIONS COLLECTED BY SHIP OWNERS/OPERATORS SINCE BEGINNING OF PROJECT (2015-2019)

Thanks to the efforts made by ship owners/operators in 2019, a total of 2,283 data were collected from aboard partner ships, plus an additional 88 marine mammal observations that were made by the two ferry terminals involved in the program, namely the Godbout Ferry Terminal and the Saint-Joseph-de-la-Rive Ferry Terminal (cf. page 17).

As illustrated in Figure 1, the maritime industry's involvement in the data collection program continues to grow. Oceanex generated approximately

21.9% of marine mammal observations in 2019, followed by Groupe Desgagnés with 18.6%. In its first year of participation, Marine Atlantic contributed 18.0% of all observations.

Despite being increasingly motivated, certain companies or vessels are unable to provide regular data collection due to various constraints. In 2019, such was the case for Fednav, whose participation level waned compared to previous years on account of organizational changes undergone by its crews.

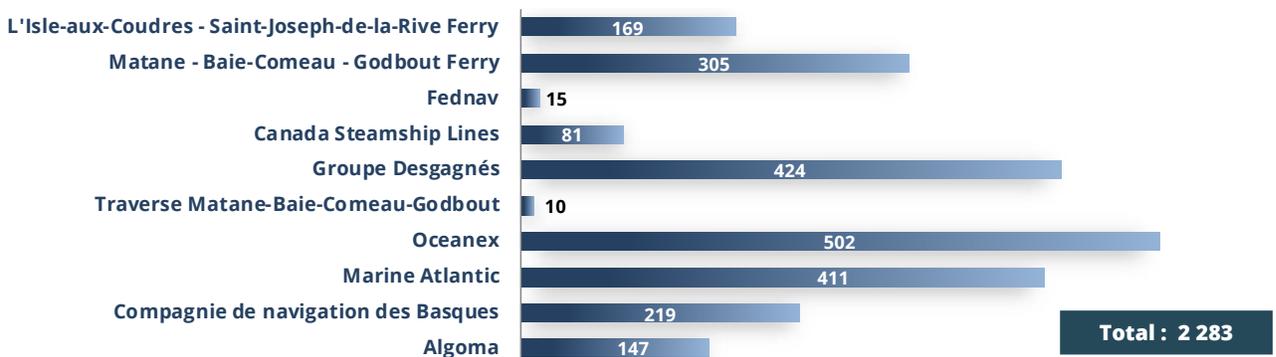


FIGURE 2. NUMBER OF OBSERVATIONS PER MARITIME COMPANY IN 2019

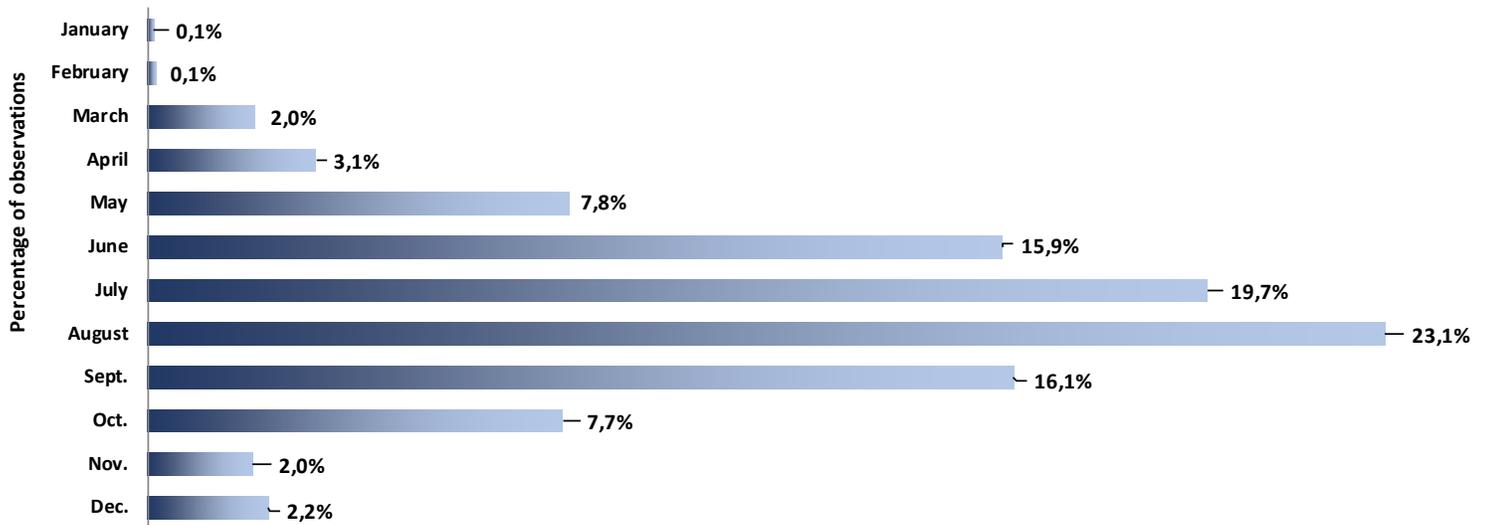


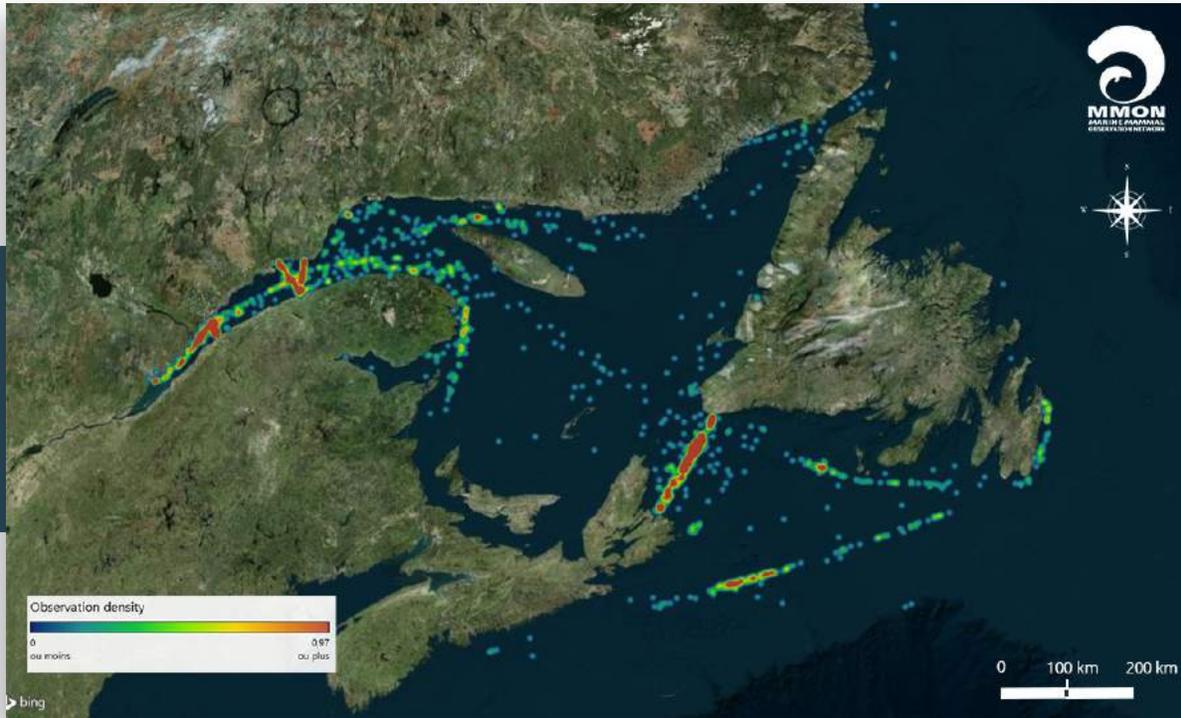
FIGURE 3. BREAKDOWN OF OBSERVATIONS BY MONTH OF YEAR THROUGHOUT THE PROJECT – 2019

In 2019, the majority of observations collected by actively involved companies were made in the summer, i.e. June through August, with a maximum of 25.0% for the month of August (Figure 3). Nearly 24.5% of all observations were made in the off-season, i.e. between September to December. Although fewer in number, data collected outside the summer months are invaluable due to their rarity. They provide information on the presence of certain whale species within the covered area, notably in winter.

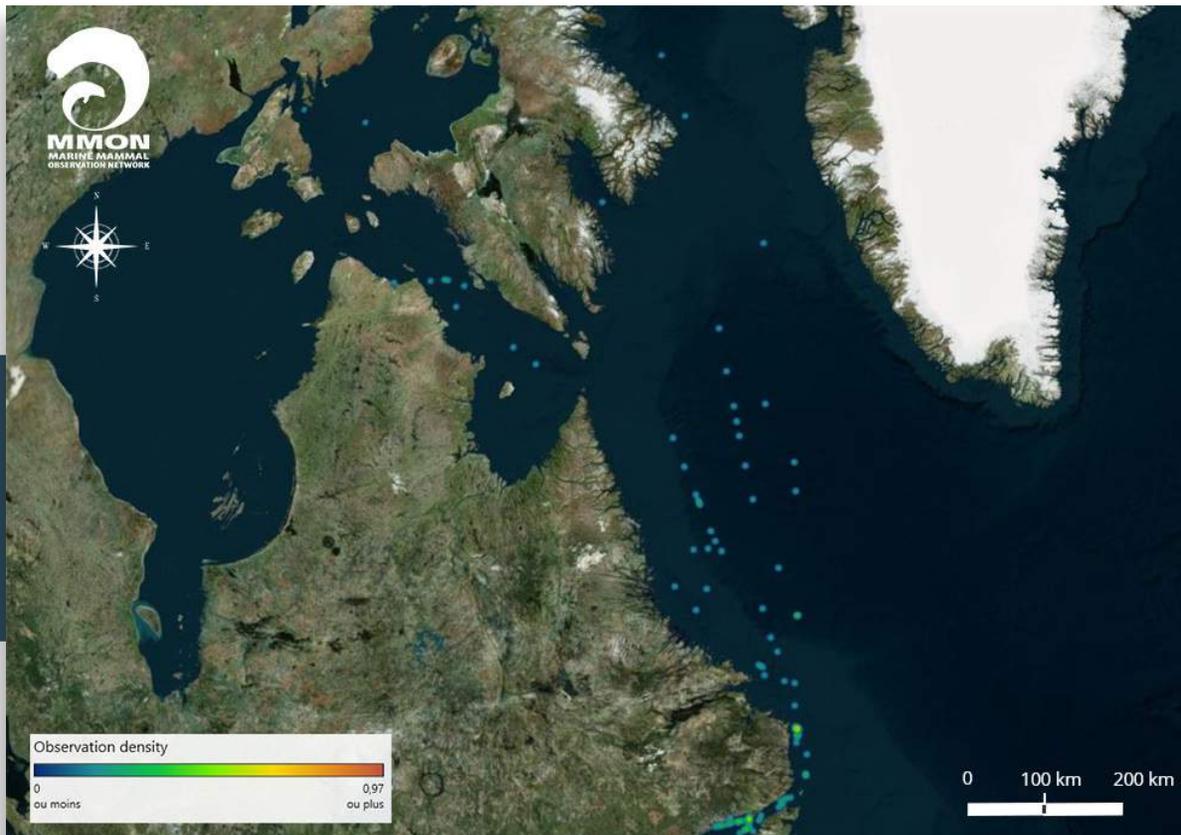


VAST COVERAGE AREA

MAP 1. WHALE OBSERVATION DENSITY IN MAIN SHIPPING CHANNELS OF PARTICIPATING COMPANIES IN 2019 (CANADIAN EAST COAST)



MAP 2. WHALE OBSERVATION DENSITY IN MAIN SHIPPING CHANNELS OF PARTICIPATING COMPANIES IN 2019 (ARCTIC REGION)



Data collected by ship owners/operators help to better understand the distribution patterns of whales in major commercial waterways. These data are used to refine current knowledge to support whale conservation in the Northwest Atlantic, including the Estuary and Gulf of St. Lawrence and extending northward to the Arctic (Maps 1 and 2). For the 2019 season, a substantial majority of the area was covered, namely:

- The Lower Estuary enjoys heavy coverage beginning near L'Isle-aux-Coudres, as does the entire Gulf of St. Lawrence and extending to the Bay of Fundy.
- Quebec's Côte-Nord region, the Newfoundland and Labrador coasts and the ocean trench east

of Nova Scotia and the island of Newfoundland are also represented, albeit at lower densities.

- With the addition of Marine Atlantic to the data collection program, the shipping corridor between Newfoundland and Nova Scotia is now well covered and offers additional information on the use of these waters by cetaceans.
- Even if the areas are sparsely covered, data continue to be collected in the Arctic, along the east coast of Newfoundland up to Ungava Bay, the Hudson Strait and Baffin Bay.
- For the 2019 season, no data were received from southern Nova Scotian waters.



PRECIOUS DATA ON WHALE DISTRIBUTION PATTERNS

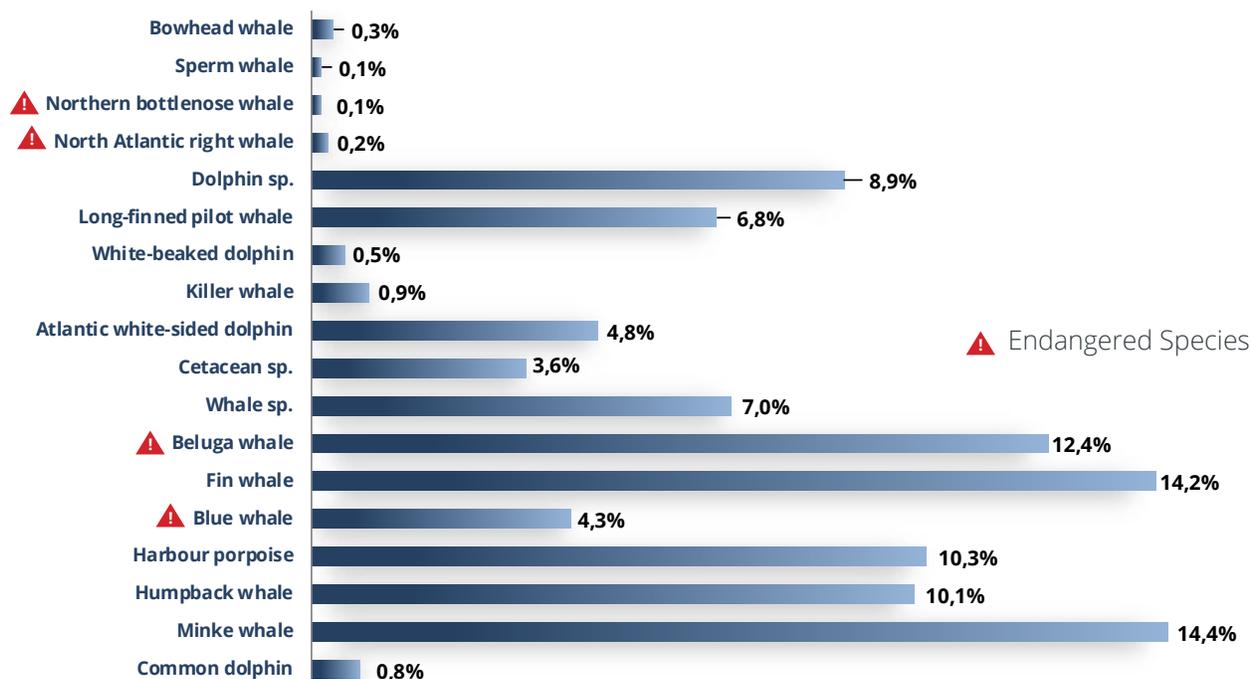


FIGURE 4. BREAKDOWN OF OBSERVATIONS BY SPECIES THROUGHOUT THE PROJECT - 2019

As illustrated in Figure 4, the most commonly observed species in 2019 was the minke whale, which represented 14.4% of observations, followed closely by the fin whale, a species of concern (14.2%).

Special mention should be made of the importance of data for species at risk, particularly the St. Lawrence beluga, which was the third most commonly observed species in 2019, representing 12.4% of all observations. The blue whale (4.4%), North Atlantic right whale (0.2%) and northern bottlenose whale (0.1%) were also reported.

Other species such as walrus (in the Arctic), ocean sunfish, two species of sharks as well as leatherback sea turtle were also recorded in the surveys, thereby

enriching the 2019 database (Figure 5). A total of 57 observations concerned the aforementioned fauna.

Approximately 19.5% of data concerned dolphins, porpoises or cetaceans that could not be identified with certainty by seafaring personnel (Figure 4). A new training tool under development will help crews hone their whale identification skills for those species present in the region covered by the data collection program. Their involvement and motivation will go a long way to ensuring the long-term vitality of the project and we are grateful for their contributions.



Beluga whale of the Saint-Laurent river © F. Gandolphe, MMON

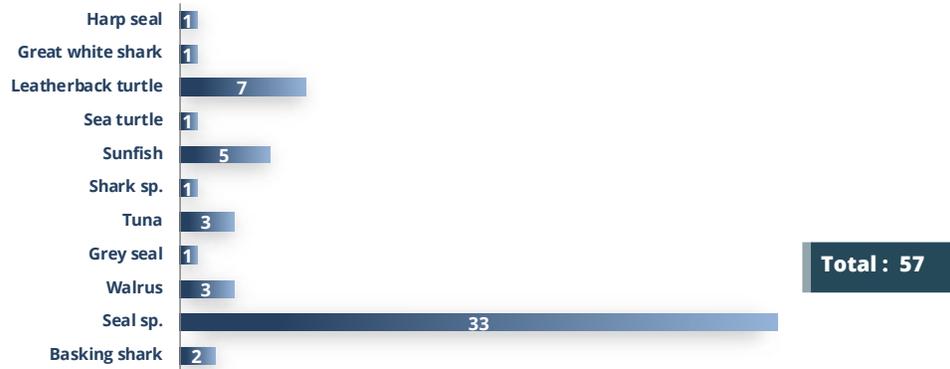


FIGURE 5. NUMBER OF OBSERVATIONS OF NON-CETACEANS THROUGHOUT AREA

HIGHLY APPRECIATED EFFORT FROM FERRY TERMINALS

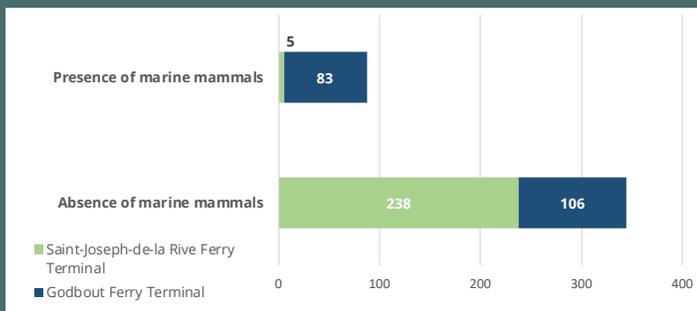


FIGURE 6. NUMBER OF OBSERVATIONS FOR PARTNER FERRY TERMINALS – 2019

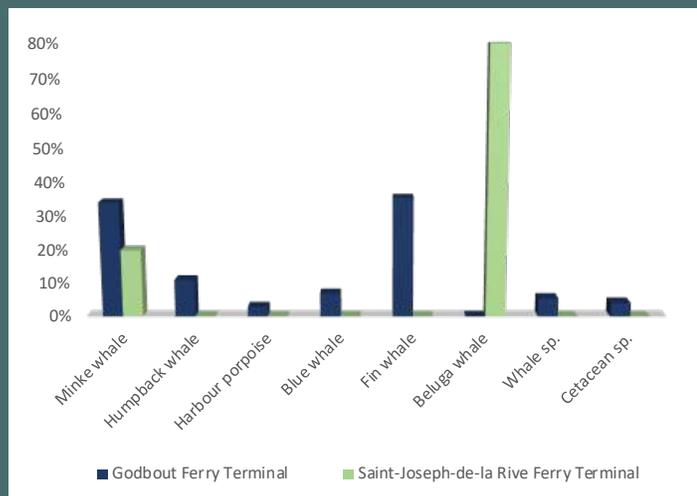


FIGURE 7. BREAKDOWN OF OBSERVATIONS BY SPECIES FOR PARTNER FERRY TERMINALS – 2019

Particularly noteworthy is the addition to the data collection program of the Godbout and Saint-Joseph-de-la-Rive ferry terminals, which follow a protocol specifically designed for land-based observations. The data they collect provide insight into the distribution of marine mammals in a given sector, all year round.

Although the collection effort was more than satisfactory, 80% of all observation sessions failed to record a single marine mammal. However, it is important to point out that, for long-term monitoring purposes, a datum that indicates an absence of marine mammals in a given sector in a given month of the year is every bit as valuable as one that portrays their presence. A total of 88 additional observations were collected in 2019 through surveys conducted from the ferry terminals (Figure 6).

As illustrated in Figure 7, the species most frequently observed at the Godbout Ferry Terminal in the Côte-Nord region was the fin whale (38.8%), followed by the minke whale (35.8%). It should be noted that 7.5% of all observations in this sector concern blue whales, an endangered species.

As for the Saint-Joseph-de-la-Rive Ferry Terminal, the most frequently observed species was the St. Lawrence beluga (80.0%). These data are of great importance for understanding how this endangered species uses this sector. Indeed, these waters represent the western limit of the St. Lawrence beluga's range, an area where data are not overly abundant.

CONCLUSION

In 2019, the eight participating companies made the data collection campaign a success. With 2,338 additional data in 2019, including 2,250 from ship crews and 88 from the staff of two ferry terminals, a grand total of 5,813 marine mammal observations have now been collected since 2015, the first year of the data collection project for the maritime industry. In terms of effort, a 27.3% increase was recorded in 2019 compared to the previous year, which is testimony to the continuing popularity of the program.

Every year, the maritime industry provides essential information to research organizations, thereby helping them to better understand the geographic distribution and abundance of the various species of whales in the St. Lawrence, particularly in regions and months of the year for which data are more difficult to obtain. This knowledge is added to scientific databases that are used to guide whale conservation efforts, notably the recovery of species at risk. It is widely agreed that the data collected by the crews of participating companies represent a gold mine of additional information that can be exploited by research teams. Hopefully, these additional data will help fill knowledge gaps and enhance our understanding of whales' migratory movements. In these times of changing water and air masses triggered by climate change and resulting in shifts in the whales' feeding grounds and thus their movement patterns, these data are all the more important in order to better understand the conditions of a healthy coexistence between whales and the activities of the maritime industry.

These data can be consulted by visiting the website of the St. Lawrence Global Observatory at: ogsl.ca/bio/?lg=en

