

**Figure 3.3-4: Seabird Detections during Stationary Vessel Surveys, 2019 to 2022**

**Table 3.3-7: Top AIC-rated Distance Models, Stationary Vessel Surveys, 2019 to 2022**

Model Key and Adjustment	Detection Estimate	Detection SE <sup>1</sup>	$\Delta$ AIC <sup>2</sup>
Hazard-rate with cosine adjustment	0.036	0.012	0.000
Hazard-rate, no adjustment	0.027	0.012	1.944
Hazard-rate with polynomial adjustment	0.027	0.012	1.944
Uniform with cosine adjustment	0.086	0.017	31.972
Half-normal, no adjustment	0.221	0.010	207.502

**Table 3.3-8: Detection Estimates by Year, Stationary Vessel Surveys between 2020 and 2022**

Year	Detection Estimate	Detection 95% CIs <sup>1</sup>
All Years	0.221	0.203 – 0.240
2020	0.173	0.146- 0.200
2021	0.239	0.206- 0.272
2022	0.109	0.039 – 0.178

<sup>1</sup> Confidence Intervals (CIs). Values indicate the range in which 95% of samples fall.

The detection estimate for all years of data slightly increased with the addition of 2022 data (estimate increased from 0.193 to 0.221; Table 3.3-8). The detection estimate for stationary vessel surveys is roughly half of that for moving vessels, suggesting that seabirds are less likely to be detected during stationary vessel surveys compared to moving vessel surveys. The result is generally consistent with the data, which indicate that both detections and number of birds recorded per survey were lower for stationary surveys compared to moving surveys (Table 3.3-3). The detection estimate for stationary vessel surveys was much lower in 2022 than previous years (0.109; Table 3.3-8). Survey effort was much lower in 2022 than 2020 and 2021, so the detection estimate is less likely to be accurate. The 95% Confidence Intervals also show a high variability in the 2022 data, likely due to the high number of surveys with no observations, further indicating that the detection estimate may not be accurate. Data from 2021, which represents the majority of the stationary vessel data, shows a higher detection rate (Tables 3.3-3 and 3.3-8). This may indicate that a lack of data is driving the lower detection rate, and more stationary vessel surveys generally increase the detection estimate.

### 3.4 Marine Wildlife Observations – Baker Lake

When transporting equipment and fuel to Baker Lake for Meadowbank, deep-water vessels can enter Chesterfield Inlet, but must stop at Helicopter Island (Tikirrajquaqkanngir&iq) at the west end of the Inlet. There, material or fuel is loaded aboard barges, and tugs move the barges through the narrow passage connecting Chesterfield Inlet to Baker Lake, and then on to the hamlet of Baker Lake.

To satisfy NIRB Project Certificate No. 004 Term and Condition 36, Agnico Eagle’s Meadowbank Complex is required to engage a local area marine wildlife monitor onboard all vessels transporting fuel or materials for the Project on barge shipping between Helicopter Island and Baker Lake.

Community surveys have been conducted since 2008; however, in 2020 and 2021, community members were not permitted to board vessels due to health and safety restrictions in place related to the Covid-19 pandemic. Therefore, Groupe Desgagnés and Woodward had their MMSOs record sightings of marine mammals and seabirds when possible while travelling on the barge. The vessel companies continued to conduct surveys on the barges in 2022; survey effort and results from these surveys are included in

Sections 3.2 and 3.3 and summarized in Section 3.4.1. Community members were permitted to board the vessels again in 2022 and surveys were resumed as in the years prior to 2020. Agnico Eagle remains committed to meet compliance with Project Certificate No.004 Term and Condition 36 and continues to seek out monitors from the Chesterfield Inlet when possible.

In 2022, 54 incidental surveys were conducted over 22 days by local wildlife monitors between Helicopter Island and Baker Lake in July, August, and October, 32 of which had GPS coordinates to plot their locations (see Figure 3.4-1). Table 3.4-1 summarizes the survey effort while on the barges between 2008 and 2022. Wildlife were observed during 47 of the 54 surveys conducted in 2022. During these surveys, there were 45 separate sightings of birds (total of 117 individuals), one sighting of caribou (a group of five animals), and one sighting of a muskox group (eight animals).

**Table 3.4-1: Barge Incidental Survey Effort by Local Wildlife Monitors between Helicopter Island and Baker Lake, 2008 to 2022<sup>1</sup>**

Year	Survey Dates	Total Number of Days Surveyed
2008*	July 28-31; August 2-5	8
2009	August 19-22; August 26-31; September 3-7	14
2010	October 18-27	10
2011	July 28-31; August 6-7	6
2012	August 6-7	2
2013	August 13-19; October 9-16	15
2014	October 6-10	5
2015	July 9-July 22; July 23-August 5; October 13-21	37
2016*	July 26-31; October 2-13	18
2017*	July; October	-
2018*	-	19 <sup>2</sup>
2019	September 19-24	6
2020	July 27-28; August 9-10; August 12; August 15; August 18	7
2021 <sup>3</sup>	July 28; October 5-6; October 10; October 18	5
2022 <sup>4</sup>	July 21-27; August 4-8; October 16-23	22

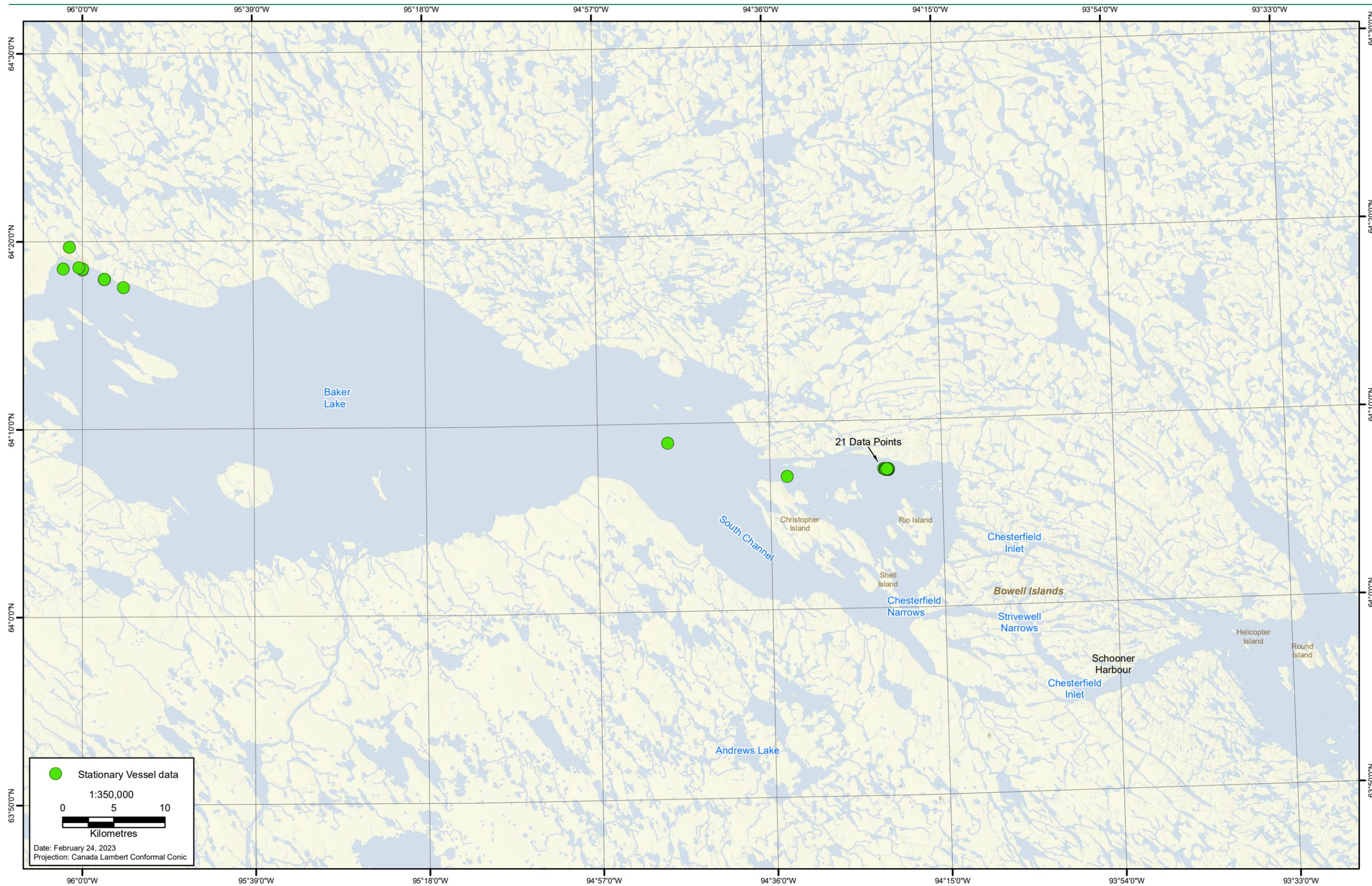
\* Indicates specific dates were not provided – either only months were provided, approximates dates, number of hours surveyed, or dates where observations occurred. A best estimate of number of days surveyed is therefore provided for these years (2008, 2016, 2017, 2018).

<sup>1</sup> During 2020 and 2021, surveys were conducted by Groupe Desgagnés and Woodward vessel crew members rather than community members.

<sup>2</sup> No dates were provided for 2018, however it was noted that 153 hrs of surveys were completed. Therefore, it was assumed that surveys were conducted 8 hrs per day, for a total of 19 survey days. But it is important to note that this is an estimate based on number of hours surveyed.

<sup>3</sup> All surveys conducted on the barge while travelling between Helicopter Island and Baker Lake were seabird survey transects; no marine mammal transects were completed on the barge in 2021.

<sup>4</sup> In addition to the local wildlife monitor effort, Groupe Desgagnés and Woodward vessel crew members continued to survey between Helicopter Island and Baker Lake. Survey effort and results are summarized in Section 3.4.1 and included in Sections 3.2 and 3.3.



**Figure 3.4-1: Wildlife Monitoring Observations between Helicopter Island and Baker Lake, 2022**

Tables 3.4-2 and 3.4-3 summarize marine mammal and seabird observations made by the local wildlife monitors onboard contractor vessels transporting fuel for the Meadowbank Mine between Helicopter Island and Baker Lake between 2008 and 2019 and in 2022, and by Groupe Desgagnés Woodward crew members in 2020 and 2021.

**Table 3.4-2: Marine Mammals Observed by Local Wildlife Monitors on Barges between Helicopter Island and Baker Lake, 2008 to 2022<sup>1</sup>**

Year	Month	Number of Days Surveyed	Seals	Polar Bears <sup>2</sup>
2008	August	2	2	3
2008	July	1	-	-
2009	August	2	6	-
2009	September	1	2	-
2010	October	1	1	-
2020	August	4	1	-
2021	July	NA <sup>3</sup>	-	-
2022 <sup>4</sup>	August	34	-	-
2022 <sup>4</sup>	September	16	-	-
2022 <sup>4</sup>	October	4	-	-

<sup>1</sup> Marine mammals were only observed during wildlife monitoring surveys on the barge in 2008, 2009, 2010, and 2020. No other marine mammals were recorded during surveys between 2011 and 2019. During 2020 and 2021, surveys were conducted by Groupe Desgagnés and/or Woodward vessel crew members rather than community members.

<sup>2</sup> Species listed as Special Concern on Schedule 1 of the federal Species at Risk Act (SARA).

<sup>3</sup> No surveys were conducted on the barge travelling between Helicopter Island and Baker Lake in 2021 due to crew requirements and the majority of transits occurring during dark hours; however, 25 stationary surveys for marine mammals were conducted while the vessel was at anchor at Helicopter Island, but these results are presented in Section 3.2.2 of the report and not summarized in this table.

<sup>4</sup> Groupe Desgagnés and Woodward vessel crew member survey effort and observations between Helicopter Island and Baker Lake are not included in this table but are included in Section 3.2 and summarized in Section 3.4.1.

**Table 3.4-3: Seabirds Observed by Local Wildlife Monitors on Barges between Helicopter Island and Baker Lake, 2008 to 2022**

Year	Month	Number of Surveys	Gulls/ Terns	Loons	Snow Geese	Waterfowl	Other Seabird	Eagle/ Falcon	Unknown Birds
2008	July	1	- <sup>2</sup>	1	-	-	-	-	-
2008	August	2	1+*	1	-	-	-	-	-
2009	August	2	1+	-	1+	1+	-	3	-
2009	September	1	1+	3	1,000+	5	-	1	-
2010	October	1	-	-	-	-	-	-	-
2011	July	1	-	-	-	2	-	-	-
2011	August	1	1+	-	-	-	-	-	-
2012	August	1	24	-	-	-	-	-	-
2013	August	2	10+	1	15+	-	-	-	10+

Year	Month	Number of Surveys	Gulls/Terns	Loons	Snow Geese	Waterfowl	Other Seabird	Eagle/Falcon	Unknown Birds
2013	October	1	6	-	12	-	-	-	2
2014	October	1	-	-	-	-	-	-	-
2015	July	1	-	2+	-	-	-	-	-
2015	August	1	-	-	-	-	-	-	-
2015	October	1	-	-	-	-	-	-	-
2016	July	1	14	-	-	-	-	-	2+
2016	October	1	32	1	-	-	-	-	53
2017	July	1	65	-	-	3	-	-	-
2018	August	1	-	-	-	-	-	-	-
2019	September	1	85	-	540	270	-	4	3
2020	July	2	1	-	-	2	-	-	-
2020	August	2	8	-	-	-	6 <sup>2</sup>	-	-
2021	July	1	30	-	-	-	-	-	-
2021	October	8	14	-	-	24	-	-	28
2022 <sup>3</sup>	July	34	75	1	-	1	-	-	-
2022 <sup>3</sup>	August	16	33	-	-	-	-	-	4
2022 <sup>3</sup>	October	4	-	-	-	-	-	-	-

\* Number of individuals observed was often not recorded, just the species seen. In these cases, 1+ is entered in the table, as the number observed is unknown.

<sup>1</sup> '-' indicates none observed.

<sup>2</sup> Includes northern fulmar, petrel, cormorant, and jaeger.

<sup>3</sup> Groupe Desgagnés and Woodward vessel crew member survey effort and observations between Helicopter Island and Baker Lake in 2022 are not included in this table but are included in Section 3.3 and summarized in Section 3.4.1.

### 3.4.1 Groupe Desgagnés and Woodward Observations – Baker Lake

In addition to community wildlife observers, the shipping companies continued to record marine wildlife sightings while vessels were at anchor near Helicopter Island, or on the tugs/barges between Helicopter Island and Baker Lake to supplement the community observer effort. These results are presented in Sections 3.2 and 3.3 and summarized here.

In 2022, crew members onboard the tugs (Atlantic Beech and Atlantic Elm) recorded a total of 54 incidental sightings while transiting between Helicopter Island and Baker Lake over 27 separate days between July 13 and October 24. No marine mammals were recorded incidentally, and a total of 233 seabirds were recorded across 13 different species. These results are included in Section 3.2 and 3.3.

In addition to the incidental sightings by the barges, vessels also completed stationary surveys while anchored at Helicopter Island and moving transect surveys when conditions allowed. In 2022 there were 34 stationary surveys for marine mammals completed at Helicopter Island, and one moving transect survey between Helicopter Island and Baker Lake. No marine mammals were observed during any of these surveys.

For seabirds, 110 stationary surveys completed while anchored at Helicopter Island. Of these surveys, 27 had sufficient data to calculate temporal effort while 83 were missing either a survey start time, end

time, or both. There was a total of 13.6 hours of survey time across those 27 surveys lasting an average of 0.5 hours per survey. The stationary surveys recorded a total of 383 individual seabirds across 15 different species (included in Section 3.3).

In addition to the stationary surveys, 15 moving transect surveys for seabirds were completed between Helicopter Island and Baker Lake. Of these 15 surveys 14 were conducted by the Kivalliq W. and one was conducted by the Tuvaq W. Of these surveys all 15 had sufficient spatial data to calculate spatial effort. There was a total of 154 km of survey effort. During moving transect surveys, 172 individual seabirds of 12 different species were observed (included in Section 3.3).

No sightings of marine mammals were recorded during the barge surveys between 2011 and 2019, or between 2021 and 2022. In previous years, seals were the most commonly observed marine mammal. Bird observations are summarized by species groups, as they were not often identified to the species. Gulls were the most commonly observed bird during surveys. In addition, caribou (*Rangifer tarandus*), muskox (*Ovibos moschatus*), fox (*Vulpes* species), wolves (*Canis lupis*), and rabbits (*Lepus arcticus*) were observed on land from the vessel between 2008 and 2019, and caribou and muskox were observed on land in 2022.

## 4. CONCLUSIONS

Overall, survey effort and quality of data collected by the MMSOs has improved since 2019. Marine mammal survey effort in 2022 was similar to 2020 and 2021, all of which were improvements from previous years. It is likely that the enhanced training for vessel crew members over the last three years helped improve the number of surveys completed, as well as the quality of data collected. Seabird survey effort in 2022 was generally greater than in previous years, illustrating increased understanding by the vessel captains and crew of the MMSO Program requirements.

Agnico Eagle will continue to improve training for the vessel crew members in the following areas:

1. The training given to the vessel's crew MMSO will be reviewed every year to ensure all crew members are prepared for the shipping season.
2. The seabird surveys were primarily completed in six consecutive five-minute periods, repeated three times a day according to the ECSAS protocol. Updated datasheets in 2022 helped emphasize the correct data collection protocol. Training for the MMSOs will continue to focus on this aspect of the methodology again in 2023.
3. Incomplete data entry (i.e., data entry fields for survey effort left blank) continues to occur. In 2022, approximately 15% of marine mammal survey data were missing information such as start or end times, or positions. This is a decrease from early years of the program and similar to 2021. For seabird surveys, roughly 40% of moving vessel surveys and 70% of stationary vessel surveys were missing effort. This is more than double the number of missing effort entries in 2021. The increase in missing effort information is likely due to the change in survey data collection requiring six intervals, and therefore six records of start/end times and positions per survey. The requirement for all six entries on the datasheet increased the proportion of seabird surveys with some missing data. Agnico Eagle will continue to emphasize the importance of complete data collection and continue to encourage all MMSOs to complete the data entry fields.
4. Species identification while at sea can be challenging. Agnico Eagle provided species identification sheets to the vessels in 2020, 2021, and 2022 but additional aids (e.g., species identification posters) will be investigated for the 2023 shipping season.
5. The vessel's captain and crew will continue to be informed of specific mitigations to be used to manage interactions with marine mammals and birds.

## 5. REFERENCES

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**APPENDIX A          SHIPPING MANAGEMENT PLAN SUMMARY BROCHURE –  
MEADOWBANK AND MELIADINE**



AGNICO EAGLE

# SHIPPING MANAGEMENT PLAN

Meadowbank and Meliadine

# SHIPPING MANAGEMENT PLAN SUMMARY

This document summarizes the information found in the Agnico Eagle Shipping Management Plans for Meadowbank and Meliadine (Agnico Eagle 2018a; 2018b) into a single convenient package for review and as a reference document. It is expected that all bridge crew on all vessels supplying Meadowbank and Meliadine review this document and have it available on the bridge of the vessel while under way.

The Meadowbank division has implemented a vessel-based Marine Mammal and Seabird Observer (MMSO) program since 2010, and the Meliadine division since 2016. These programs will continue to be implemented during all routine project-shipping activities, in accordance with Meadowbank Mine NIRB Project Certificate No. 004 Condition 36 and Meliadine NIRB Project Certificate No. 008 Condition 40.



The NIRB conditions require Agnico Eagle to include in its contracts that ships must remain mindful of marine areas having a high density of marine mammals and birds. Agnico Eagle's NIRB Project Certificates include conditions to ensure the mitigation measures and monitoring programs outlined in this summary document are conducted by shipping companies; thus, shipping companies are required to review and become familiar with the information summarized in this document.

## GENERAL GUIDELINES FOR OPERATION OF VESSELS

The Shipping Management Plans include Mitigation, Management, Monitoring and Reporting requirements:

**1. Mitigation:** Standard operation of the vessel.

Avoidance of seabird colonies and marine mammal haul-outs on shore

Vessel operation – maintain straight course, constant speed, avoid erratic behaviour

**2. Management:** What to do when you see a marine mammal or seabird.

Avoidance of marine mammals and seabirds on the water

What to do if a marine mammal approaches the vessel

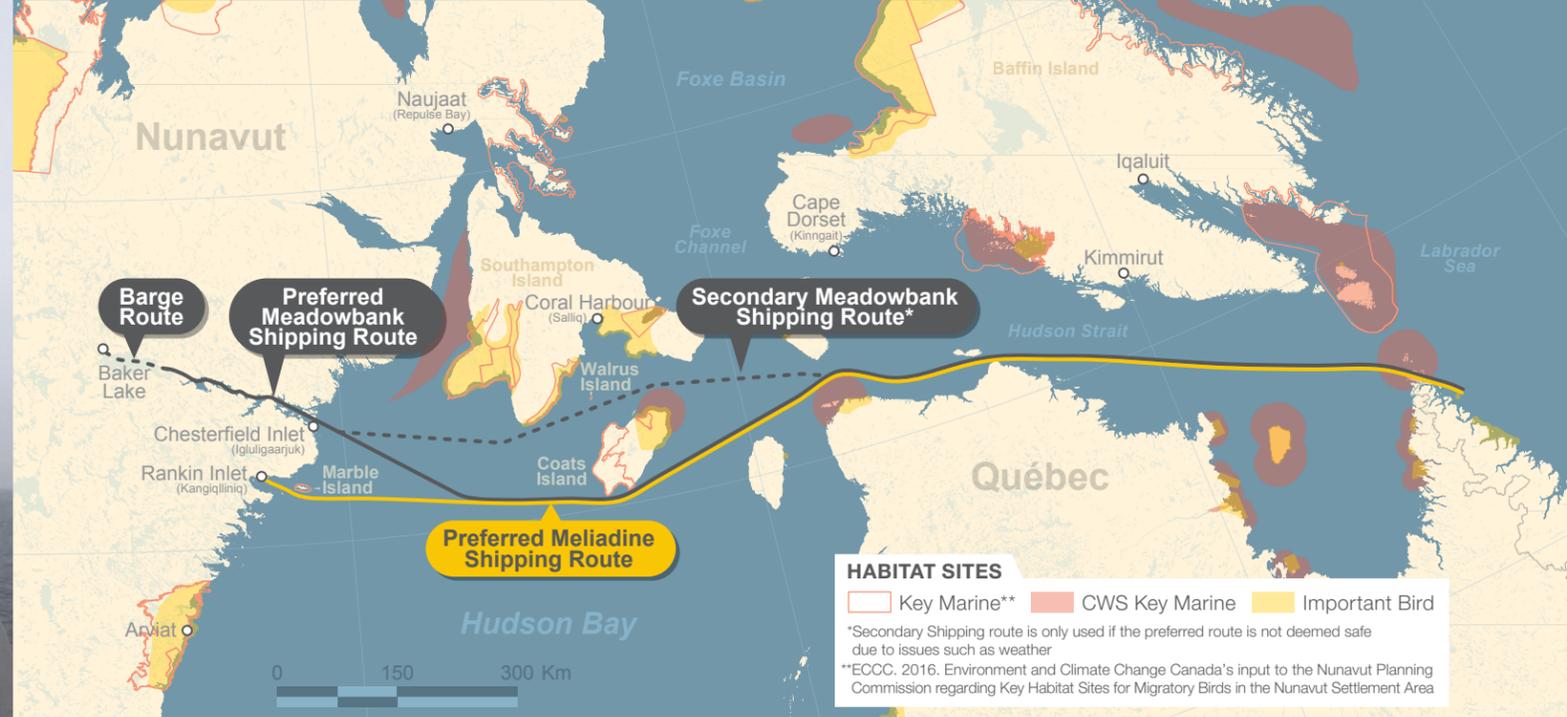
**3. Monitoring:** The Marine Mammal and Seabird Observation Program.

Monitoring for marine mammals and seabirds

**4. Reporting:** Monitoring data sent to Agnico Eagle. How to report collisions or incidents to Agnico Eagle and the government.

Monitoring data sent to Agnico Eagle

What to do if there is a collision with a marine mammal



Ship captains and crew should review the following mitigation measures and be familiar with guidelines around marine mammals and seabirds, as well as navigational options for vessel maneuvers when encountering marine mammals and seabirds. Mitigation and management measures are summarized from the Shipping Management Plans for Meadowbank and Meliadine.

1. General navigational requirements while travelling through Hudson Strait to Helicopter Island or Rankin Inlet, include the following:

- a. Ships will, when possible, maintain a straight course and constant speed, and avoid erratic behaviour;
- b. Marine mammals will be given right of way as safe navigation allows;
- c. The ship will not be operated in such a way as to separate an individual member(s) of a group of marine mammals from other members of the group;
- d. Ships will maintain the required setback distances around marine mammals and seabirds on land;

**Avoiding Marine Mammals and Seabird Colonies on Land**

Maintain a setback distance of >500 m from colonies of seabirds and marine mammals on shore



**Avoiding Marine Mammals on Sea Ice**

Do not approach within 300 m of a walrus or polar bear observed on sea ice



- e. Ships will use a routing south of Coats Island as the primary shipping route;
- f. Ships travelling for the Meliadine project will remain at least 2 km from Marble Island to avoid disturbing seals, walrus and marine birds that might be in the vicinity; and

g. Ships will maintain the required setback distances around marine mammals and seabirds in the water.

**General Guidance on the Water**

Vessels maintain > 500 meters from aggregations of seabirds and marine mammals on the water\*



**Whales Always Have Right-of-Way**

**Vessel Operation:** Maintain straight course, constant speed, avoid erratic behavior

As per **Marine Mammal Regulations s.7(3)**, maintain a minimum of 100 m from marine mammals at all times

**What to do if a Marine Mammal Approaches the Vessel**

**Option 1**

Reduce its speed and, if possible, cautiously move away from the animal

**Option 2**

If it is not possible for the ship to move away from or detour around a stationary marine mammal or group of marine mammals, the ship will reduce its speed and wait until the animal(s) move to the side and remain 100 m to 500 m (Meadowbank) from the ship prior to resuming speed

**Option 3**

If animals appear to be trapped or disturbed by ship movements, the ship will mitigate disturbance (e.g., stoppage of movement) until the animal(s) has moved away from the immediate area

**\* The two projects have slightly different guidance on setbacks:**

Meadowbank – Maintain 500 m away from feeding marine mammals and aggregations of seabirds and marine mammals  
 Meliadine – Maintain 300 m from feeding marine mammals.  
 Meliadine – Maintain 100 m away at all times.

- 2. As part of shipping companies' standard operating procedures, ship crews will monitor for marine mammals and seabirds from Hudson Strait to the lightering point near Helicopter Island (Meadowbank) or Rankin Inlet (Meliadine).
- 3. The ship's Master will be notified if there is a concern of the ship striking a marine mammal.
- 4. Ship personnel will make a decision if actions are required to avoid a possible collision by implementing management measures, if safe to do so.
- 5. If a collision occurs, the appropriate people will be contact and the incident will be documented.

# MARINE MAMMAL MANAGEMENT AND MONITORING PROGRAM

The Marine Mammal Management and Monitoring Plan (MMMMP) was developed for the Project to meet commitments made during the Nunavut Impact Review Board (NIRB) hearings related to Marine Shipping. The MMMMP was designed to provide protocols for conducting a vessel-based Marine Mammal and Seabird Observer (MMSO) program during all routine shipping activities along the shipping route.

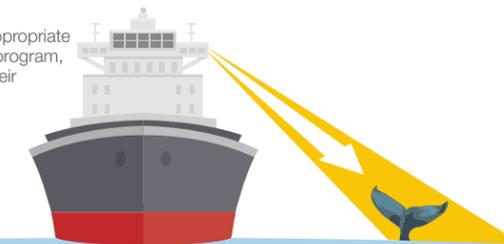
A Marine Mammal and Seabird Observer (MMSO) will be assigned by the captain prior to departure. The role of the MMSO is to record and report on marine mammals and seabird sightings during shipping activities along the shipping routes, and to advise the ship's crew on the location of observed marine mammals and if any action is recommended based on mitigation measures. MMSO and other crew members are also encouraged to collect incidental sightings (i.e., observations of marine mammals or seabirds NOT during dedicated monitoring) during their voyage and to report it to Agnico Eagle in addition to the MMSO data. Standard monitoring and data collection protocols for marine mammals and seabirds will be provided to the crew in the form of Standard Operating Procedures (SOPs) and in-person or online training.



## THE MARINE MAMMAL AND SEABIRD OBSERVATION (MMSO) PROGRAM

1. Ship crews (the assigned MMSO) will monitor for marine mammals and seabirds from Hudson Strait to the lightering point near Helicopter Island (Meadowbank) or Rankin Inlet (Meliadine)
2. The ship's Master will be notified if there is a concern of the ship striking a marine mammal
3. Ship personnel will make a decision if actions are required to avoid a possible collision

\*It is the responsibility of captains to ensure that appropriate crew members have been trained on the MMSO program, conduct the MMSO while underway and report their findings to Agnico Eagle.



## HOW OFTEN DOES THE MMSO SURVEY?

**Marine Mammal Monitoring:** Conduct at least 1 dedicated survey per day, lasting 1.5 to 2 hrs beginning in Hudson Strait

### Seabird Monitoring:

- Conduct 1 to 3 dedicated surveys per day
- Each survey lasts 30 min, made up of **6 separate 5-min observation periods**, beginning in Hudson Strait

**Incidental Sightings:** While traveling from Hudson Strait to Rankin Inlet/Helicopter Island, look for marine mammals incidentally to avoid collisions and record incidental sightings



# REPORTING

Data collected by the MMSOs must be submitted annually by Agnico Eagle to the Government of Nunavut and other applicable regulators (e.g., Environment and Climate Change Canada (ECCC) - Canadian Wildlife Service (CWS)) regarding the location, behaviour, abundance, and species observed as well as any interactions with Project vessels during shipping activities along the shipping route. Therefore, data and ship tracks must be submitted to Agnico Eagle within 2-3 weeks of completion of the voyage.

## VESSEL OPERATORS REPORT THE FOLLOWING INFORMATION ANNUALLY TO AGNICO EAGLE

### Vessel Information:

- Name
- Dates of Transit
- Track log from Montreal to Agnico Eagle site
- General description of cargo

### Track Information:

- A GPS track of the vessel route

### MMSO Information:

- All data sheets collected by MMSO
- A record of any Management – avoidance of marine mammals or seabirds
- All incidental sightings of marine mammals or seabirds collected during the voyage (i.e., not during the dedicated MMSO surveys)

## IF A COLLISION OCCURS

### Report all collisions to Agnico Eagle:

Sara Savoie: Work: +1 (819) 759-3555 x 460321 Cell: +1 (819) 856-9349  
 Alexandre Lavallee: Cell: +1 (819) 860-0804



**AGNICO EAGLE**

### If a Marine Mammal and Vessel Collision Occurs Contact DFO:

Central and Arctic, Nunavut – Iqaluit: +1 (867) 979-8000



### Captain must report the following information

#### (as per Marine Mammal Regulations s.39):

- Date, time and location of the incident;
- Species of marine mammal involved in the incident;
- Circumstances of the incident;
- Size and type of vehicle;
- Weather and sea conditions at the time of the incident;
- Observed state of the marine mammal after the incident; and
- Direction of travel of the marine mammal after the incident, to the extent that it can be determined.

### Agnico Eagle Contact:

Anne-Laurence Paquet: [anne-laurence.paquet@agnicoeagle.com](mailto:anne-laurence.paquet@agnicoeagle.com)  
 Marie-Pier Marcil: [marie-pier.marcil@agnicoeagle.com](mailto:marie-pier.marcil@agnicoeagle.com)

### If a Seabird and Vessel Collision Occurs Contact:

CWS, Jean-Francois Dufour: [jean-francois.dufour2@canada.ca](mailto:jean-francois.dufour2@canada.ca)  
 ECCC Wildlife Enforcement: [ec.dalfnord-wednorth.ec@canada.ca](mailto:ec.dalfnord-wednorth.ec@canada.ca)





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## **APPENDIX B      MARINE MAMMAL MONITORING SOP**



# Meadowbank and Meliadine Projects

## Marine Mammal Monitoring

STANDARD OPERATING PROCEDURE

SHIP-01

June 8 2022

Version B.3

**Scope of Work:** This SOP provides guidance for marine mammal monitoring procedures for shipping companies contracted by Agnico Eagle. Monitoring is conducted to avoid potential effects to marine mammals. The shipping companies are required to record marine mammal observations based on the protocols outlined in this SOP along the shipping route between Hudson Strait and Helicopter Island/Rankin Inlet.

**Contacts:**

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## 1. PROGRAM DESCRIPTION AND OBJECTIVES

A Marine Mammal Monitoring Standard Operating Procedure (SOP) has been developed to guide onboard monitoring for marine mammals. This SOP satisfies the Meadowbank Mine NIRB Project Certificate No. 008 Condition 40 and the Meliadine NIRB Project Certificate No.006 Condition 82.

The purpose of this SOP is to identify the monitoring procedures for shipping companies contracted by Agnico Eagle to avoid potential effects to marine mammals. This document outlines the following:

- how to avoid or adjust shipping speed near sensitive wildlife habitat along shipping routes;
- how to record observations of marine mammals, which includes whales, pinnipeds (i.e., seals and walruses), and polar bears;
- potential mitigation if marine mammals are observed;
- how to record and report mitigation measures taken, if applicable; and
- how to record and report ship strikes of marine mammals if they occur.

Agnico Eagle will update this SOP as necessary, in response to feedback from the Department of Fisheries and Oceans (DFO), Environment and Climate Change Canada (ECCC) or in response to data collected in the field or scientific advances.

## 2. MARINE MAMMAL MONITORING

### 2.1 Overview

The following protocol will be implemented during the Marine Mammal and Seabird Observer (MMSO) program:

- A minimum of one assigned MMSO will be present on-board vessels during all transits;
- The MMSO will conduct marine mammal observations along the shipping route from the bridge during daylight hours and record sightings into the *Marine Mammal Sightings Form* (Attachment A); and
- The shipping contractor will initiate mitigation measures designed to minimize Project impacts on marine mammals, as identified in the Marine Shipping Mitigation Summary Booklet and summarized in Attachment B.

### 2.2 Training

The captain is responsible to assign an MMSO to the bridge, and to ensure that the MMSO has been trained to identify marine mammals and seabirds.

Training for the assigned MMSOs includes:

- The pre-trip training live webinar, or review of the recorded webinar prior to beginning the MMSO duties. The recorded webinar will also be available on the ship for review as needed;
- Review the Marine Mammal Monitoring SOP (this document), the Marine Shipping Mitigation Summary Booklet, and the Seabird Monitoring SOP (SOP # SHIP-02);
- Review marine mammal identification, including common species provided in Attachment C (Whale ID Guide and Pinniped ID Guide);
- Know how to estimate distances to animals observed; and

- Review how to fill out the *Marine Mammal Sightings Form* (Attachment A) and the *Marine Mammal and Seabird Observer (MMSO) Incident Report Form* (Attachment D).

## 2.3 Equipment

Bridge staff participating in wildlife monitoring will require the following when conducting surveys:

1. This SOP;
2. Whale ID Guide and Pinniped ID Guide (Attachment C);
3. *Marine Mammal Sightings Form* (Attachment A);
4. *MMSO Incident Report Form* (Attachment D);
5. Binoculars;
6. GPS (only required if unable to get GPS coordinates from the ship); and
7. Clipboard and pencil.

## 2.4 Marine Mammal Monitoring Methods

Marine mammal surveys are required along the shipping route from Hudson Strait to Helicopter Island/Rankin Inlet, and during the return journey from Helicopter Island/Rankin Inlet through Hudson Strait (Figure 2.4-1). Surveys must be conducted at least once per day, but two surveys per day is preferred.

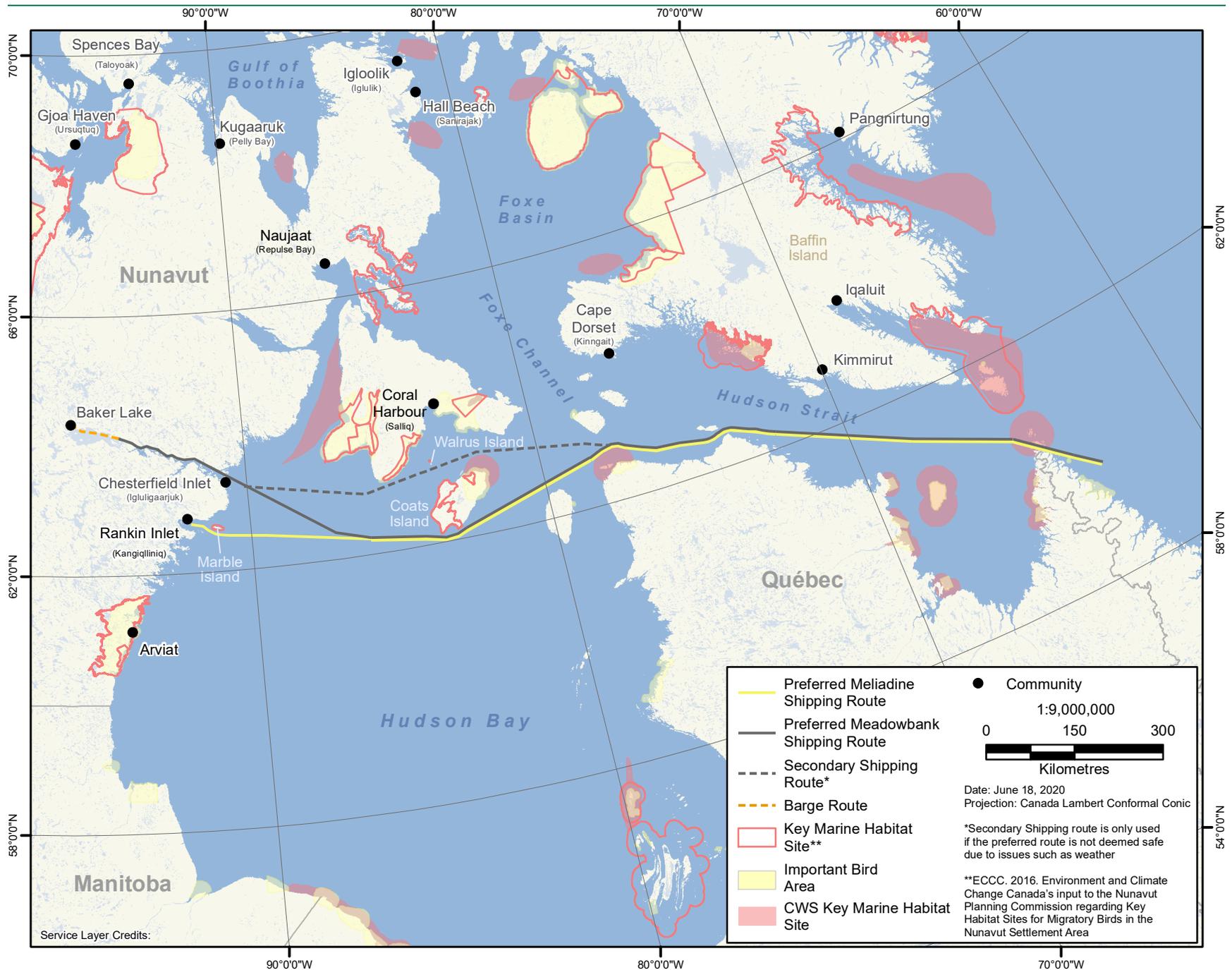
General environmental and marine mammal sightings information is to be collected and recorded by filling out the form in Attachment A. The protocol outlined in this section are best conducted along a transect line, therefore, it is best to start a marine mammal observation period when the vessel is and will be moving in a straight line for an extended period of time.

### 2.4.1 Observation Period

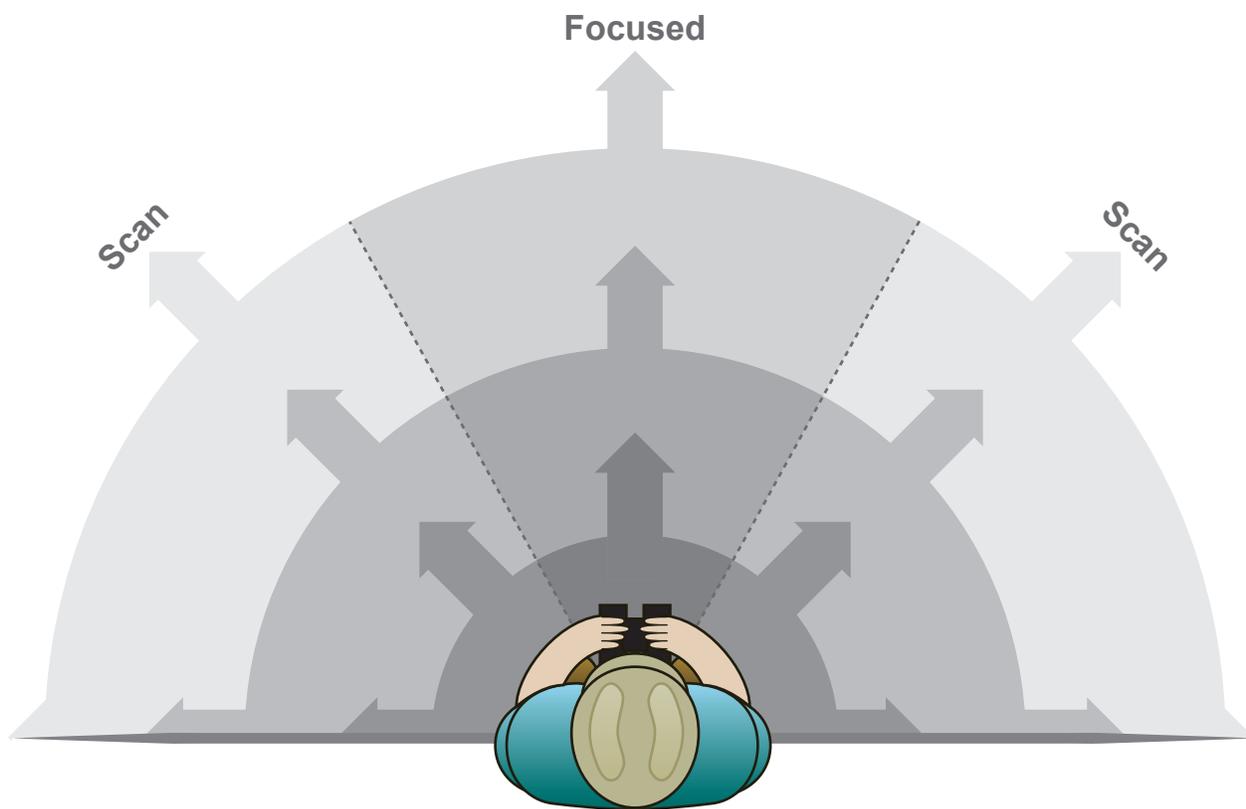
- Marine mammal monitoring is required from Hudson Strait to Helicopter Island (Meadowbank) or Rankin Inlet (Meliadine), along the shipping route presented in Figure 2.4-1.
- Conduct a minimum of 1 survey per day; however, 2 surveys per day is preferred when timing allows.
- Prioritize conducting surveys around Coats Island, Hudson Strait, and/or approaching Helicopter Island/Rankin Inlet.
- MMSO observation periods should last approximately 1.5 hours, but should not last longer than 2 hours to mitigate observer fatigue and eyestrain.
- During dedicated surveys, sightings are only recorded by the MMSO, with no assistance permitted by other crew members.
- For each observation period, document information on the ship's location, travelling speed and direction, environmental conditions on a *Marine Mammal Sightings Form*.

### 2.4.2 Observer Position

- Observations will be done from a high location on the vessel and ideally outdoors if possible and will be conducted at the same location each time.
- For marine mammal observations, depending on the weather conditions and safety requirements for the crew, the MMSO will position themselves in the middle of the ship at the front (bow) to observe marine mammals on both the starboard and the port side (Figure 2.4-2).



**Figure 2.4-1: Shipping Routes during the Open Water Season**



MMSO will record observations of marine mammals noted within a 180° viewing area (port to starboard) out to the horizon

**Figure 2.4-2: Illustration of MMSO Position and Observation Field on a Vessel**

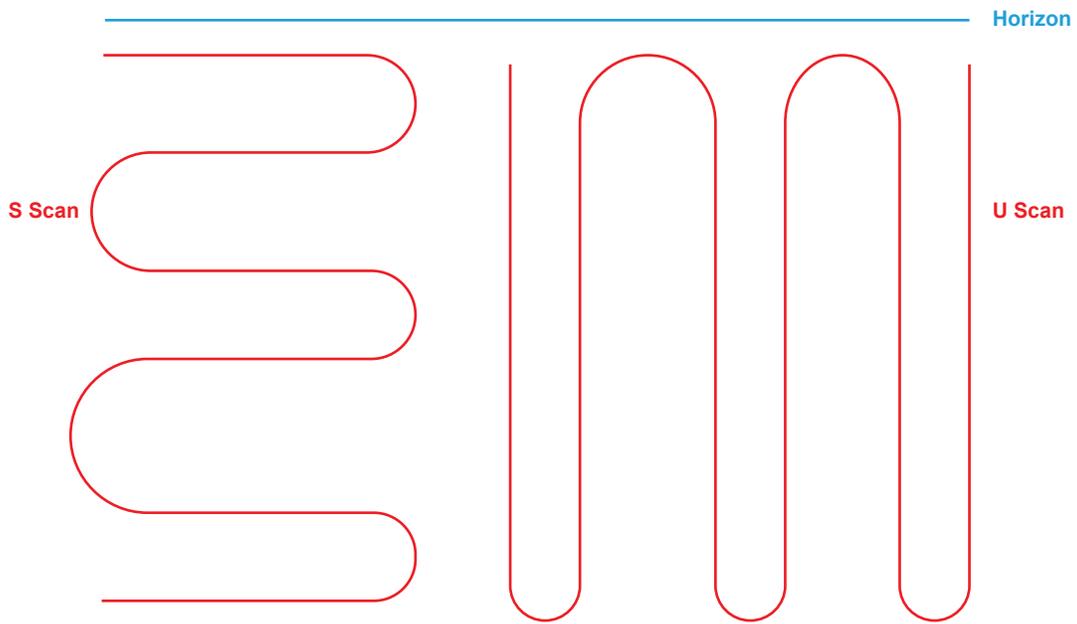
### 2.4.3 Scan Routine

#### 1. How to Scan for Marine Mammals

- Scan the water from the vessel out to the horizon with the naked eye and use binoculars only to focus on possible sightings.
- Scans should be made from the middle of the vessel and cover the scan area shown in Figure 2.4-2 with a focus on the water ahead and to the side to the moving vessel (e.g., focused scan area in Figure 2.4-2).
- Perform S and U scans (Figure 2.4-3) of the observation field about every 20 seconds looking for whale cues (e.g., blow, back surfacing). The most important aspect of marine mammal observing is to constantly scan the observation field to capture animals that could be located in the peripheral view for brief moments (e.g., surfacing).
- If a whale or pinniped (seal or walrus) is observed, record the sighting on the *Marine Mammal Sightings Form*, as per instructions in Step 2 below.
- Surveys are prioritized when the vessel is moving; however, if the vessel is stationary (e.g., anchored) for a day or portion of a day, then a marine mammal survey will be required while anchored. If this is required, scans should be conducted over the entire scan area in a uniform fashion.

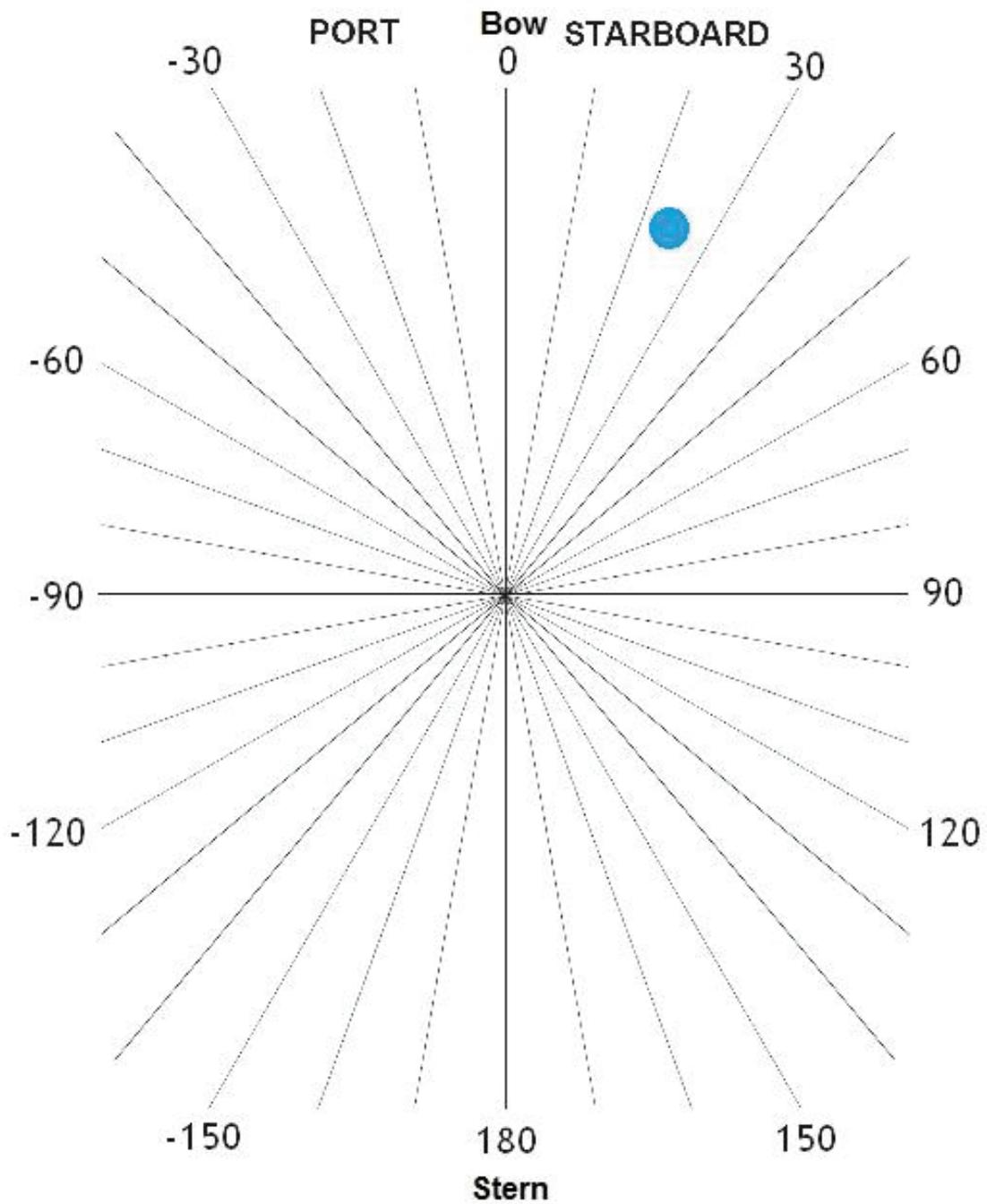
#### 2. What to Do When a Marine Mammal is Observed

- Marine mammals observed during the dedicated marine mammal observational periods will be recorded on the *Marine Mammal Sightings Form*, including:
  - GPS location;
  - Distance to animal from vessel;
  - Angle to animal (Figure 2.4-4 shows how an angle to a marine mammal from the vessel should be estimated);
  - Number of marine mammal individuals;
  - Unknown species – if a species is unknown or if a blow is the only detection of the animal observed, then mark the sighting as unknown or record the general species group (e.g., whale, seal, walrus, polar bear), and provide a description of what was seen (e.g., colour of animal, how many were observed, behaviour, dorsal fin present or absent, etc.); and
  - Behaviour (e.g., travelling, feeding, other).
- Marine mammals in large groups that are close together should be marked as a single sighting.
- Sightings of pinnipeds (seals, walrus) hauled-out on land or of a polar bear on land will be recorded with a description in the “Notes” section indicating the animal(s) were observed on land.
- If a marine mammal is counted twice or more in the sightings record, then a note of a re-sighting should be marked.
- When possible, take photographs of marine mammal sightings and record the photo name/number alongside sightings records. These photos must be provided to Agnico Eagle along with the completed datasheets.
- If no marine mammals are observed during a survey period, then the top sections of the *Marine Mammal Sightings Form* must still be completed (including “General Information”, “Vessel Information”, and “Environmental Information”) with “No animals observed” entered into the “Notes” section.
- If a marine mammal sighting is close to the vessel and requires mitigation measures, or if a ship strike occurs, refer to Section 3 of this SOP and complete the *MMSO Incident Report Form* (Attachment D);
- Ensure no cell on the *Marine Mammal Sightings Form* is left blank.



Source: Agnico Eagle 2020.

**Figure 2.4-3: Illustration Showing How to Conduct S & U Scanning Techniques**



*Note: Example shows angle to the animal (blue dot) is approximately 22°.*

*Source: Agnico Eagle 2020.*

**Figure 2.4-4: How to Determine Angle to Marine Mammal**

## 2.5 Incidental Marine Mammal Sightings – “Off Effort”

During sailing from Hudson Strait to Helicopter Island/Rankin Inlet, the ship’s crew is required to keep watch for marine mammals along the shipping route. This is not part of the MMSO dedicated surveys. Whenever a marine mammal is observed outside of the dedicated survey time, this is called an incidental sighting, or “off-effort”. These sightings are recorded on the *Incidental Marine Wildlife Sightings Form* (Attachment E) and provided to Agnico Eagle for reporting. This includes all sightings of whales, seals, walruses, polar bears, and hauled-out animals.

If an incidental sighting is close to the vessel and requires mitigation measures, or if a ship strike occurs, refer to Section 3 of this SOP and complete the *MMSO Incident Report Form* (Attachment D).

## 3. MITIGATION AND REPORTING

In the event bridge crew observe marine mammals within 100 m of the vessel for Meliadine, and 500 m of the vessel for Meadowbank, refer to the Marine Shipping Mitigation Summary Booklet for recommended responses (e.g., slowing vessel, change direction). Management responses will be documented on the *Marine Mammal Sightings Form* for that observation. In addition, if a ship strike occurred or other incident (e.g., animal appears affected by the vessel), the MMSO must also fill in the *MMSO Incident Report Form* (Attachment D). Mitigation measures are also summarized in Attachment B.

If bridge crew determine a ship strike of a marine mammal has occurred, complete the *Marine Mammal Sightings Form* and indicate that the observation was the result of a ship strike. If the ship strike is a marine mammal the ship’s captain is to report the strike to Agnico Eagle (contact listed at the top of this SOP) as soon as practical and within 24 hours.

In addition, as per *Marine Mammal Regulations* s.39, the captain must also report a strike to the DFO minister, including the following information:

- the date, time and location of the incident;
- the species of marine mammal involved in the incident;
- the circumstances of the incident;
- the size and type of vehicle and, if applicable, the type of fishing gear involved in the incident;
- the weather and sea conditions at the time of the incident;
- the observed state of the marine mammal after the incident; and
- the direction of travel of the marine mammal after the incident, to the extent that it can be determined.

### DFO Contact Information:

- Central and Arctic, Nunavut – Iqaluit: 1-867-979-8000.

## 4. END OF TRIP REPORTING REQUIREMENTS

The following information will be submitted to the Agnico Eagle Environment Team (contact information provided at the top of this SOP) after each shipping trip for collation into a database:

1. Spatial file of the shipping route;
2. Completed *Marine Mammal Sightings Forms*;
3. Completed *MMSO Incident Report Forms* (if required); and
4. Photographs taken of sightings.

## 5. RECOMMENDED GUIDES

Reeves et al. 2002. *National Audubon Society's Guide to marine Mammals of the World*.

Additional Recommended Training/Practice: <http://www.dfo-mpo.gc.ca/species-especes/mammals-mammiferes/identification-guide/index-eng.html>.

## **ATTACHMENT A MARINE MAMMAL SIGHTINGS FORM**



## **ATTACHMENT B MARINE SHIPPING MITIGATION SUMMARY**

## General Guidance on the Water

Vessels maintain > 500 meters from aggregations of seabirds and marine mammals on the water\*



## Whales Always Have Right-of-Way

**Vessel Operation:** Maintain straight course, constant speed, avoid erratic behavior

As per **Marine Mammal Regulations s.7(3)**, maintain a minimum of 100 m from marine mammals at all times

## What to do if a Marine Mammal Approaches the Vessel

### Option 1

Reduce its speed and, if possible, cautiously move away from the animal

### Option 2

if it is not possible for the ship to move away from or detour around a stationary marine mammal or group of marine mammals, the ship will reduce its speed and wait until the animal(s) move to the side and remain at least 100 m (Meliadine) or 500 m (Meadowbank)

### Option 3

If animals appear to be trapped or disturbed by ship movements, the ship will mitigate disturbance (e.g., stoppage of movement) until the animal(s) has moved away

### \* The two projects have slightly different guidance on setbacks:

Meadowbank – Maintain 500 m away from feeding marine mammals and aggregations of seabirds and marine mammals

Meliadine – Maintain 300 m from feeding marine mammals.

Meliadine – Maintain 100 m away at all times.

## **ATTACHMENT C MARINE MAMMAL ID GUIDES**

# COMMON WHALE ID GUIDE

## Narwhal

**Size:** 4 - 5 m

**Body:** Small head, stocky body, short/round flippers, tusk

**Dorsal Fin:** No

**Colour:** Mottled black and white, grey or brownish



## Beluga

**Size:** 4 - 5 m

**Body:** Stout body, small head, short, broad paddle-shaped flippers

**Dorsal Fin:** No

**Colour:** Adults white, calves brown/grey



## Bowhead Whale

**Size:** up to 19 m

**Body:** Large and rotund

**Dorsal Fin:** No

**Colour:** Black/brown, white lower jaw

**Blow:** Bushy V-shaped

**Fluke:** Shows fluke when diving



## Fin Whale

**Size:** up to 23m

**Body:** Streamlined and long

**Dorsal Fin:** hooked

**Colour:** Grey body, white lower jaw right-side only

**Blow:** Tall and straight

**Fluke:** Rarely shows fluke



## Orca/ Killer Whale

**Size:** 7-9 m

**Body:** Long rounded body

**Dorsal Fin:** Tall dorsal fin

**Colour:** Black-and-white, saddle patch (grey area) behind dorsal fin, white underside



# COMMON PINNIPED ID GUIDE

## Walrus

**Size:** 2.5 - 3m

**Body:** large, blubbery, long tusks

**Head:** Large thick neck, dark mouth with whiskers

**Colour:** Dark brown



## Harbour Seal

**Size:** 2m

**Body:** Medium size, spindle shaped body

**Head:** like dog, heart-shaped snout

**Colour:** Blue-grey with dark spots/speckles



## Hooded Seal

**Size:** 2.5 m

**Body:** Large, robust

**Head:** Broad head short narrow snout, males of "hood" they inflate

**Colour:** Black head, silver/grey fur, dark patches



## Harp Seal

**Size:** 1.5 - 2 m

**Body:** Medium size, robust

**Head:** Small head, pointy snout

**Colour:** Light grey, harp-shaped black patch on back, black face



## Bearded Seal

**Size:** 2 - 2.5 m

**Body:** Large, robust

**Head:** Small head, short snout, long whiskers

**Colour:** Dark brown/grey with dark rings/spots



## **ATTACHMENT D MMSO INCIDENT REPORT FORM**

## Marine Mammals and Seabird Observer (MMSO) Incident Report

Project Information		
Client: <b>Agnico Eagle</b>	Date:	
Project Name (circle one): <i>Meadowbank</i> <i>Meliadine</i>	General Location:	
Vessel Contractor Information		
Vessel Contractor Name:	Site Supervisor or Captain:	
Vessel Name/Type:		
MMSO Name:		
General Weather Conditions (throughout the day):	Wind (knots):	
	Sea State:	
	Swell Height (m):	
	Temperature (°C):	
	Notes:	
Time Start/Time End MMSO Duties (HH:MM):	Start:	End:

### Mitigation Log\*

Time (UTC; HH:MM)	Was Mitigation Implemented?	Location		Rationale for Implementation
		Latitude (DD)	Longitude (DD)	

*\*Fill in this section if vessel is required to route north of Coats Island due to safety concerns*

### Record of Vessel-Animal Collisions/Interactions

Species	Number of Individuals	Time (HH:MM)	Location		Visibility (m)/ Sea State	Comments
			Latitude (DD)	Longitude (DD)		

### Summary of Issues and Recommendations/Actions

Date Noted	Issue	Recommendation/Action	Date Resolved	Comments

## **ATTACHMENT E INCIDENTAL MARINE WILDLIFE SIGHTINGS FORM**



**AGNICO EAGLE**

# Incidental Marine Wildlife Sightings Form

(1 form per observation; PLEASE PRINT; circle options provided in *italics* as appropriate)

General Information			
Vessel Name		Date	
Observer Name		Local Time (24 hr)	
Vessel Information			
Ship Speed (kt)		Ship Heading (compass)	
Latitude (decimal degrees)		Longitude (decimal degrees)	
Environmental Information			
Beaufort Wind Force		Visibility (km)	
Wind Direction			
Observation Information			
Species <sup>1</sup>		ID Reliability	<i>Positive / Probable / Maybe</i>
Distance from vessel when first seen (m)		How close did the animal get to the vessel (m)?	
Number of Individuals	<i>Best Estimate:</i> _____ <b>OR</b> <i>Maximum/Minimum:</i> _____		
Behaviour	Mammals:	<i>Swimming</i>	<i>Diving</i>
		<i>Dead</i>	<i>Resting on land</i>
	Birds:	<i>Flying</i>	<i>Feeding</i>
		<i>Resting on land</i>	<i>Resting on ocean surface</i>
	<i>Escape Ship - Flying</i>	<i>Escape Ship - Diving</i>	<i>Dead</i>
	Other (describe): _____		
Other notes (e.g., physical descriptions, distinctive behaviours, drawing)		Position & Travel Relative to Ship [draw arrow]	 <b>OR</b> Variable Travel Directions
Was this observation the result of a SHIP STRIKE?	Yes _____ No _____ <i>If yes, fill out "MMSO Incident Report"</i>		
Mitigation Action Taken			
	Yes	No	
If yes, describe mitigation actions (e.g., change in course or speed) and result (e.g., maintained a buffer of x metres from wildlife)	<b>ACTION:</b>  <b>RESULT:</b>		

<sup>1</sup> Refer to list of species in the ID Guides.

## **APPENDIX C      SEABIRD MONITORING SOP**



# Meadowbank and Meliadine Projects

## Seabird Monitoring

STANDARD OPERATING PROCEDURE

SHIP-02

14 June 2022

Version C.1

**Scope of Work:** This SOP provides guidance for seabird monitoring procedures for shipping companies contracted by Agnico Eagle. Monitoring is conducted to avoid potential effects to seabirds. The shipping companies are required to record seabird observations based on the protocols outlined in this SOP along the shipping route between Hudson Strait and Helicopter Island/Rankin Inlet.

**Contacts:**

<b>Agnico Eagle</b>	
Anne-Laurence Paquet	<a href="mailto:anne-laurence.paquet@agnicoeagle.com">anne-laurence.paquet@agnicoeagle.com</a>
Compliance Specialist	819.759.3555
Marie-Pier Marcil	<a href="mailto:marie-pier.marcil@agnicoeagle.com">marie-pier.marcil@agnicoeagle.com</a>
Environmental Project Coordinator	819.759.3555

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- ATTACHMENT A SEABIRD SIGHTINGS FORM
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- ATTACHMENT C COMMON SEABIRD ID GUIDE
- ATTACHMENT D INCIDENTAL MARINE WILDLIFE SIGHTINGS FORM



## 1. PROGRAM DESCRIPTION AND OBJECTIVES

A Seabird Monitoring Standard Operating Procedure (SOP) has been developed to guide onboard monitoring for seabirds. This SOP satisfies the Meadowbank Mine NIRB Project Certificate No. 008 Condition 40 and the Meliadine NIRB Project Certificate No.006 Condition 82.

The purpose of this SOP is to identify the monitoring and mitigation procedures for shipping companies contracted by Agnico Eagle to avoid potential effects to seabirds, as per the Marine Mammal and Seabird Monitoring (MMSO) program. This document outlines the following:

- How to avoid or adjust shipping speed near sensitive wildlife habitat along shipping routes;
- How to record observations of seabirds;
- Potential mitigation if large groups of seabirds are observed;
- How to record and report mitigation measures taken, if applicable; and
- How to record and report ship strikes of seabirds, if they occur.

Agnico Eagle will update this SOP as necessary, in response to feedback from Environment and Climate Change Canada (ECCC) or in response to data collected in the field or scientific advances.

## 2. SEABIRD MONITORING

### 2.1 Overview

The following protocol will be implemented during the Marine Mammal and Seabird Observer (MMSO) program:

- A minimum of one assigned MMSO will be present on-board vessels during all transits;
- The MMSO will conduct seabird observations along the shipping route from the bridge during daylight hours and record sightings into the *Seabird Sightings Form* (Attachment A); and
- The shipping contractor will initiate mitigation measures designed to minimize Project impacts on seabirds, as identified in the Marine Shipping Mitigation Summary Booklet (e.g., remain 500 m from bird colonies on land, remain 2 km from Marble Island, remain 500 m from large aggregations of seabirds on water).

### 2.2 Training

The captain is responsible to assign an MMSO to the bridge, and to ensure that the MMSO has been trained to identify marine mammals and seabirds.

Training for the assigned MMSOs includes:

- The pre-trip training live webinar, or review of the recorded webinar prior to beginning the MMSO duties. The recorded webinar will also be available on the ship for review as needed;
- Review the Seabird Monitoring SOP (this document), the Marine Shipping Mitigation Summary Booklet, and the Marine Mammal Monitoring SOP (SOP #SHIP-01);
- Review how to fill out the *Seabird Sightings Form* (Attachment A) and the *Marine Mammal and Seabird Observer (MMSO) Incident Report Form* (Attachment B);
- Review seabird identification, including common species provided in Attachment C; and
- Know how to estimate distances to animals observed.

## 2.3 Equipment Checklist

Bridge staff participating in wildlife monitoring will require the following:

1. This SOP;
2. *Seabird Sightings Form* (Attachment A);
3. Seabird ID Guide (Attachment C);
4. *MMSO Incident Report Form* (Attachment B);
5. Binoculars;
6. GPS (only required if unable to get GPS coordinates from the ship); and
7. Clipboard and pencil.

## 2.4 Seabird Monitoring Methods

Seabird surveys are required along the shipping route from Hudson Strait to Helicopter Island/Rankin Inlet, and during the return journey from Helicopter Island/Rankin Inlet through Hudson Strait (Figure 2.4-1). Surveys must be conducted a minimum of once daily, but three times per day is preferred.

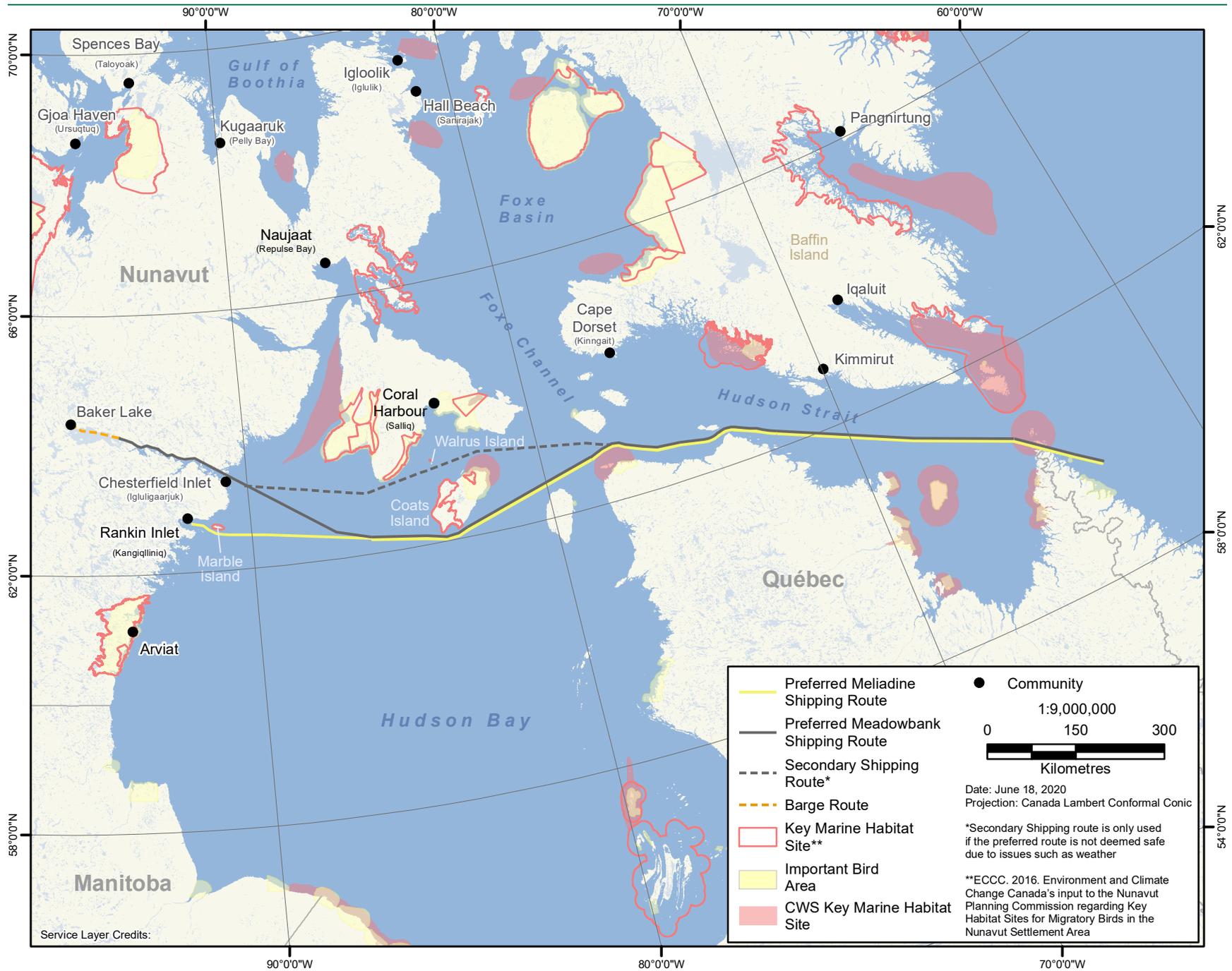
General environmental and seabird sightings information is to be collected and recorded by filling out the *Seabird Sightings Form* (Attachment A). The protocol outlined in this section are best conducted along a transect line, therefore, it is best to start a seabird observation period when the vessel is and will be moving in a straight line for an extended period of time.

### 2.4.1 Observation Period

- Seabird monitoring is required from Hudson Strait to Helicopter Island (Meadowbank) or Rankin Inlet (Meliadine), along the shipping route presented in Figure 2.4-1.
- Conduct three surveys per day, when possible: one morning, one afternoon, and one evening.
- Each seabird survey period will be conducted during **six consecutive five-minute periods** (total of 30 minutes each session). Take a short break at the end of each five-minute period to record the vessel's position and any conditions (ship speed, direction, weather, etc.) that may have changed since the last five-minute survey period.
- Each five-minute survey should be dedicated to surveying for seabirds only and should be completed regardless if birds are present or not.
- If possible, attempt to prioritize conducting surveys around Coats Island, when passing near the shore entering Hudson Bay, and/or approaching Helicopter Island/Rankin Inlet.
- If the vessel is moving (preferred), use methods in Section 2.4.3; if vessel is not moving (stationary), use the methods in Section 2.4.4 below.
- For each observation period, document information on the ship's location, travelling speed and direction, environmental conditions on a *Seabird Sightings Form* (one form per observation period).

### 2.4.2 Observer Position

- Observations should be done from a high location on the vessel, when possible, at a location as close to the port or starboard edge of the platform as possible to increase the detection of seabirds.
- All surveys should be conducted at the same location each time.



**Figure 2.4-1: Shipping Routes during the Open Water Season**

### 2.4.3 Survey Methods – Moving Vessel

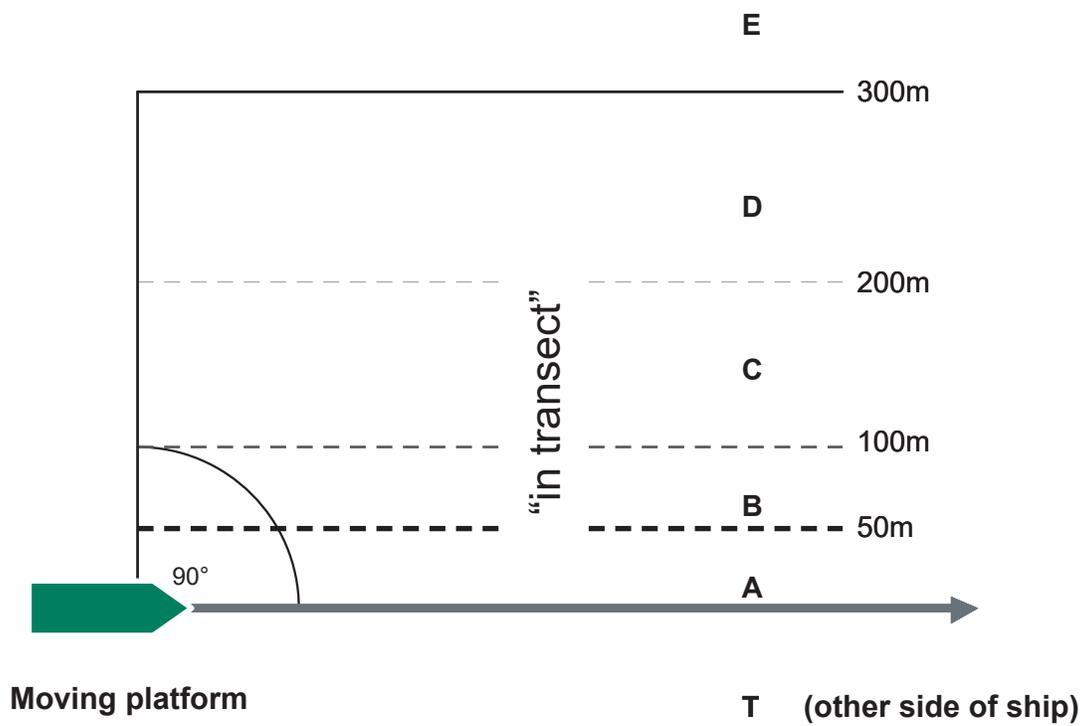
- Conduct 1 to 3 dedicated surveys per day
- Each survey lasts 30 min, made up of **6 separate 5-min observation periods**, beginning in Hudson Strait (see Figure 2.4-2).
- Look forward from the side of the vessel, scanning at a 90° angle from either the port or starboard side depending where the observer is located.
- The transect width within which seabirds are recorded is 300 m from the side of the vessel (see Figure 2.4-3).
- Begin all five-minute surveys by conducting a snapshot survey of birds in flight – i.e., an initial count of all birds seen flying (Section 2.4.3.1).
- Scan ahead regularly (e.g., every minute) to spot birds that may dive as the vessel approaches.
- All birds observed within the 300 m transect, whether flying or on the water, or on sea ice or land, are recorded and are considered in-transect sightings. (Figure 2.4-3).
- Use Figure 2.4-3 (A to E, or T) to record the distance to each bird or flock of birds (to the center of the flock). Ensure to record birds/group of birds only once.
- Birds observed outside the 300 m transect are also recorded if this does not affect observations within the 300 m transect. Distance categories “E” and “T” in Figure 2.4-3 are both considered not in transect.
- Binoculars and spotting scopes can be used to confirm species identification and other details as necessary.
- When a survey period cannot be done because of poor visibility (i.e., when the entire width of the 300 m transect is not visible), the extent of visibility should be noted on the *Seabird Sightings Form*.
- If no birds are observed during a five-minute survey period, “no seabirds observed” must be noted in the “Notes” on the *Seabird Sightings Form*.
- For each observation period crew will document information on the ship’s location, travelling speed and direction, environmental conditions and the details of the wildlife observation (species, behaviour, distance from ship, etc.) on a *Seabird Sightings Form*.
- Attachment C (Common Seabird ID Guide) summarizes general species groups and individual species that are most likely to be observed and is meant to provide a cheat-sheet for only the most common species – other species may occur and Bird ID book can be used. Note that recording a general species group or “unknown species” with a description of the bird in the comments column is better than an incorrect species identification.
- When possible, take photographs of seabird sightings and record the photo name/number alongside sightings records. These photos must be provided to Agnico Eagle along with the completed datasheets
- Ensure no cell on the *Seabird Sightings Form* is left blank.

**Timeline to Complete One 30-Minute Survey  
Using 6 Observations Periods Lasting 5-Minutes**



**Figure 2.4-2: Seabird Survey Methodology using Six Consecutive 5-Minute Observation Periods**

### Distance Categories



Extracted from Gjerdrum et al. 2012

**Figure 2.4-3: Average Proportion of Each Behaviour Type Observed Among at the Start of the Survey.**

### 2.4.3.1 Tips for Recording Birds

If the species of seabird cannot be identified, please ensure to indicate the species group (e.g., gull, puffin-like seabird) as described in the Common Seabird ID Guide (Attachment C), and provide a description of the bird in the comments column of the *Seabird Sightings Form*.

#### Birds on the Water

- All birds observed on the water are recorded throughout the five-minute survey period. If birds in the transect fly off the surface of the water as the vessel approaches, use binoculars to help count them, and record these birds as being on the water. Ensure not to record twice as flying birds during a snapshot survey.

#### Large Groups of Birds

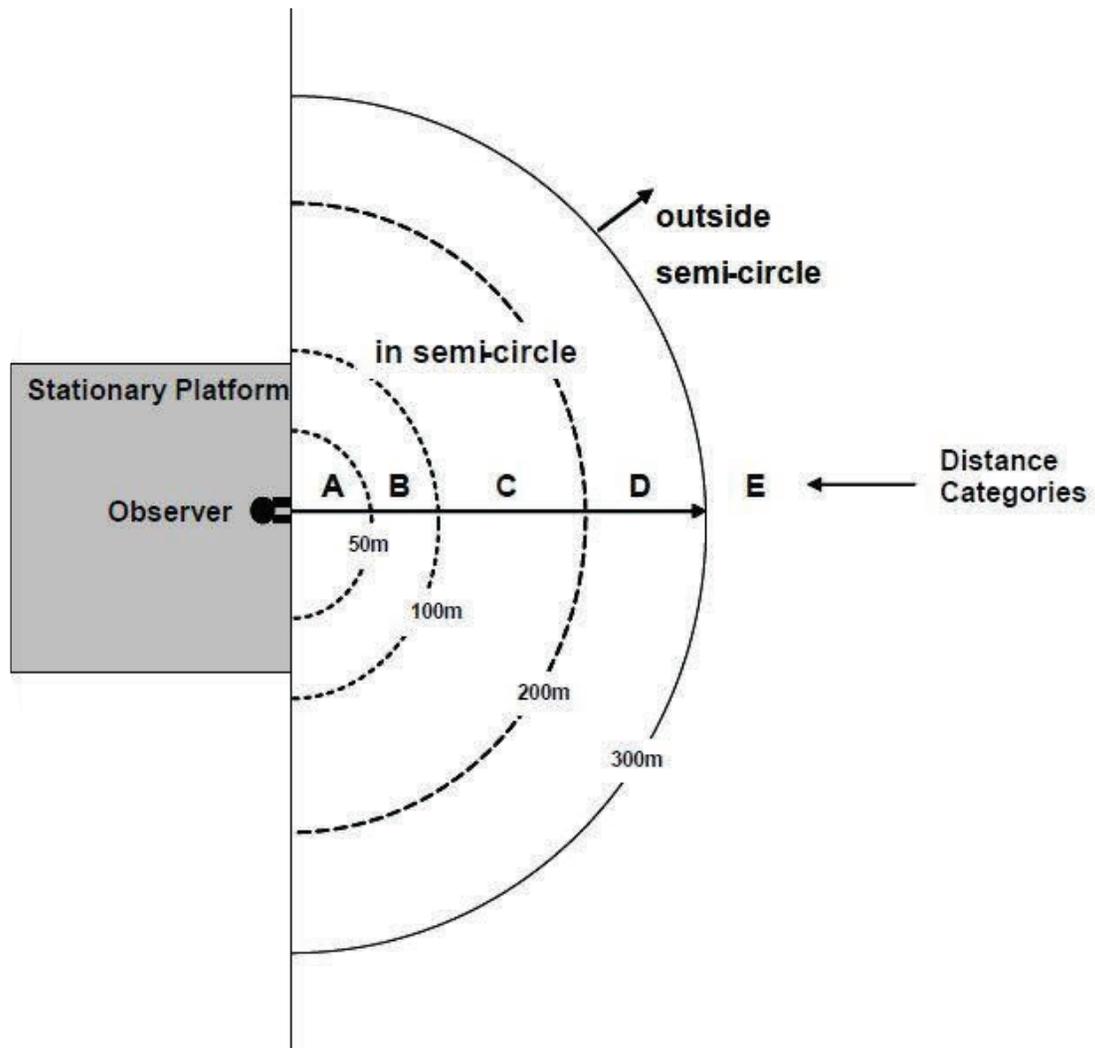
- If it is not practical to estimate distance to each bird or flock of birds, record whether the birds were observed in or out of transect. If it is not practical to note which birds are on the water and which are in flight use the following guidelines:
  - If the majority of the birds are in the air, they can be recorded as flying.
  - If birds appear first on the water and then fly away as the vessel approached, or they continuously move between the water and air, recorded them being as on the water.

#### Birds that Follow the Vessel

- To avoid double counting birds, once a bird is recorded in-flight it is not subsequently recorded again if it follows the ship.

### 2.4.4 Survey Methods – Stationary Vessel

- If the vessel is stationary (e.g., anchored) for a day or portion of a day, then a seabird survey will be required while anchored to ensure the minimum of one survey per day is met.
- Surveys when the vessel is stationary are conducted from the bow (front) of the vessel.
- The length of each scan will depend on the number of birds present at the time of the scan (e.g., it may only last a few seconds if there are no birds present).
- Surveys while the vessel is stationary (e.g., on standby or anchored) are done using counts of birds within a 300 m “semi-circle” area from the vessel, scanning through a 180° arc (Figure 2.4-4).
- All seabirds on water and in flight that are observed within 300 m are recorded. If seabirds are visible beyond 300 m, they are recorded as outside of the 300 m semi-circle.
- The distance to seabirds (inside and outside the 300 m area) from the observer is estimated and recorded for all birds, using Figure 2.4-4 (A to E).
- Binoculars and spotting scopes can be used to confirm species identification and other details as necessary.
- If no birds are observed during the survey, “no seabirds observed” must be noted on the *Seabird Sightings Form*.



Source: extracted from Gjerdrum et al. 2012

**Figure 2.4-4: Seabird Survey Using an 180° Scan from the Bow, Surveying an Area 300 m from a Stationary Observer**

## 2.5 Incidental Seabird Sightings – “Off Effort”

During sailing between Hudson Strait and Helicopter Island/Rankin Inlet, the ship’s crew is required to keep watch for groups of seabirds along the shipping route. This is in addition to the MMSO dedicated surveys. Whenever a group of seabirds is observed outside of the dedicated survey time, this is called an incidental sighting, or “off-effort” sighting. These sightings are recorded on the *Incidental Marine Wildlife Sightings Form* (Attachment D) and provided to Agnico Eagle for reporting. This includes sightings of large groups of seabirds on water, colonies of seabirds on land, or large flocks of seabirds flying.

If an incidental sighting is close to the vessel and requires mitigation measures, or if a ship strike occurs, refer to Section 3 of this SOP and complete the *MMSO Incident Report Form* (Attachment B).

## 3. MITIGATION AND REPORTING

In the event bridge crew observe large groups of seabirds requiring mitigation or management measures, recommended responses are outlined in Table 3-1. Mitigation responses will be documented on the *Seabird Sightings Form* in the “Comments” column for that observation.

**Table 3-1: Recommended Shipping Mitigation Responses for Seabirds**

Observation	Management Response
<b>Seabirds</b>	
Marble Island	2 km
Colonies and aggregations of seabirds (on water or land) during Project shipping transiting through Hudson Strait, Hudson Bay, and Chesterfield Inlet	500 m setback

If bridge crew determine a ship strike of a group of seabirds has occurred, they will complete the *MMSO Incident Report Form* (Attachment B), and indicate on the *Seabird Sightings Form* that the observation was the result of a ship strike.

All records of bird collisions will be provided to Canadian Wildlife Service (CWS) on a weekly basis, as vessel communications allow (i.e., as internet connections allow). Immediate reporting will be required in the event that multiple bird collisions occur (involving more than five individuals) and the incidents appear related (i.e., similar time period, location, and weather conditions). In this instance, the regional Environment and Climate Change Canada (ECCC) Wildlife Enforcement Officer (contact information provided below) will be contacted to provide advice on the implementation of adaptive management techniques to attempt to reduce the likelihood of collisions occurring in the future.

### If a seabird and vessel collision occurs, contact:

- CWS, Jean-Francois Dufour: [jean-francois.dufour2@Canada.ca](mailto:jean-francois.dufour2@Canada.ca)
- ECCC Wildlife Enforcement: [ec.dalfnord-wednorth.ec@canada.ca](mailto:ec.dalfnord-wednorth.ec@canada.ca)

## 4. END OF TRIP REPORTING REQUIREMENTS

The following information will be submitted to the Agnico Eagle Environment Team (contact information provided at the top of this SOP) after each shipping trip for collation into a database:

1. Spatial file of the shipping route;
2. Completed *Seabird Sightings Forms*;
3. Completed *MMSO Incident Report Form* (if required); and
4. Photographs taken of sightings.

## 5. REFERENCES AND RECOMMENDED GUIDES

ECCC. 2016. *Environment and Climate Change Canada's input to the Nunavut Planning Commission regarding Key Habitat Sites for Migratory Birds in the Nunavut Settlement Area*. Revised May 2016. 140 pp.

Gjerdrum et al. 2012. *Eastern Canada Seabirds at Sea (ECSAS) Standardized Protocol for Pelagic Seabird Surveys from Moving and Stationary Platforms*.

Latour, P. B., J. Leger, J. E. Hines, M. L. Mallory, D. L. Mulders, H. G. Gilchrist, P. A. Smith, and D. L. Dickson. 2008. *Key Migratory Bird Terrestrial Habitat Sites in the Northwest Territories and Nunavut*. Canadian Wildlife Service Occasional Paper Number 114. Canadian Wildlife Service: Ottawa, ON.

Mallory, M. L. and A. J. Fontaine. 2004. *Key Marine Habitat Sites for Migratory Birds in Nunavut and the Northwest Territories*. Canadian Wildlife Service Occasional Paper Number 109. Canadian Wildlife Service: Ottawa, ON.

Sibley. 2016. *Field Guide to the Birds of Eastern North America: Second Edition*.

## **ATTACHMENT A SEABIRD SIGHTINGS FORM**

**Seabird Sightings Form** (circle options that are *italicized* as appropriate)

<b>Survey Type</b> (circle one):		<i>Moving Vessel</i>		<i>Stationary Vessel</i>	
<b>General Information</b>					
<b>Date (DD/MMM/YYYY)</b>		<b>Observer Name</b>		<b>Height of Eye (m)</b>	
<b>Vessel Information</b>					
<b>Company/Agency</b>		<b>Vessel Type</b>		<b>Vessel Heading</b>	
<b>Vessel Name</b>		<b>Vessel Activity</b>	<i>Moving</i> <i>Stationary</i>	<b>Vessel Speed (kt)</b>	
<b>Environmental Information</b>					
<b>Weather</b>	<i>Clear</i>	<i>Partly Cloudy</i>	<i>100% Cloud</i>	<i>Fog</i>	<i>Rain</i> <i>Snow</i>
<b>Beaufort Wind Force</b>	<i>Calm</i>	<i>Light Wind</i>	<i>Strong Wind</i>	<i>Gale Force Wind</i>	<i>Stormy</i>
<b>Wind Direction (Deg)</b>		<b>Glare Conditions</b>	<i>None</i> <i>Slight Grey</i> <i>Bright</i>	<b>Visibility (km)</b>	
<b>Survey Information</b>					
<b>Observer Location</b>	<i>Outdoors</i>	<i>Indoors</i>	<b>Observation Side</b>	<i>Starboard</i>	<i>Port</i> <i>Bow</i>
<b>Notes:</b>					

5-min Survey #1 of 6 Start		Local Time (24 hr)			Latitude (DD)			Longitude (DD)	
Species	Count	Observation Type (Fly or Water)	In Transect (Y/N)	Distance Zone (A,B,C,D,E)	Behaviour (escape flight, rafting, other)	Flight Direction (Deg)	Age (Adult/Young)	Plumage (breeding/non-breeding/molt)	Comments*
5-min Survey #1 of 6 End		Local Time (24 hr)			Latitude (DD)			Longitude (DD)	

5-min Survey #2 of 6 Start		Local Time (24 hr)			Latitude (DD)			Longitude (DD)	
Species	Count	Observation Type (Fly or Water)	In Transect (Y/N)	Distance Zone (A,B,C,D,E)	Behaviour (escape flight, rafting, other)	Flight Direction (Deg)	Age (Adult/Young)	Plumage (breeding/non-breeding/molt)	Comments*
5-min Survey #2 of 6 End		Local Time (24 hr)			Latitude (DD)			Longitude (DD)	

5-min Survey #3 of 6 Start		Local Time (24 hr)			Latitude (DD)			Longitude (DD)	
Species	Count	Observation Type (Fly or Water)	In Transect (Y/N)	Distance Zone (A,B,C,D,E)	Behaviour (escape flight, rafting, other)	Flight Direction (Deg)	Age (Adult/Young)	Plumage (breeding/non-breeding/molt)	Comments*
5-min Survey #3 of 6 End		Local Time (24 hr)			Latitude (DD)			Longitude (DD)	

5-min Survey #4 of 6 Start		Local Time (24 hr)			Latitude (DD)			Longitude (DD)	
Species	Count	Observation Type (Fly or Water)	In Transect (Y/N)	Distance Zone (A,B,C,D,E)	Behaviour (escape flight, rafting, other)	Flight Direction (Deg)	Age (Adult/Young)	Plumage (breeding/non-breeding/molt)	Comments*
5-min Survey #4 of 6 End		Local Time (24 hr)			Latitude (DD)			Longitude (DD)	

5-min Survey #5 of 6 Start		Local Time (24 hr)			Latitude (DD)			Longitude (DD)	
Species	Count	Observation Type (Fly or Water)	In Transect (Y/N)	Distance Zone (A,B,C,D,E)	Behaviour (escape flight, rafting, other)	Flight Direction (Deg)	Age (Adult/Young)	Plumage (breeding/non-breeding/molt)	Comments*
5-min Survey #5 of 6 End		Local Time (24 hr)			Latitude (DD)			Longitude (DD)	

5-min Survey #6 of 6 Start		Local Time (24 hr)			Latitude (DD)			Longitude (DD)	
Species	Count	Observation Type (Fly or Water)	In Transect (Y/N)	Distance Zone (A,B,C,D,E)	Behaviour (escape flight, rafting, other)	Flight Direction (Deg)	Age (Adult/Young)	Plumage (breeding/non-breeding/molt)	Comments*
5-min Survey #6 of 6 End		Local Time (24 hr)			Latitude (DD)			Longitude (DD)	

## **ATTACHMENT B MMSO INCIDENT REPORT FORM**

## Marine Mammals and Seabird Observer (MMSO) Incident Report

Project Information		
Client: Agnico Eagle		Date:
Project Name (circle one): <i>Meadowbank</i> <i>Meliadine</i>		General Location:
Vessel Contractor Information		
Vessel Contractor Name:		Site Supervisor or Captain:
Vessel Name/Type:		
MMSO Name:		
General Weather Conditions (throughout the day):	Wind (knots):	
	Sea State:	
	Swell Height (m):	
	Temperature (°C):	
	Notes:	
Time Start/Time End MMSO Duties (HH:MM):	Start:	End:

### Mitigation Log\*

Time (UTC; HH:MM)	Was Mitigation Implemented?	Location		Rationale for Implementation
		Latitude (DD)	Longitude (DD)	

\*Fill in this section if vessel is required to route north of Coats Island due to safety concerns

### Record of Vessel-Animal Collisions/Interactions

Species	Number of Individuals	Time (HH:MM)	Location		Visibility (m)/ Sea State	Comments
			Latitude (DD)	Longitude (DD)		

### Summary of Issues and Recommendations/Actions

Date Noted	Issue	Recommendation/Action	Date Resolved	Comments

## **ATTACHMENT C COMMON SEABIRD ID GUIDE**