2020 SEASON ACTIVITY REPORT

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MARINE INDUSTRY ENGAGEMENT FOR WHALE DATA COLLECTION

Canadian East Coast Sector

Prepared by :

MMON
MARINE MAMMAL OBSERVATION NETWORK

In collaboration with :

WWF

GREEN MARINE

SLGO .ca
St. Lawrence Global Observatory

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ABOUT

The protection of marine mammals in the St. Lawrence Estuary and Gulf and in the Northwest Atlantic is a current issue that affects a large number of users. Of all these users, the maritime industry is a key category. Ship owners and operators, whether regional, national or international, make frequent use of the shipping lanes in this region. They are on the front lines to collect observation data and to reduce the impacts of commercial shipping on whales.

The MMON teamed up with Green Marine in 2016 and with World Wildlife Fund Canada (WWF-Canada) in 2019 to develop a vast data collection program adapted to the reality of ship owners and operators. The response exceeded our expectations: currently, more than ten different companies with a combined fleet of over 60 ships are participating in the data collection program.

This report presents an overview of activities conducted between April 1, 2020 and March 31, 2021 as part of this program, which is helping to provide valuable information on the presence of whales in key shipping lanes and to train mariners in whale identification and whale conservation. Thanks to their participation in data collection efforts, ship owners and 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 initiative of the MMON and is being carried out in collaboration with WWF-Canada, the St. Lawrence Global Observatory and Green Marine.

Humpback whale
© Rosalie Talbot , 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.

Fisheries and Oceans Canada
Pêches et Océans Canada

TABLE OF CONTENTS

ABOUT ..... **p. 2**

TABLE OF CONTENTS ..... **p. 3**

PART 1 – MMON Activity Report ..... **p. 4**

PART 2 – 2020 Follow-up of Data Collection Program ..... **p. 8**

PART 3 – 2020 Summary of Whale Observations **p.12**

CONCLUSION **p.18**

PART 1 · MMON ACTIVITY REPORT

Beluga whale
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PROJECT HISTORY

Tailored to the needs of ship owners and operators, the whale data collection and training program debuted 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 first edition of which was produced in 2014 by the MMON, the Shipping Federation of Canada, and Dalhousie University. The following activity report describes how work has progressed between April 1, 2020 and March 31, 2021.

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 the MMON and WWF-Canada was established. This committee is made up of representatives of government agencies, conservation organizations and the maritime industry. The annual meeting for the year 2020-2021 took place virtually on January 26, 2021 in order to outline the state of progress of various deliverables. In order to facilitate work progress, four sub-committees were created and met regularly over the past year to focus more specifically on certain elements of the project.

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UPDATED WEB PLATFORM
WWW.NAVIGATINGWHALES.CA

One of the issues raised by the maritime industry concerns 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 serve as a new reference 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 and operators. The latter can find key messages from organizations and ministries responsible for whale conservation as well as any tools developed under the program. The corporate signature of this program has been developed by Akufen studio (www.akufen.ca/en/). Created by the SLGO, the site has been up and running since spring 2020:

www.navigatingwhales.ca

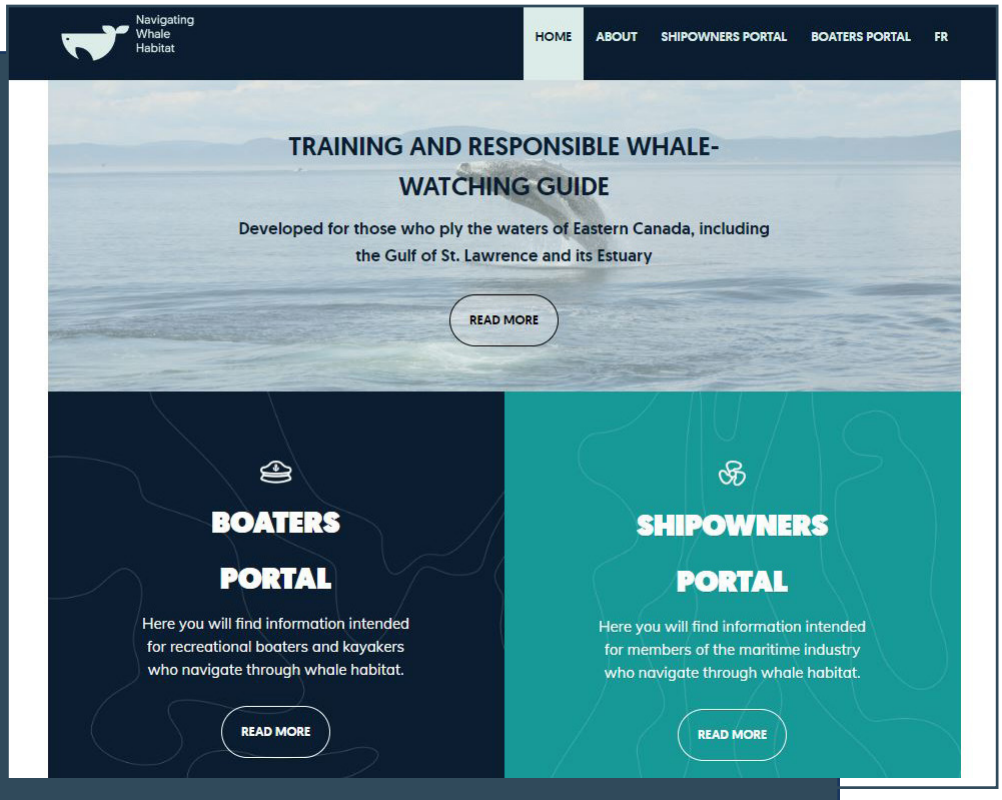
The information presented here was updated regularly throughout 2020-2021. The official launch of this site is scheduled for May 2021.

A NEW DATA ENTRY AND VISUALIZATION TOOL

One of the most significant achievements of 2020-2021 was the creation and launch of a new whale observation data entry and visualization tool on the platform www.navigatingwhales.ca. This tool aims to optimize the collection and subsequent management of data by ship owners and operators, other categories of users of the St. Lawrence as well as ordinary citizens. A working sub-committee composed of representatives of the MMON, WWF-Canada and Parks Canada met regularly over the past year to contribute to the design of this new tool developed by the SLGO. All data collected by the maritime industry since the program's debut in 2015 have been integrated using the online visualization tool. This tool can be used to map the locations of all marine mammal observation data recorded under the program, either collectively or by species.

SLGO.ca
St. Lawrence Global Observatory

Navigating Whale Habitat

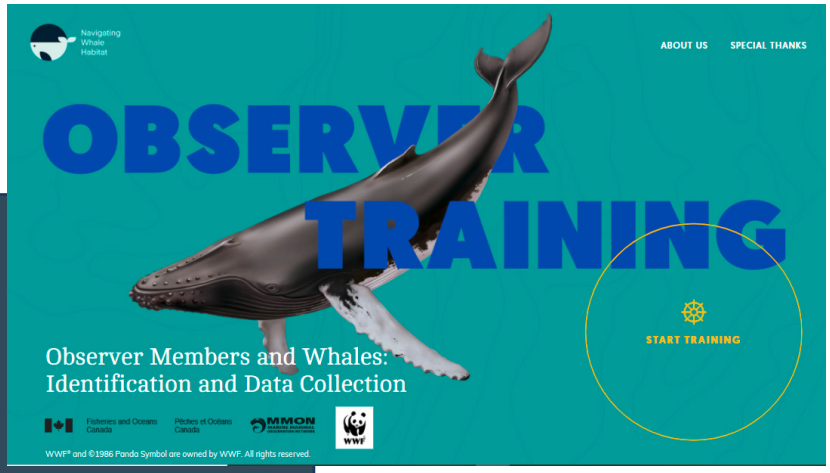


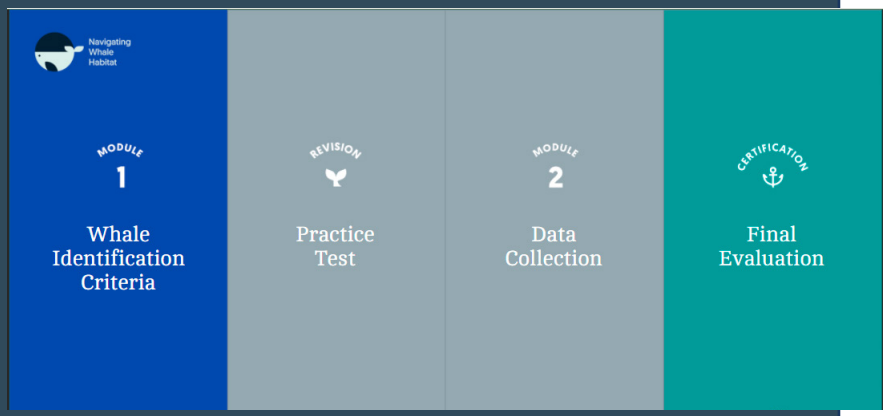
Web plateform
© MMON

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. A certificate is issued to participants who successfully complete the training, i.e. those who score at least 70% on the final evaluation. This certificate can be transferred to the party within the company responsible for the program to help keep track of the training credentials of the company's crew members. This tool is now enhancing both the accessibility and delivery of the training, notably for rotating staff with variable schedules and potentially for international ship owners and operators.

In 2019-2020, a service contract was signed with Akufen and work was initiated to develop the tool. A working sub-committee composed of project managers and maritime industry representatives, notably CSL, Fednav, Desgagnés and the Shipping Federation of Canada, were actively involved in finalizing the training tool in 2020-2021. A test version of this tool was deployed on a ship operated by Desgagnés in fall 2020 and the feedback received from the crew that tested the training was very positive. The training is now available in two versions, namely online at www.navigationbaleines.ca/en/training-available/ and in a "packaged" format that can be integrated with other learning systems already in use by ship owners and operators, notably directly on board the ships. To receive the latter version, please email the MMON at info@romm.ca.





Screenshots of the training tool
© MMON

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

In 2014, the 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. Five years later, an update was needed to incorporate newly acquired knowledge on the distribution of certain cetaceans, notably the North Atlantic right whale in the Gulf of St. Lawrence, as well as to update the areas warranting extra caution and the measures implemented to minimize the risks of collision between ships and whales. Co-produced by the MMON, WWF-Canada and the Shipping Federation of Canada, this second edition also incorporates data collected by the maritime industry since 2015 as well as several other recent data sets from government and research organizations.

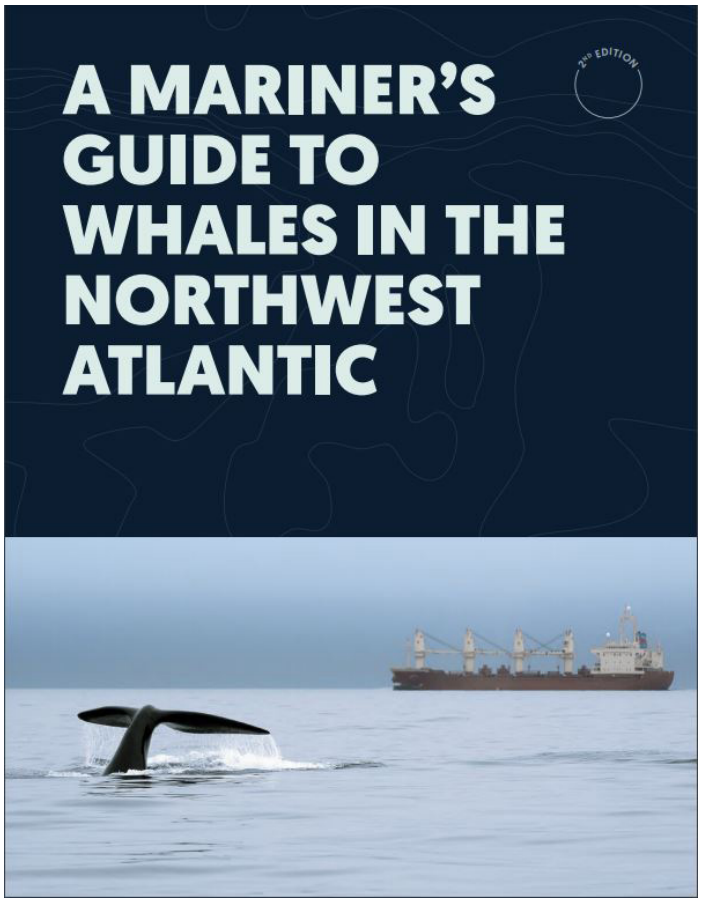
In 2019-2020, a scientific sub-committee headed by WWF-Canada was formed to discuss how scientific and opportunistic data would be shared and used for the guide's updated maps. An external contract was also awarded to Dalhousie University to undertake the mapping analysis, which was completed last winter by WWF-Canada. In parallel, text write-up, computer graphics, iconographic research and graphic design were completed by the firm Akufen in fall 2020 and winter 2020-2021. Several reviewers from government organizations (Fisheries and Oceans Canada, Parks Canada and Transport Canada), the Mingan Island Cetacean Study and Green Marine generously participated in enhancing the quality of submitted information. The French and English versions of this new edition can now be downloaded in PDF format at **www.navigationbaleines.ca/en/mariners-guide/**.

Additionally, 3,000 copies of the English version were printed by Graphiscan and will be distributed to ship owners and operators in May 2021, i.e. the start of the peak shipping season.

COMMUNICATION ACTIVITIES

In winter 2020-2021, a working sub-committee was formed to develop a communication plan to facilitate the official launch of the new web-based platform **www.navigatingwhales.ca** and distribute the tool kit to ship owners and operators in May 2021, just before the peak shipping season. The goal is also to encourage other maritime companies to participate in the data collection program and to train their crews in whale identification and conservation. A number of outreach activities are planned, including a promotional video dedicated to the project that will be posted on social media, a press release and participation in GreenTech 2021, Green Marine's virtual environmental conference scheduled for June.

Shipping Federation of Canada



PART 2 · 2020 FOLLOW-UP OF DATA COLLECTION PROGRAM

CONTINUOUS TRAINING EFFORTS

Training offered to CSL crew members in 2019 © MONN

Training for 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. In parallel with the development of the electronic training tool, the MMON continued its training efforts in 2020, even if such efforts were scaled down compared to previous years due to the current pandemic:

- A virtual training was offered by the MMON to certain crew members of CTMA on June 22, 2020. This is a new maritime industry member that has been participating in the data collection program since 2020.

- In collaboration with Green Marine, a virtual training was delivered to representatives of the company Baffinland on July 20, 2020. Baffinland is a new observer member.

- Two virtual training sessions (one in French and one in English) also took place on September 23 and 28, 2020 with crew members of another new observer member, the shipping company NEAS.

- MMON presented the results of the data collection program at the Groupe Desgagnés virtual seminar, which was held on February 17, 2021.

- A series of virtual one-to-one presentations took place with the environmental directors or heads of the data collection program from each participating company in March and April 2021 in an effort to provide them with a sneak preview of the new tools contained in the training and data collection kit. The objective was also to encourage members to continue their involvement in the program and validate planned improvements.

MAJOR DEVELOPMENTS IN 2020

A few noteworthy developments in the data collection program occurred in 2020, namely:

- Three new observer members joined the ranks of companies participating in the program, namely CTMA with the participation of the *CTMA Vacancier 2*, which offers excursions on the St. Lawrence; Baffinland with the participation of 7 ships that are subcontracted by this Canadian mining company and, lastly, NEAS Group with the participation of 3 ships in 2020.

- In winter 2020-2021, the MMON and WWF-Canada standardized the whale observation data collection protocol so that all program members would enter their information in the same manner, i.e. using the input fields of the new online tool. Also worth mentioning is the addition of two new variables that serve to pinpoint whale positions (distance between observer and animal and angle) rather than just the ship's position. This information will facilitate broader use of the data for scientific purposes.

- The English and French versions of the new protocol can be downloaded in PDF format at **www.navigatingwhales.ca**. The same goes for the new version of the data grid available in Excel format.

© Baffinland

PORTRAIT OF PARTICIPATING MARITIME COMPANIES

	LOGO	DESCRIPTION	NUMBER OF PARTICIPATING SHIPS	AREA COVERED	OUTLOOK FOR 2021
Société des traversiers du Québec	Société des traversiers Québec	STQ is a Crown corporation that provides ferry services on the St. Lawrence.	2 ships (ferry crossings Matane–Baie-Comeau –Godbout and L'Isle-aux-Coudres –Saint-Joseph-de-la-Rive) 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 Compagnie de navigation des Basques	CNB is a private company that operates the ferry between Trois-Pistoles and Les Escoumins.	1 ship (*Héritage 1*)	St. Lawrence Estuary	Data collection to resume in 2021 (company inactive in 2020)
Groupe Desgagnés	Groupe Desgagnés inc.	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	GROUPE CSL	CSL operates a fleet of approximately 20 ships, mainly bulk freighters.	1 ship (*Baie St. Paul*)	St. Lawrence Seaway	Addition of ship *Le Huron*
Fednav	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 (*Arctic* and *Umiak I)*	St. Lawrence Seaway and Arctic	Encourage renewed participation

	LOGO	DESCRIPTION	NUMBER OF PARTICIPATING SHIPS	AREA COVERED	OUTLOOK FOR 2021
Oceanex	OCEANEX	Oceanex offers shipping to Newfoundland and Labrador from the rest of North America.	3 ships (*Sanderling, Avalon* and *Connaigra*)	Gulf of St. Lawrence	Continued data collection
Algoma	ALGOMA CENTRAL CORPORATION	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 Marine Atlantique	Marine Atlantic offers a ferry service between Nova Scotia and Newfoundland & Labrador	4 ships (*Leif Ericson, Highlanders, Vision* and *Blue Puttees*)	Gulf of St. Lawrence, between Nova Scotia and Newfoundland & Labrador	Continued data collection
CTMA	CTMA	CTMA is a maritime company offering cruises on the St. Lawrence and a ferry service between the Magdalen Islands and the coast	1 ship involved (*CTMA Vacancier 2*)	Estuary and Gulf of St. Lawrence	Addition of *CTMA Traversier*
Baffinland	Baffinland	Baffinland Iron Mines Corporation is a Canadian mining company that extracts iron ore at the Mary Rive operation and subcontracts various ship owners/operators to transport this ore.	7 subcontracted ships selected	Eastern Arctic	Continued data collection
NEAS	NEAS	NEAS specializes in the shipping of products, supplies and foodstuffs to remote regions of the eastern and western Arctic.	3 ships (*Aujaq, Nunalik, Qumatik*)	Eastern Arctic	Continued data collection

PART 3 · 2020 SUMMARY OF WHALE OBSERVATIONS

EXCELLENT DATA COLLECTION EFFORT

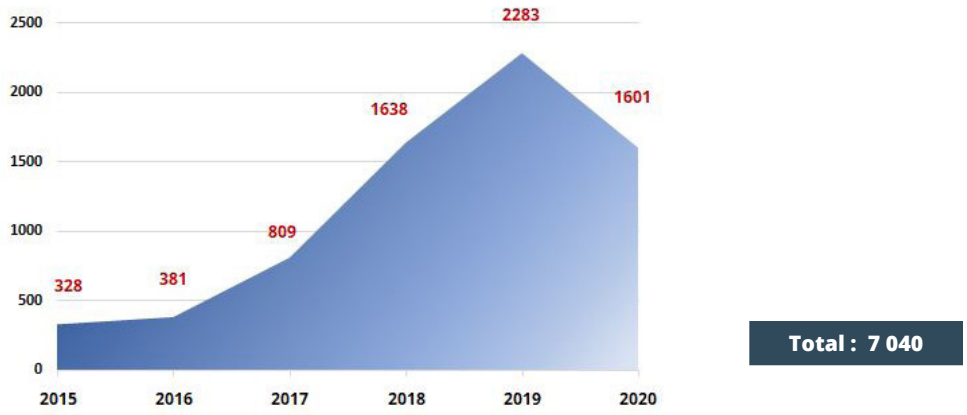


FIGURE 1. EVOLUTION OF OBSERVATIONS COLLECTED BY SHIP OPERATORS SINCE START OF PROJECT, 2015-2020

Despite the numerous impacts and logistical challenges created by the pandemic on commercial shipping in 2020, ship owners and operators continued their data collection efforts. A total of 1601 observation data were collected by the crews of those participating companies that remained active in 2020 (9/11; 81.8%). Additionally, 92 marine mammal observations were collected from the two ferry terminals involved in the program, namely Godbout and Saint-Joseph-de-la-Rive (see page 17).

As illustrated in Figure 1, despite a drop-off in the data collection effort in 2020 compared to 2021 (-30%), the maritime industry's involvement in the data collection program continues to grow, as testified by the participation of three new partner companies (Baffinland, CTMA and NEAS).

Groupe Desgagnés accounted for approximately 46.0% of all marine mammal observations in 2020 (736/1601), followed by Marine Atlantic (208/1601; 13.0%) and Oceanex (158/1601; 9.9%). In their first year in the program, Baffinland accounted for 4.2% of all observations (67/1601), NEAS 3.9% (62/1601) and CTMA 2.9% (42/1601).

Despite a growing interest in the industry, constraints related to COVID-19 are responsible for an overall decline in the data collection effort of most of the participant companies. Further, two companies were not active in 2020, namely Fednav for logistical reasons and Compagnie de navigation des Basques due to the fact that the Trois-Pistoles–Les Escoumins ferry was out of water the entire year for major repairs.

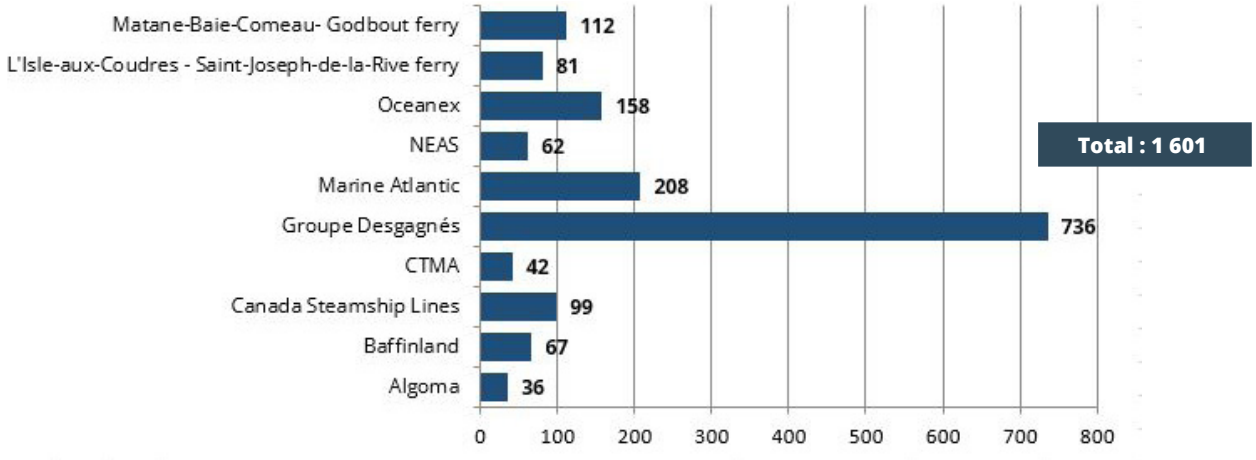


FIGURE 2. NUMBER OF OBSERVATIONS PER MARITIME COMPANY, 2020

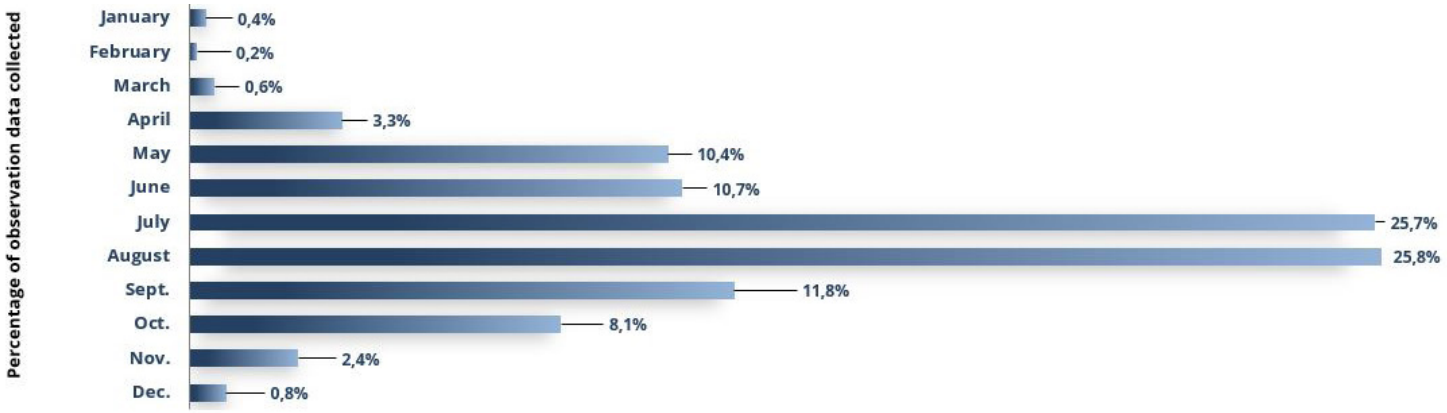


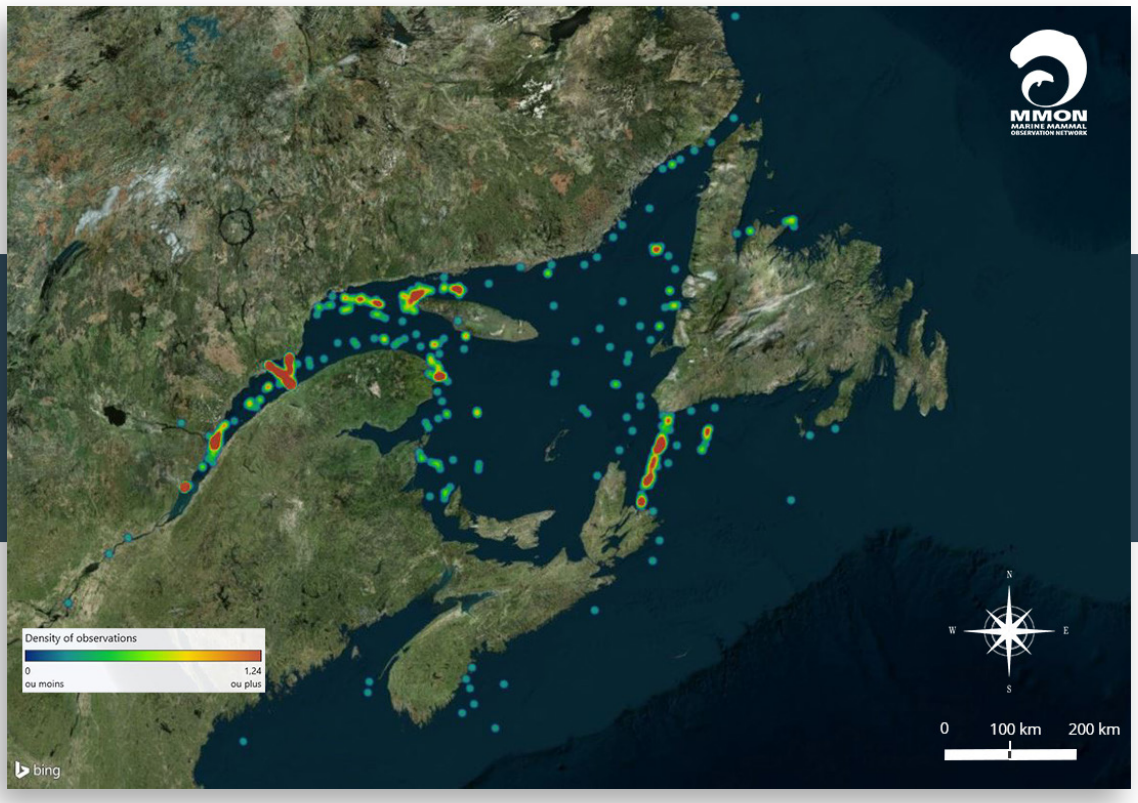
FIGURE 3. MONTHLY BREAKDOWN OF OBSERVATIONS COLLECTED UNDER PROJECT, 2020

In 2020, the majority of observations collected by those companies that remained active were made in the height of the shipping season, i.e. May to September (84.4%; 1351/1601), with peaks in July (25.7%; 412/1601) and August (25.8%; 413/1601) (Figure 3). A total of 4.5% of observations were made prior to the start of the high season, i.e. January to April (72/1601) and 11.3% thereafter, i.e. October to December (181/1601). Though fewer in number, data collected outside the summer months are particularly valuable due to the fact that these periods are less heavily monitored by scientists. They provide information on the presence of certain whale species within the covered area, notably in winter. Notably, in 2020, data collection effort was higher than 2019 in May, June, September and October. Congratulations to all crews that participated for their involvement in whale conservation.

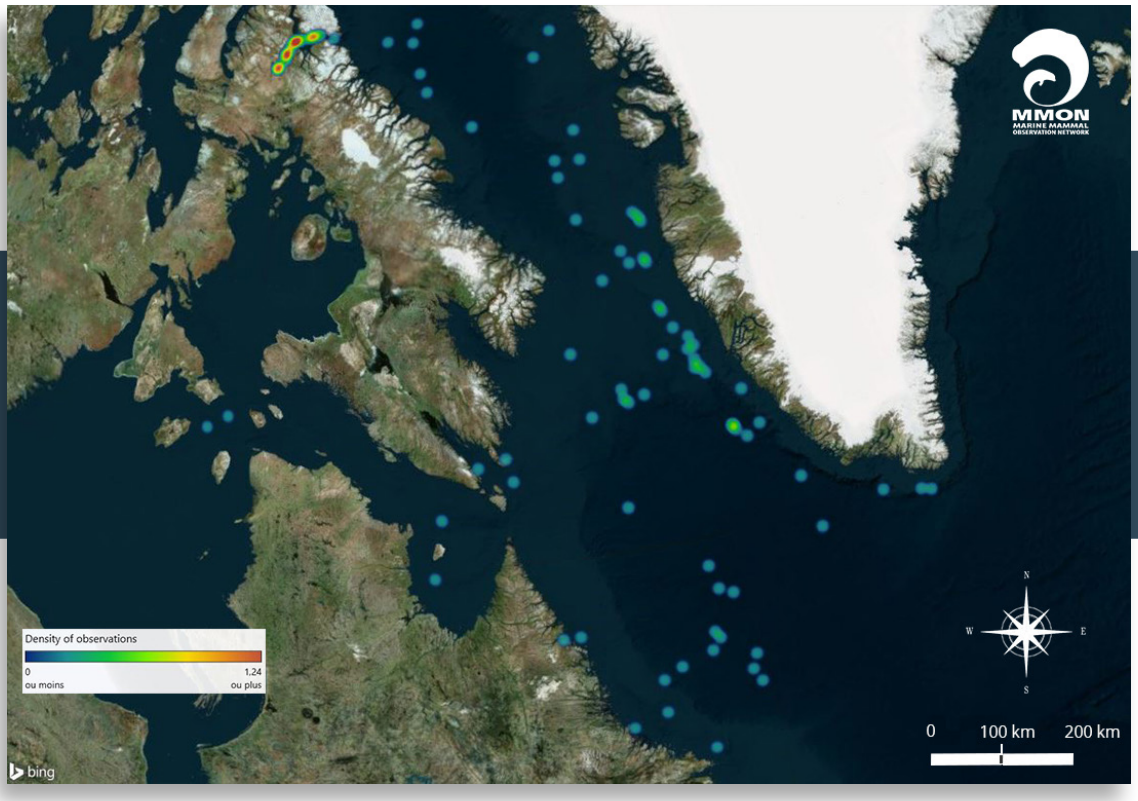
Aujaq © NEAS

VAST COVERAGE AREA

MAP 1. WHALE OBSERVATION DENSITY IN MAIN SHIPPING CHANNELS OF PARTICIPATING COMPANIES, 2020 (CANADIAN EAST COAST)



MAP 2. WHALE OBSERVATION DENSITY IN MAIN SHIPPING CHANNELS OF PARTICIPATING COMPANIES, 2020 (ARCTIC REGION)



Data collected by ship operators help to better understand whale distribution patterns 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 2020 season, a substantial majority of the area was covered. More precisely:

- The Lower Estuary enjoys heavy coverage beginning around L'Isle-aux-Coudres, as does the entire Gulf of St. Lawrence and extending to the Bay of Fundy. These sectors are further reinforced with the addition of CTMA.
- 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.
- Thanks to Marine Atlantic, which joined the data collection program in 2019, the shipping lane between Newfoundland and Nova Scotia is now well covered.
- Though still sparse, data collection is improving in the Arctic thanks to the recent participation of companies NEAS and Baffinland, whose observations are concentrated along the east coast of Newfoundland up to Ungava Bay, Hudson Strait, Baffin Bay, Eclipse Sound and Bylot Island.
- A few data were reported from southern Nova Scotia.

© Baffinland

Walrus © Fred Dorosh, Fednav

PRECIOUS DATA ON WHALE DISTRIBUTION PATTERNS

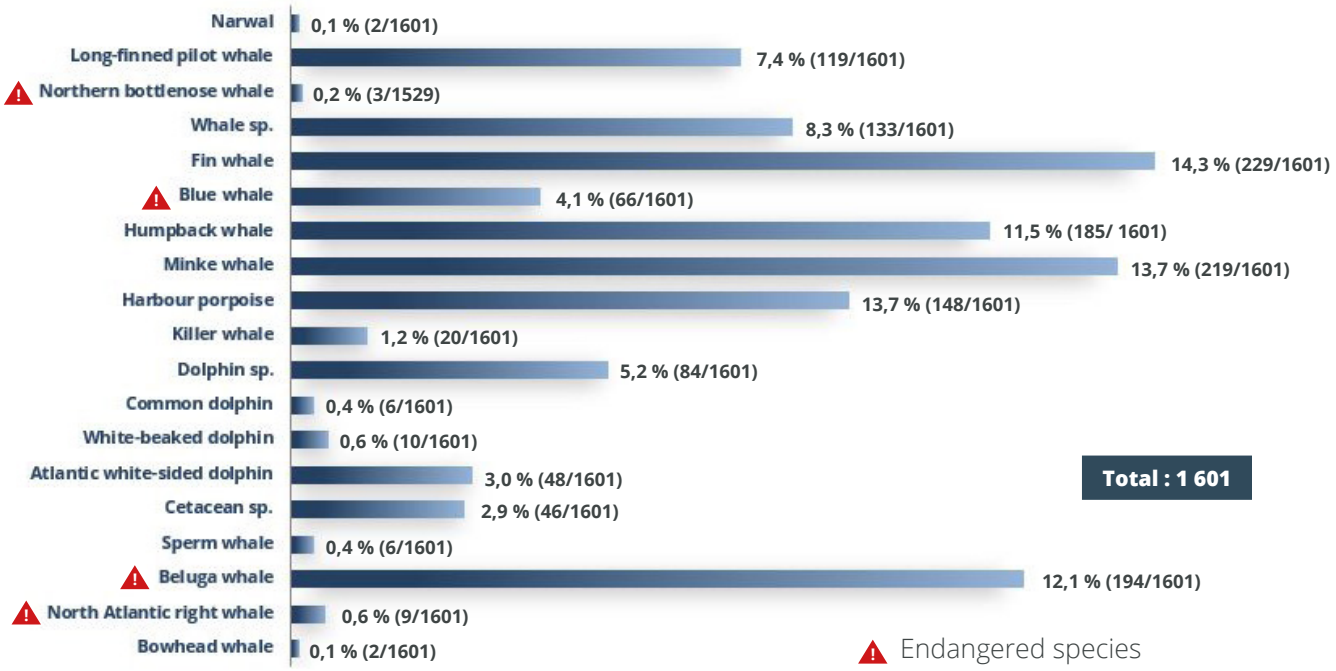


FIGURE 4. SPECIES BREAKDOWN OF COLLECTED OBSERVATION DATA, 2020

As illustrated in Figure 4, the species most commonly observed in 2020 was the fin whale (special concern status), which represented 14.3% of whale observations (229/1601), closely followed by the minke whale (13.7%; 219/1601), the beluga (12.1%; 194/1601) and the humpback whale (11.5%; 185/1601).

New knowledge on endangered species is particularly valuable to support the establishment of protection measures that pertain to these species. In addition to beluga sightings, there were observation data for blue whales (4.1%; 66/1601), North Atlantic right whales (0.6%; 9/1601) and bottlenose whales (0.2%; 3/1601). The proportions observed in 2020 are similar to those of 2019.

Species for which data are more rarely reported such as the walrus (in the Arctic), ocean sunfish, basking shark and leatherback turtle were also observed in 2020 (Figure 5, page 17). Moreover, a greater diversity of pinnipeds was noted compared to 2019 with the presence of bearded seals, ringed seals, harbour seals and harp seals (2.9%; 48/1601).

Approximately 16.4% of data concerned dolphins, rorquals or cetaceans that could not be identified with certainty by seafaring personnel (263/1601, Figure 4) and 1.7% concerned unidentified seal species (28/1601). The online training tool allows crews to hone their identification skills of whale species in the region covered by the data collection program. We encourage all data collectors to complete this training, which is available at **www.navigationbaleines.ca/en/training-available/.**

Beluga whale © S. Giroux, MMON

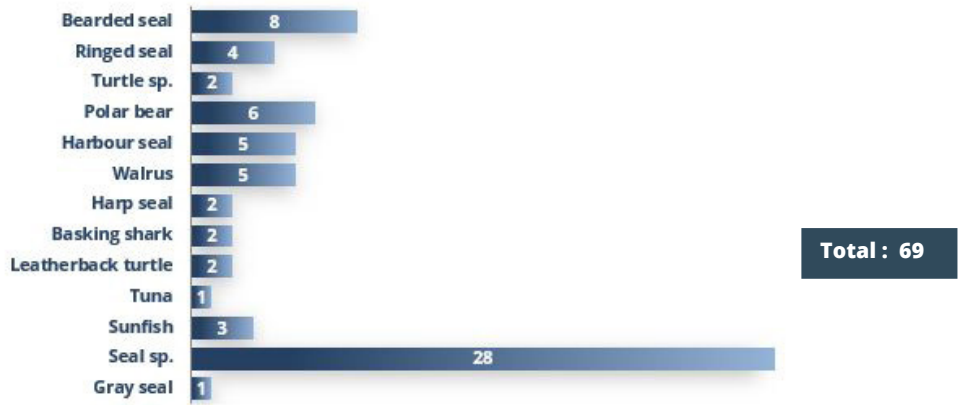


FIGURE 5. NUMBER OF OBSERVATION DATA FOR NON-CETACEAN SPECIES, 2020

SUSTAINED DATA COLLECTION EFFORT BY FERRY TERMINALS

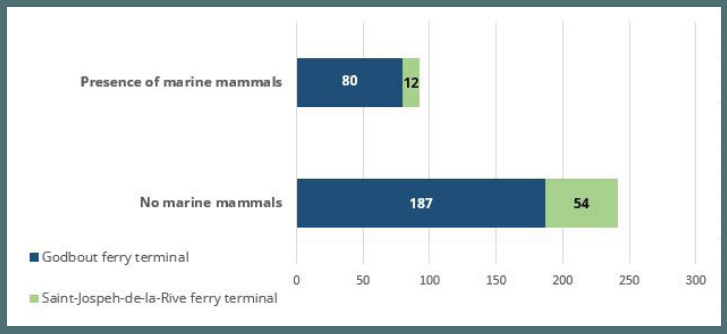


FIGURE 6. NUMBER OF OBSERVATION DATA COLLECTED BY FERRY TERMINALS, 2020

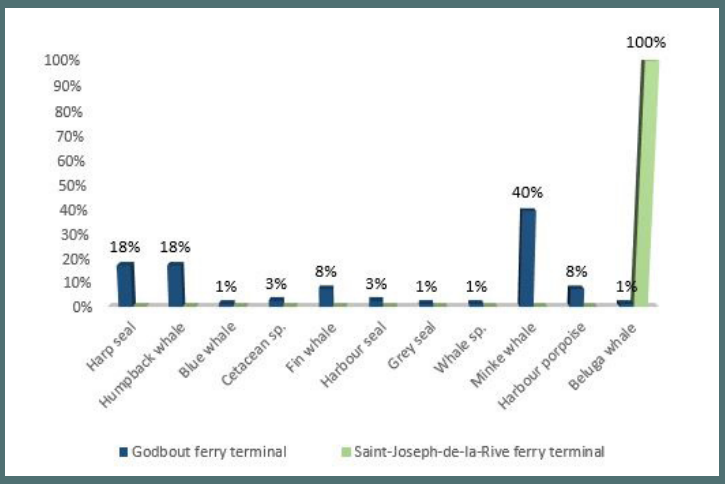


FIGURE 7. SPECIES BREAKDOWN OF OBSERVATION DATA COLLECTED BY FERRY TERMINALS, 2020

In 2020, the Godbout and Saint-Joseph-de-la-Rive ferry terminals continued their participation in the data collection program following a protocol specifically designed for land-based observations. The data they gather help refine our knowledge on the distribution of marine mammals in a given sector throughout the year.

The data collection effort was lower in 2020 than in previous years. Also, 80% of all observation sessions failed to record a single marine mammal (241/333). However, it is important to point out that, for long-term monitoring purposes, a datum indicating 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 92 additional observations were collected on 66 separate days in 2020 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 minke whale (40%; 32/80), followed by the humpback whale and the harp seal (18% each; 14/80). It should be noted that 1% of all observations in this sector concerned the blue whale and the beluga (1/80 each), both of which are endangered.

As for the Saint-Joseph-de-la-Rive ferry terminal, 100% of the observations concerned belugas (12/12). These data are of great importance to understand how this endangered species uses this sector, since the latter represents the western limit of the species' range, where few data are available.

CONCLUSION

In 2020, nine of the eleven companies involved in the data collection program continued their participation despite the impacts of the current pandemic. With 1601 additional data in 2020, including 1509 from ship crews and 92 from the staff of two ferry terminals, a grand total of 7040 marine mammal observations have now been collected since 2015, the first year of the data collection project for the maritime industry. The overall level of effort in 2020 was nearly 30% lower than the previous year, which is partially attributable to the pandemic, logistical challenges faced by certain companies and the non-participation of Compagnie de navigation des Basques due to its ferry being out of service in 2020.

Every year, the maritime industry provides essential information to research organizations to help them 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 that are less monitored by scientists. 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 in turn their movement patterns, these data are all the more important 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 St. Lawrence Global Observatory website at: **https://ogsl.ca/bio/** ou encore le nouvel outil de visualisation intégré à la plateforme **www.navigatingwhales.ca**.

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Global Observatory

Ship Wake © C. Dupasquier, MMON