

Report on the progress of recovery strategy implementation for the Blue Whale (*Balaenoptera musculus*), Northwest Atlantic population, in Canada for the period 2009 - 2014

Blue Whale



2016

**Recommended citation:**

Fisheries and Oceans Canada. 2016. Report on the Progress of Recovery Strategy Implementation for the Blue Whale (*Balaenoptera musculus*), Northwest Atlantic population, in Canada for the Period 2009 – 2014. *Species at Risk Act Recovery Strategy Report Series*. Fisheries and Oceans Canada, Ottawa. ii+ 14 pp.

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Également disponible en français sous le titre  
« Rapport sur les progrès de la mise en œuvre du programme de rétablissement du rorqual bleu (*Balaenoptera musculus*), population de l'Atlantique Nord-Ouest au Canada pour la période 2009-2014 »

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ISBN 978-0-660-04810-9

Catalogue no. En3-4/59-1-2016E-PDF

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## **Preface**

Section 46 of the *Species at Risk Act* (S.C. 2002, c.29) (SARA) requires the competent minister to report on the implementation of the recovery strategy for a species at risk, and on the progress towards meeting its objectives within five years of the date when the recovery strategy was placed on the Species at Risk Public Registry and in every subsequent five-year period, until its objectives have been achieved or the species' recovery is no longer feasible.

Reporting on the progress of recovery strategy implementation requires reporting on the collective efforts of the competent minister(s), provincial organizations and all other parties involved in conducting activities that contribute towards the species' recovery. Recovery strategies identify broad strategies and approaches that will provide the best chance of recovering species at risk. Some of the identified strategies and approaches are sequential to the progress or completion of others; and not all may be undertaken or show significant progress during the time frame of a Report on the Progress of Recovery Strategy Implementation (Progress Report).

The Minister of Fisheries and Oceans is the competent minister under SARA for the Northwest Atlantic Blue Whale and has prepared this Progress Report. The minister responsible for the Parks Canada Agency is the competent minister for Blue Whales in the Forillon National Park.

As stated in the preamble to SARA, success in the recovery of species at risk depends on the commitment and cooperation of many different constituencies that will be involved in implementing the directions set out in the recovery strategy and will not be achieved by Fisheries and Oceans Canada (DFO) or any other jurisdiction alone. The cost of conserving species at risk is shared amongst different constituencies. All Canadians are invited to join in supporting and implementing the Recovery Strategy for the Northwest Atlantic Blue Whale for the benefit of the species and Canadian society as a whole.

## **Acknowledgments**

This Progress Report has been prepared with inputs from Parks Canada and the Mingan Islands Cetacean Study. DFO would also like to express its appreciations to all individuals and organizations who have contributed to the recovery of the Northwest Atlantic Blue Whale.

## Executive summary

The Northwest Atlantic Blue Whale population was listed under the *Species at Risk Act* in 2005 as an endangered species. The [Recovery Strategy for the Blue Whale \(\*Balaenoptera musculus\*\), Northwest Atlantic population](#), was produced in collaboration with the Blue Whale Recovery Team and was posted on the Species at Risk Public Registry in 2009. This strategy includes recovery objectives aiming towards a better understanding of the population and its habitat, its threats and measures to mitigate them. It presents measures in research, conservation and outreach to guide the actions to be undertaken by DFO and by all stakeholders involved in the recovery of the Northwest Atlantic Blue Whale.

The goal of this progress report is to review the implementation of the Recovery Strategy over the period 2009-2014. Research conducted by DFO and its partners resulted in the characterisation of several Blue Whale feeding grounds in the Estuary and Gulf of St. Lawrence. It also began to document Blue Whales' use of waters south of Newfoundland and on the Scotian Shelf. Research has led to a better understanding of the behaviour and population dynamics of krill, the Blue Whale's main food source, and how these affect Blue Whale behaviour. Research into the Blue Whale's exposure to noise in the Estuary and Gulf of St. Lawrence and the Laurentian Channel provided insight into the threat that noise from shipping represents. Several conservation and awareness measures, primarily focused on shipping and pleasure boating, taken by DFO and other stakeholders, have reduced disturbance and the risk of collision.

Priorities in the Recovery Strategy are still relevant and further research will be necessary to meet the recovery objectives.

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## 1. Background

### 1.1 COSEWIC assessment summary

The box below is taken from the Blue Whale assessment report by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC, 2012).

**Common Name (population):** Blue Whale (Atlantic population)

**Scientific Name:** *Balaenoptera musculus*

**Legal listing (SARA):** January 2005 (Endangered)

**COSEWIC Status:** Endangered

**Date of Assessment:** May 2012

**Reason for designation:** Whaling reduced the original population of this species. The population size is unknown but there are likely fewer than 250 mature individuals in Canada. There are also strong indications of a low calving rate and a low rate of recruitment into the population. The known causes of human-induced mortality of this species in Canada and elsewhere are ship strikes and entanglements in fishing gear. The species may also be vulnerable to disturbances due to increased noise in the marine environment and to changes in the abundance of its prey (zooplankton) through, for example, long-term changes in the climate.

**Canadian Occurrence:** Atlantic Ocean

**COSEWIC Status History:** The species was considered a single unit and designated Special Concern in April 1983. Split into two populations in May 2002. The Atlantic population was designated Endangered in May 2002. Status re-examined and confirmed in May 2012.

## 1.2 Threats

The table below presents threats listed in the Recovery Strategy (Beauchamp et al., 2009). Natural mortality factors such as predation and ice entrapment exist in addition to these anthropogenic threats.

**Table 1. Summary of threats to the recovery of the Northwest Atlantic Blue Whale**

<b>Threats</b>	<b>Extent</b>	<b>Occurrence</b>	<b>Frequency</b>	<b>Causal certainty</b>	<b>Severity</b>	<b>Level of concern</b>
<b>Noise</b>	Widespread	Current	Continuous	Medium to high	Unknown	High
<b>Food availability</b>	Widespread	Current	Continuous	Low to high	Unknown	High
<b>Contaminants</b>	Widespread	Current	Continuous	Low	Unknown	Medium
<b>Ship strikes</b>	Localized	Current	Continuous	Medium	Moderate	Medium
<b>Whale watching</b>	Localized	Current	Seasonal	Medium to high	Moderate	Medium
<b>Entanglement in fishing gear</b>	Widespread	Current	Continuous	Medium	Unknown	Low
<b>Epizootics and toxic algal blooms</b>	Widespread	Anticipated	Unknown	Unknown	Unknown	Low
<b>Toxic spills</b>	Widespread	Anticipated	Recurrent	Medium	Low to moderate	Low

**Extent:** indicates whether the threat is widespread or localized within the total distribution range of the population.

**Occurrence:** indicates whether the threat is historic (contribute to the population's decline but no longer affects it), current (presently affects the population), imminent (should affect the species in the near future) or anticipated (could affect the population in the future).

**Frequency:** indicates whether the threat occurrence is unique, seasonal, continuous or recurrent (as opposed to annual or seasonal).

**Causal certainty:** indicates whether the best available information on the threat and its impact on the viability of the population is of high, moderate or low quality.

**Severity:** indicates whether the level of severity of the threat is high, moderate or low.

**Level of concern:** indicates whether the level of concern of the threat management, on the whole, is high, moderate or low. This may take into consideration the ability to mitigate or eliminate the threat.

## **2. Recovery**

### **2.1 Recovery goal**

The Recovery Strategy's goal is to reach a population of at least 1,000 mature individuals to ensure the survival and recovery of the Blue Whale population in the Northwest Atlantic. This recovery target corresponds to the COSEWIC criteria for downgrading the status of the Blue Whale population from "endangered" to "not at risk".

### **2.2. Performance indicators**

The Recovery Strategy did not include performance indicators for the recovery goal. It proposed however three recovery objectives:

1. Define and undertake a long term assessment of the number of Northwest Atlantic Blue Whales, the structure and trends of the population, and determine their range as well as their critical habitat within Canadian waters.
2. Implement control and follow-up measures for activities which could disrupt the recovery of the Blue Whale in its Canadian range by prioritizing the following actions:
  - 2.1 first, reducing anthropogenic noise (e.g., seismic exploration) and protecting food resources;
  - 2.2 second, reducing disturbance from anthropogenic activities (e.g., whale-watching), reducing the risk of accidents associated to collisions as well as other human activities (e.g., fisheries and by-catch) and by reducing toxic contamination in the marine environment, which may have an impact on Blue Whales.
3. Increase knowledge concerning the principal threats to the recovery of the Blue Whale in Canadian waters, such as anthropogenic noise, the reduced availability of food resources, anthropogenic activities that can lead to disturbance, injuries or mortality (e.g., whale-watching activities, shipping traffic, coastal and offshore developments) and contamination, in order to determine their true impact and identify effective measures to mitigate the negative consequences for this population's recovery.

To reach these objectives, several recovery measures were proposed following three broad strategies: research and monitoring, conservation, awareness and outreach. The activities described below are categorized according to these strategies and will attest to the progress accomplished toward meeting recovery objectives.



### 3. Progress towards recovery

DFO's mandate and involvement in the enforcement of existing legislation includes the recovery of the Blue Whale. The needs of the Blue Whale are taken into account when environmental assessments of various projects are carried out, such as under the *Fisheries Act*, the *Species at Risk Act*, the *Canadian Environmental Assessment Act* or the *National Energy Board Act*. DFO reviews environmental assessments submitted to the federal-provincial offshore petroleum boards to ensure, in part, that species at risk are considered. Mitigation measures may also be included in authorization conditions issued under various laws enforced by the Department. Moreover, scientific research protocols on the Blue Whale are examined to minimize disturbance. By enforcing the laws, other government departments and agencies also contribute to Blue Whale recovery. For example, Parks Canada enforces the *Marine Activities in the Saguenay-St. Lawrence Marine Park Regulations* and any collision with a marine mammal within the Marine Park must immediately be reported to a park warden. Two park wardens are assigned to enforce the Act in the Marine Park.

#### 3.1. Research and monitoring activities

The Recovery Strategy for the Northwest Atlantic Blue Whale identified many gaps in basic knowledge regarding the population, such as its size and distribution. For this reason, two out of three recovery objectives were aimed at increasing knowledge on the population and its habitat and the threats to its recovery. In addition, the schedule of studies to identify the critical habitat (table 2) in the Recovery Strategy also set research priorities for the 2009-2014 period.

**Table 2. Schedule of studies to identify critical habitat (from the Recovery Strategy)**

<b>Research objectives</b>	<b>Activity Description</b>	<b>Due date</b>
Improve knowledge of Blue Whale distribution.	<ul style="list-style-type: none"> <li>• Determine Blue Whale seasonal distribution in Canadian waters.</li> <li>• Determine distribution in areas where there are few or no data such as off the coast of Newfoundland and Labrador, the Scotian Shelf, the Eastern and Southern parts of the Gulf of St. Lawrence.</li> </ul>	2014
Improve knowledge of feeding areas	<ul style="list-style-type: none"> <li>• Determine and characterize Blue Whale feeding areas within Canadian waters.</li> <li>• Identify and validate krill aggregation areas in the Estuary and Gulf of St. Lawrence and the Canadian continental shelf.</li> <li>• Study physical and biological processes that influence krill aggregation and abundance.</li> </ul>	2014

Several research activities were therefore carried out by DFO or its partners between 2009 and 2014 to learn more about the population (objective 1) and identify its critical habitat:

### **Collecting and using observation data**

- An analysis was done by the Mingan Islands Cetacean Study (MICS) of their data collected from 1980 to 2008 on sightings of Blue Whales, primarily in the Gulf of St. Lawrence. The areas with the greatest densities of blue whales and the longest lengths of stay include the north shore of the lower St. Lawrence Estuary and the eastern tip of the Gaspé Peninsula between Rivière-au-Renard and Percé. Several changes in Blue Whale distribution were observed during the study period. A total of 402 individual Blue Whales have been identified in the Gulf of St. Lawrence, with matches between individuals photographed in the Gulf of Maine, off Nova Scotia, Newfoundland and Labrador and as far away as Greenland. While Blue Whales are highly mobile and may select other feeding grounds within a season or between years, the large number of re-sightings and high occupancy rates indicate the importance of the Gulf of Saint Lawrence as Blue Whale habitat (Ramp and Sears, 2013).
- An active effort is made to collect cetacean sightings data on the Scotian Shelf, including Blue Whale sightings, from various resources (e.g. DFO researchers or Canadian Wildlife Service bird observers). These data are entered into the DFO Maritimes administrative region cetacean sightings database and could be used for example to report on Blue Whale occurrences on the Scotian Shelf during environmental assessments.
- Dalhousie University conducted a multispecies analysis of sightings in the Gully area, on the eastern Scotian Shelf, between 1988 and 2011. An 11% yearly increase in Blue Whale sightings was documented in the Gully over a 23 year period (Whitehead, 2013).

### **Spatio-temporal characterization of Blue Whale feeding habitats**

- Satellite transmitters were deployed on Blue Whales and preliminary analyses of data collected on more than 15 individuals resulted in advances in knowledge. Deployments have enabled confirmation of three new feeding areas, as well as fall and possibly wintering areas southwest and south of Newfoundland. They will also result in the description of the homing behaviour of Blue Whales in the fall although data for that period were previously relatively limited, identification of migration routes and characterization of the use of the habitat in the Estuary and northwest of the Gulf through individual movements (V. Lesage, DFO, pers. comm.).
- The analysis of 32 acoustic surveys of krill biomass and studies conducted between 2000 and 2014 were used to map of the temporal and spatial variations in distribution and biomass of the two principal krill species in the Estuary and Gulf of St. Lawrence, Scotian Shelf and south of Newfoundland. These surveys permitted the characterization of known, as well as newly identified areas of krill concentration, and their association with the presence of Blue Whales (McQuinn et

al., 2013a; McQuinn et al., 2013c; McQuinn et al., 2013e; Maps et al., 2014; McQuinn et al., 2015).

- The analysis of nine marine mammal surveys, three in the entire Gulf and six more covering smaller areas (Estuary and northwestern Gulf), were conducted along with acoustic surveys to study behaviour of Blue Whales in relation to biomass and distribution of prey (McQuinn et al., 2013c; McQuinn et al., 2013e).
- Areas of krill egg density were determined to identify spawning areas (indication of aggregation of adult krill) in different regions of the northwest, centre and northeast of the Gulf of St. Lawrence and north of Anticosti Island. A spatial distribution map was produced from this data (Plourde et al., 2013).
- Various studies have been conducted to better understand the physical and biological processes responsible for the aggregations of krill that attract Blue Whales to the Estuary and Gulf of St. Lawrence and eventually to identify and describe this population's critical habitat (McQuinn et al., 2013a; Plourde et al., 2013; Maps et al., 2014; McQuinn et al., 2015).
- A study of prey species supporting biodiversity in the Saguenay-St. Lawrence Marine Park was undertaken by the Parks Canada team. It involved long term monitoring of the abundance of the different types of prey between May and October, and mapping the areas used by both prey and predators. Many collaborators participated in this project, including DFO and the Groupe de recherche et d'éducation sur les mammifères marins (GREMM). Since 2009, Parks Canada's boat *L'Alliance* has been equipped with an echolocation system for research mounted on a custom-made retractable arm. This scientific echolocation system can measure abundance, size and density of pelagic organisms under water, such as krill and fish.

### **Acoustic monitoring programs**

- DFO has deployed four autonomous acoustic recorders along the south coast of Newfoundland in summer 2014 that can detect the presence of calling Blue Whales. The project should continue over several years in order to confirm the use of this area by Blue Whales. It will support the development of cetacean conservation objectives for the Area of Interest for the proposed Laurentian Channel Marine Protected Area.
- Acoustic data from several locations along the eastern Scotian Shelf were collected in summer and winter months of 2006-2009 by Dalhousie University and DFO, with the collaboration of JASCO Applied Sciences. These recordings were analyzed for the presence of Blue Whale calls and it was determined that Blue Whale vocalizations were more prevalent in summer months, but also occurred during winter months (Moors, 2012).
- In 2012-2014, near-continuous acoustic data were collected by DFO from the Gully Marine Protection Area and nearby slope areas using bottom-moored autonomous acoustic recorders. These recordings were analyzed in collaboration with JASCO Applied Sciences Ltd for the occurrence of cetacean vocalizations, including Blue Whale calls. Initial results support those of Marotte (2014) – that Blue Whales occur in the eastern Scotian Slope region throughout the year.

## **Other research**

Studies were also conducted to better understand the threats to the recovery of the Blue Whale (objective 3).

- Exposure of the Blue Whale to anthropogenic noise in its habitat of the Estuary and Gulf of St. Lawrence was studied. A database of map shipping routes was established (primary source of anthropogenic noise in the habitats of the Blue Whale) in Eastern Canada, to identify the level and frequency of noise by vessel type, length and speed (Simard et al., 2014).
- Biological samples from three of the nine adult Blue Whales killed in an ice-related event on the west coast of Newfoundland in spring 2014 were collected for analysis cooperatively with the Royal Ontario Museum.
- A review of mitigation and monitoring measures for seismic survey activities in and near the habitat of cetacean species at risk was done. A multi-stakeholder meeting was held in March 2014 to review the effectiveness of the current Statement of Canadian Practice with respect to the Mitigation of Seismic Sound in the Marine Environment for species at risk. Enhanced mitigation measures for cetacean species at risk, including Blue Whales, during seismic survey activities were recommended. Many of the recommended enhanced mitigation measures are already being put in place by regulators and industry for seismic survey activities occurring offshore Nova Scotia (DFO, 2015).

## **3.2. Conservation activities**

The conservation measures (objective 2) proposed in the recovery strategy aimed to reduce the impact of noise and promote the use of regulatory tools to protect the Blue Whale and its habitat.

### **Marine Mammal Response Program**

In collaboration with conservation groups and non-governmental organizations, the Department supports marine mammal response networks in all maritime regions of Canada under the umbrella of the Marine Mammal Response Program.

In Quebec, the Quebec Marine Mammal Emergency Response Network is responsible for organizing, coordinating, and implementing measures to reduce accidental deaths of marine mammals, assisting animals in distress and promoting knowledge acquisition from animals that are dead, stranded or adrift in Quebec waters of the St. Lawrence. Up to now, the network's coordination and call centre are handled by the Groupe de recherche et d'éducation sur les mammifères marins (GREMM).

The Marine Animal Response Society (MARS) is a charitable organization working for the conservation of marine mammals in the Maritimes provinces through its educational, research and rescue activities. This organization runs a call and rescue coordination centre for stranded or entangled marine mammals with the help of several partners, including DFO. It documents cases and maintains a database.

The Campobello Whale Rescue Team, located in Campobello Island, New Brunswick, specializes in whale disentanglement. The group works closely with DFO to disentangle whales or to provide advice on the phone when response time is critical to the survival

of the animal. It developed a handout providing mariners with directions detailing what to do if deceased or distressed marine animals are seen offshore (distribution targeting Nova Scotia offshore users).

Finally, the Whale Release and Stranding Group was established in Newfoundland and Labrador a few decades ago to allow fishers, partners and the public to report cases of entangled, injured or dead marine mammals, and has a response team to assist marine mammals in distress. The group also carries out awareness activities and collects data and samples for DFO Science in the region.

### **Voluntary protection measures in the St. Lawrence Estuary**

In 2011, in partnership with the Saguenay-St. Lawrence Marine Park (Parks Canada), DFO established a Working Group on Marine Traffic and the Protection of Marine Mammals (MMWG) to identify possible solutions for reducing the risks to marine mammals in the St. Lawrence Estuary associated with marine traffic, while taking into consideration the operating constraints of commercial shipping and without compromising safety. The member organizations comprising the MMWG are in the:

- commercial shipping sector (pilotage, cabotage, international shipping, international cruises, safety and security regulations and intervention),
- marine environment conservation and protection sectors (marine environment protection regulations and intervention), and
- scientific community (marine mammals, modelling, effects of marine traffic, etc.).

The Group's work has brought about the establishment of [voluntary protection measures](#). These measures are applicable to commercial vessels and cruise ships crossing between Pointe-à-Boisvert and Cap de la Tête au Chien between May and October to prevent collisions with whales. These include a caution area, a slowdown to 10 knots area and an area to be avoided. An analysis estimates that the risk of collision decreased by 18% in 2013 for the Blue Whale in the area in which these voluntary measures are applied and that additional efforts would reduce this risk even more for this species in the future (G. Cantin, DFO, pers. comm.).

### **American Bank: a potential Marine Protected Area**

DFO has identified the American Bank, located east of the Gaspé Peninsula in the Gulf of St. Lawrence, as an Area of Interest for a future Marine Protected Area under the *Oceans Act*. The site was selected and studied to determine its ecological characteristics and its sea floor. Data on Blue Whale use of the site have been collected by the Réseau d'observation de mammifères marins (ROMM, Pieddesaux et al., 2010). One of the objectives of the site's conservation is to protect species at risk, including the Blue Whale. Stakeholder consultations have begun. The next steps will be to propose voluntary and regulatory conservation measures and to prepare a regulatory intent to draft a Marine Protected Area regulation under the *Oceans Act*. Examples of potential conservation measures would be to issue licenses to operators of marine observation activities to control activities and prevent disturbance, or to apply fishery measures aimed at reducing the risk of entanglement.

### **3.3. Awareness and outreach activities**

The awareness and outreach measures (objective 2) proposed in the Recovery Strategy are aimed at making marine users aware of the impact of their activities on the Blue Whale and to mitigate this impact. In addition to activities listed below, DFO and other stakeholders promote Blue Whale conservation awareness through their websites and newsletters.

#### **Tell Jack outreach campaign in Newfoundland and Labrador**

The outreach campaign “Tell Jack” was started in 2014 in Newfoundland and Labrador; it aims to encourage the whale watching public to play a meaningful role in DFO marine mammal science. It also serves to raise the profile of DFO’s marine mammal research and efforts to understand and protect marine mammals including Blue Whales. Anecdotal reports and pictures sent to DFO’s marine mammal research group can provide useful information that helps them know what animals are out there, where they are, and gain other potentially valuable information. The “Tell Jack” campaign uses social media, proactive media relations, and public outreach activities to solicit reports and pictures from the public via Twitter and email.

#### **Production and distribution of a Mariner’s Guide to Whales in the Northwest Atlantic**

This awareness project was carried out by the Réseau d’observation de mammifères marins (ROMM) in cooperation with the Shipping Federation of Canada and supported by the Habitat Stewardship Program for Species at Risk. The main objective of the project was to reduce collisions by reducing overlap in time and space of marine traffic in the Northwest Atlantic with at-risk whales such as the Blue Whale. The ROMM and its partners developed a guide to whales for the marine industry. Fifteen hundred copies of this guide were produced and distributed in 2014 free of charge by the Shipping Federation of Canada to ship owners that enter the targeted sector. The guide contains all the pertinent information to make them aware of the presence of numerous species of whales in Northwest Atlantic waters, those that are at risk, and their specific vulnerability to collisions. It includes an identification guide and focuses on the areas of increased caution and how to decrease the risk of collision and the importance to report any cases that occur. Also, a quick bilingual reference guide was produced at the request of the industry with information on how to properly report cases of collision.

#### **Industry awareness of marine observation activities**

##### *2005-2010 Overview of at-sea observation activities of marine mammals in the St. Lawrence Estuary*

A study of at-sea observation activities within the boundaries of the St. Lawrence Estuary area of interest was conducted from 2005 to 2010 by the Groupe de recherche et d’éducation sur les mammifères marins jointly with Parks Canada Agency and DFO. The data collected helped define the territories used for tours, prepare activity reports on these tours and examine use of the territory based on various classes of activity. Analysis of these data also allowed us to locate marine mammal observation activity

centres, measure the distribution of observations aimed at each species and characterize the composition and concentration of the tour boat fleet at the observation sites.

*Encourage the participation of marine observation stakeholders in the conservation of cetaceans at risk in the St. Lawrence*

This project was carried out by the ROMM with support from the Habitat Stewardship Program for Species at Risk. The marine observation activities (MOA) industry is expanding on the Gaspé Peninsula and its activities take place in an area frequented by the Blue Whale. Information on MOAs must be obtained to manage these activities and for stewardship actions to minimize the negative impact of marine disturbances. The project consisted of characterizing MOAs (diving, kayaking, use of zodiacs and other boats) and assessing the use of the Gaspé Peninsula area for these activities since 2006. The presence of observers on vessels throughout the tourism season allowed for the training and ongoing monitoring of captains and nature guides while studying the distribution of marine mammal sightings. In addition, funding granted in 2013 was used to produce a new newsletter entitled L'Info-Baleines: en direct de la Gaspésie.

*Eco-Whale Alliance*

Tour operators, Parcs Québec, Parks Canada and GREMM have come together to ensure the responsible practice and sustainable development of whale watching activities in the Saguenay–St. Lawrence Marine Park. This initiative includes a guide to good practices for captains and naturalists as well as the creation of the Eco-Whale Fund to support research, training and educational activities with regard to whale watching activities.

*Awareness in the Saguenay–St. Lawrence Marine Park*

Parks Canada organizes a mandatory training session for all captains and kayaking guides to operate in the Saguenay–St. Lawrence Marine Park. The training aims to familiarize them with good practices for the observation of marine mammals (marine activities regulations, biology and ways to diversify tours). Parks Canada and Parcs Québec also carry out several other activities in the area, such as an educational tour and patrols to educate pleasure boaters on the regulations in effect in the park. They have developed a guide to environmentally responsible practices for captains and naturalists to make the public aware of conservation efforts and to limit the impact of marine observation activities. A [guide for pleasure boaters](#) was also developed.

The GREMM publishes a weekly newsletter entitled [Portrait of Whales](#), during each whale watching season to give an update on ongoing projects and actions taken to protect whales in order to inform captains and naturalists.

*Whale-Watching Guidelines in the Gully*

Conservative whale-watching guidelines specifically for tourism activities in the Gully marine protected area have been developed and distributed to operators for a better

awareness of the impact of their activities on marine mammals in this area, including Blue Whales.

### **At-sea observer training**

Training sessions were delivered by DFO on an 'as requested' basis to various at-sea observers in the Maritimes administrative region to increase accuracy of cetacean sighting data being collected.

### **3.4. Summary of progress made with regard to recovery**

Gaps remain in our knowledge of the Northwest Atlantic Blue Whale population given its vast area of distribution and the financial and logistical challenges of conducting research. Notwithstanding, the research described above has provided valuable knowledge about this population and the threats to its recovery.

Objective 1 was to obtain a better understanding of the population and its habitat. The research conducted by DFO and its partners resulted in the characterisation of several Blue Whale feeding grounds in the Estuary and Gulf of St. Lawrence. These areas of concentration can be targeted for whale surveys in the future when planning to estimate the size of the population. Hydroacoustic data have documented Blue Whales' use of waters south of Newfoundland and the Scotian Shelf. The research has also led to a better understanding of the behaviour and population dynamics of krill, the Blue Whale's main food source, and how these affect Blue Whale behaviour.

This research also supports objective 3: to better understand the threats to recovery, in this case, the availability of prey. Research into the Blue Whale's exposure to noise in the Estuary and Gulf of St. Lawrence and the Laurentian Channel provided further insight into the threat that noise from shipping represents to the species.

Objective 2 was to reduce the impact of human activities on the Blue Whale. Several conservation and awareness measures, primarily focused on shipping and pleasure boating, have reduced disturbance and the risk of collision. Other actions can be proposed once knowledge of the population and the threats to its recovery is improved.



#### **4. Concluding Statement**

Recovery of the Northwest Atlantic Blue Whale is considered feasible and recovery objectives can be achieved. Some progress has been made toward the implementation of the Recovery Strategy of this population; however, much more work is needed. It is essential to continue implementing priority approaches to achieve the objectives listed in the Recovery Strategy. It will be important to maintain existing partnerships, create new ones and conduct the scientific studies needed to fill knowledge gaps. The research conducted to identify the feeding grounds of the Blue Whale in the Estuary and Gulf of St. Lawrence will be used to inform the identification of critical habitat. If it is possible to identify critical habitat, it will be included in an amendment to the Recovery Strategy. An action plan is being developed and will be added to the Species at Risk Public Registry.

The priorities in the proposed approaches in the Recovery Strategy remain valid. These include: implementing measures to increase knowledge about the population and habitat, particularly along the Canadian Atlantic coast, increasing knowledge with regard to threats to recovery, and reducing the impact of threats, particularly of noise.

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