

FIGURE 3.3-4 SEABIRD DETECTIONS DURING STATIONARY VESSEL SURVEYS, 2019 TO 2024

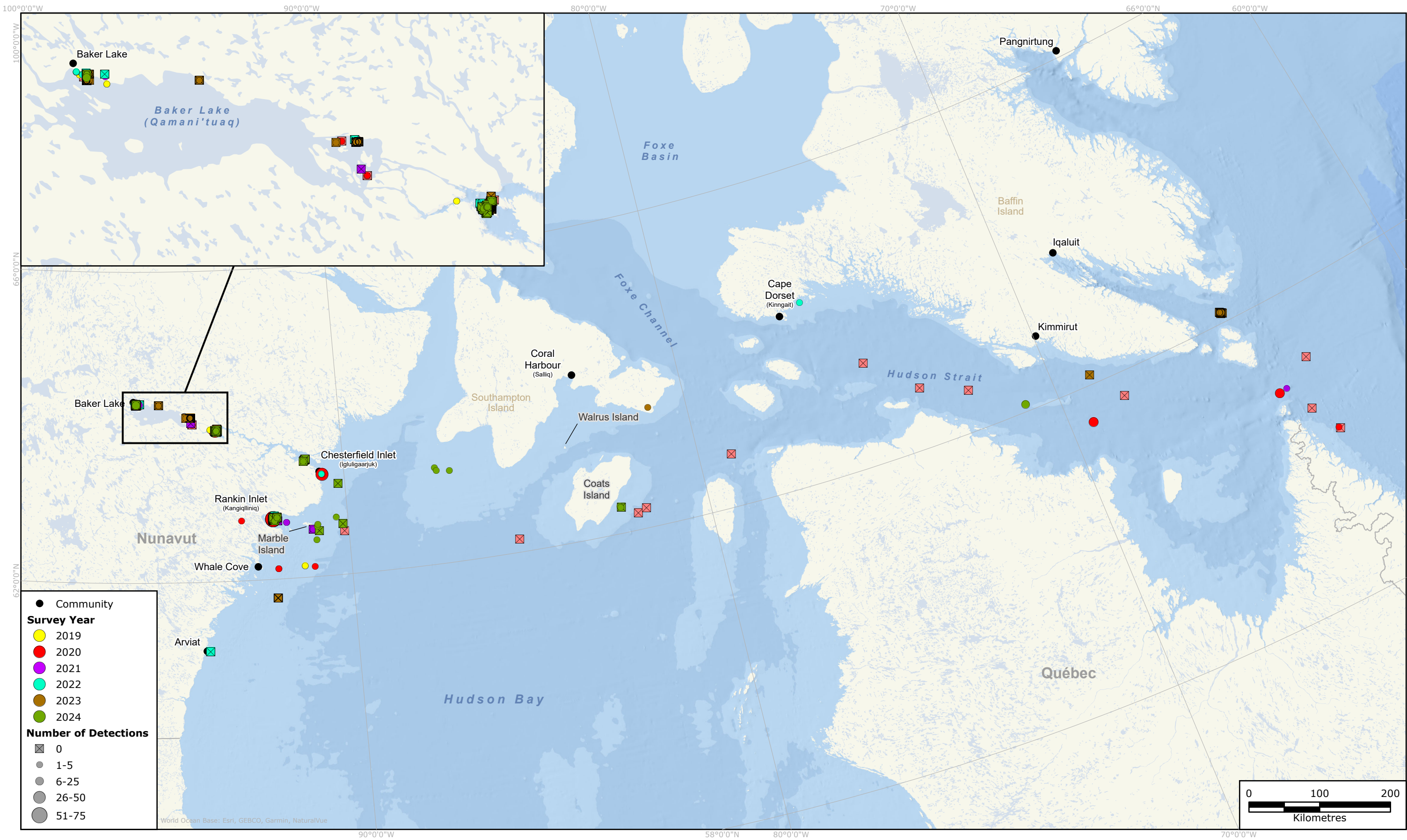


TABLE 3.3-9 TOP AKAIKE'S INFORMATION CRITERION-RATED DISTANCE MODELS, STATIONARY VESSEL SURVEYS, 2019 TO 2024

Model Key and Adjustment	Detection Estimate ^a	Detection SE ^b	Δ AIC ^c
Hazard rate with polynomial adjustment	0.005	0.007	0.000
Uniform with cosine adjustment	0.071	0.011	17.976
Half-normal with cosine adjustment	0.099	0.004	1,267.540

Notes:

Δ = difference; AIC = Akaike's Information Criterion; SE = Standard Error

^a The detection estimate represents the average probability of detection. A higher detection estimate indicates that there is a greater probability of detecting an object at a given distance.

^b Standard error is a measure of variability where values indicate the statistical accuracy of the detection estimate.

^c Values provide relative rankings between models fit with the same data, where the lowest AIC-ranked model is considered the best fit to the data.

TABLE 3.3-10 DETECTION ESTIMATES FOR STATIONARY VESSEL SURVEYS BY YEAR BETWEEN 2020 AND 2024

Year	Detection Estimate ^a	Detection 95% CIs ^b
All Years	0.049	0.036–0.063
2020	0.079	0.061–0.098
2021	0.112	0.086–0.138
2022	0.065	0.042–0.089
2023	0.099	0.090–0.107
2024	0.065	0.045–0.086

Notes:

% = percent; CI = Confidence Interval

^a The detection estimate represents the average probability of detection.

^b Values indicate the range in which 95% of the samples fall.

The detection estimate for all years of data combined decreased with the addition of 2024 data (Table 3.3-10). The detection estimate for stationary vessel surveys is roughly 77% lower than the detection estimate for moving vessels, which suggests that seabirds are less likely to be detected during stationary vessel surveys, compared to moving vessel surveys. The result is consistent with the data, which indicate that both detections and the 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 in 2024 was similar to that of 2022 (0.065 in both 2022 and 2024; Table 3.3-10); however, the detection rate per survey was lower in 2024, with 0.26 detections per survey, compared to 0.87 detections per survey in 2023 and 2.17 in 2022 (Table 3.3-10). Therefore, there does not appear to be a pattern between detection estimate, survey effort, or the average number of detections per survey. This variation in effort

and detection estimates suggests that the detection estimates may be driven by a lack of detection data. The lower detection estimates observed in stationary surveys may be naturally lower than moving vessel surveys, i.e., seabirds are more difficult for the MMSO crew members to detect on stationary vessels, compared to moving vessels.

3.4 MARINE WILDLIFE OBSERVATIONS—BAKER LAKE

To satisfy Term and Condition 36 of Meadowbank Mine PC No. 004a local area marine wildlife monitor is required onboard all vessels transporting fuel or materials for the Project between Helicopter Island and Baker Lake.

Observations by community members have been recorded since 2008, apart from 2020 and 2021 due to health and safety restrictions in place related to the COVID-19 pandemic. Groupe Desgagnés and Woodward had their MMSOs record sightings of marine mammals and seabirds when possible while travelling during those 2 years. The vessel companies continued to conduct surveys in 2024; survey effort and results from these surveys are included in Sections 3.2 and 3.3 and summarized in Section 3.4.1. Agnico Eagle remains committed to meet compliance with Term and Condition 36 of PC No. 004 and continues to seek out monitors from the Chesterfield Inlet each year.

In 2024, local wildlife monitors were on the vessels for a total of 37 days and collected incidental observations in August, September, and October on the Tuvaq W. between Helicopter Island and Baker Lake. GPS coordinates were recorded during all but 14 of the incidental sightings (189 surveys with GPS coordinates; see Figure 3.4-1). Table 3.4-1 summarizes the number of days an observer was recording incidental sightings while on the vessels between 2008 and 2024. In 2024, there were 331 separate sightings of birds (total of 1,138 individuals), and an additional 7 incidental observations of mammals, including 1 sighting of caribou (6 individuals), 3 sightings of muskox (21 individuals), 2 sightings of fox (2 individuals), and 1 sighting of an unknown seal species (1 individual).

Tables 3.4-2 and 3.4-3 summarize marine mammal and seabird observations by the local wildlife monitors onboard contractor vessels transporting fuel for the Meadowbank Complex between Helicopter Island and Baker Lake between 2008 and 2019 and from 2022 to 2024, as well as observations by Groupe Desgagnés and Woodward crew members in 2020 and 2021.

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 while travelling between Helicopter Island and Baker Lake to supplement the community observer effort. Results of surveys are presented in Sections 3.2 and 3.3 and summarized below. Incidental observations made by MMSOs are summarized here.

FIGURE 3.4-1 WILDLIFE MONITORING SURVEYS BETWEEN HELICOPTER ISLAND AND BAKER LAKE, 2024

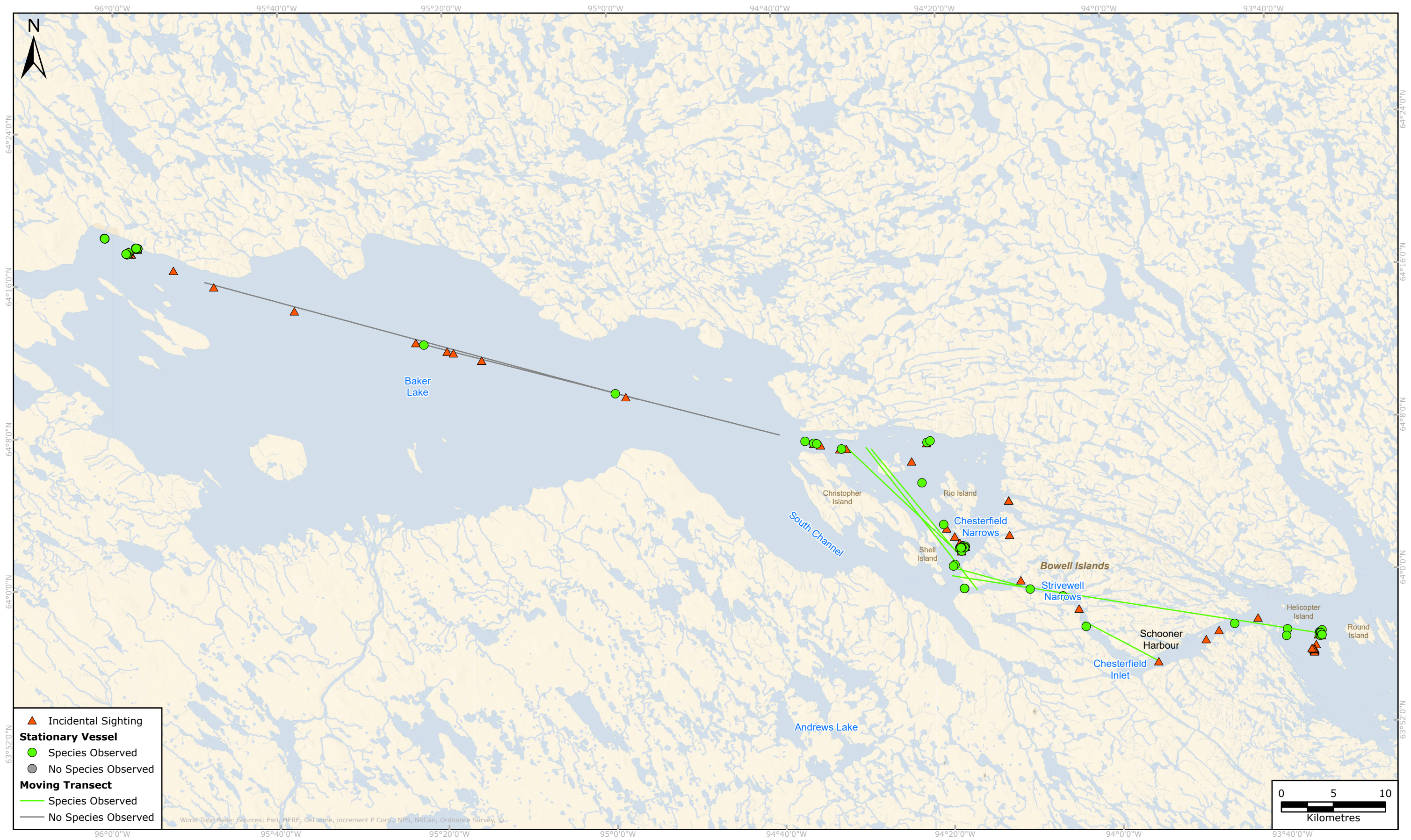


TABLE 3.4-1 BARGE INCIDENTAL SURVEY EFFORT BY LOCAL WILDLIFE MONITORS BETWEEN HELICOPTER ISLAND AND BAKER LAKE, 2008 TO 2024^a

Year	Survey Dates	Total Number of Days Surveyed
2008 ^b	18–31 July; 2–8 August	8
2009	19–22 August; 26–31 August; 3–7 September	14
2010	18–27 October	10
2011	28–31 July; 6–7 August	6
2012	6–7 August	2
2013	August 13–19; October 9–16	15
2014	6–10 October	5
2015	9–22 July; 23 July – 5 August; 13–21 October	37
2016 ^b	26–31 July; 2–13 October	18
2017 ^b	July; October	-
2018 ^b	-	19 ^d
2019	19–24 September	6
2020	27–28 July; 9–10 August; 12 August; 15 August; 18 August	7
2021 ^c	28 July; 5–6 October; 10 October; 18 October	5
2022	21–27 July; 4–8 August; 16–23 October	22
2023	28 July – 9 August; 18–19 August; 7–9 October	27
2024	1–12 August; 17 August – 2 September; 22 October – 29 October	37

Notes:

Groupe Desgagnés = Groupe Desgagnés, Inc.; Woodward = Woodward Group and Companies

^a During 2020 and 2021, surveys were conducted by Groupe Desgagnés and Woodward vessel crew members rather than community members.

^b Indicates specific dates were not provided—either only months, approximate dates, number of hours surveyed, or dates where observations occurred were provided. A best estimate of number of days surveyed is therefore provided for these years (2008, 2016, 2017, and 2018).

^c 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.

^d No dates were provided for 2018; however, it was noted that 153 hours of surveys were completed. Therefore, it was assumed that surveys were conducted 8 hours per day, for a total of 19 survey days. However, it is important to note that this is an estimate based on the number of hours surveyed.

TABLE 3.4-2 MARINE MAMMALS OBSERVED BY LOCAL WILDLIFE MONITORS BETWEEN HELICOPTER ISLAND AND BAKER LAKE, 2008 TO 2024^a

Year	Month	Number of Days Surveyed	Seals	Polar Bears ^d
2008	August	2	2	3
2008	July	1	-	-
2009	August	2	6	-
2009	September	1	2	-
2010	October	1	1	-
2020 ^b	August	4	1	-
2021 ^b	July	NA ^c	-	-
2022	August	34	-	-
2022	September	16	-	-
2022	October	4	-	-
2023	July	4	-	-
2023	August	11	1	-
2023	October	12	-	-
2024	August	27	1	-
2024	September	2	-	-
2024	October	8	-	-

Notes:

Groupe Desgagnés = Groupe Desgagnés, Inc.; NA = not applicable; Woodward = Woodward Group and Companies

Dashes (-) indicate none observed.

^a 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.

^b Groupe Desgagnés and Woodward vessel crew member survey effort and observations between Helicopter Island and Baker Lake are included in this table, as there was no local monitoring during those years. Sightings by vessel crew members during other years are not included in this table but are included in Section 3.2 and summarized in Section 3.4.1.

^c 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. These results are presented in Section 3.2.2 of the report and not summarized in this table.

^d Species listed as Special Concern on Schedule 1 of the federal *Species at Risk Act* (2002).

TABLE 3.4-3 SEABIRDS OBSERVED BY LOCAL WILDLIFE MONITORS BETWEEN HELICOPTER ISLAND AND BAKER LAKE, 2008 TO 2024

Year	Month	Number of Surveys	Gulls/ Terns	Loons	Snow Geese	Waterfowl	Other Seabird	Eagle/ Falcon	Unknown Birds and Other
2008	July	1	-	1	-	-	-	-	-
2008	August	2	1+ ^a	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+
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 ^b	-	-
2021	July	1	30	-	-	-	-	-	-
2021	October	8	14	-	-	24	-	-	28
2022	July	34	75	1	-	1	-	-	-
2022	August	16	33	-	-	-	-	-	4
2022	October	4	-	-	-	-	-	-	-
2023	July	1	28	2	-	-	-	-	-
2023	August	24	182	2	-	57	-	1	4

Year	Month	Number of Surveys	Gulls/ Terns	Loons	Snow Geese	Waterfowl	Other Seabird	Eagle/ Falcon	Unknown Birds and Other
2023	October	71	122	-	-	-	-	5	260
2024	August	27	416	57	-	291	5	18	61
2024	September	2	35	4	-	40	-	4	-
2024	October	8	75	-	-	40	-	-	92

Notes:

Dashes (-) indicate none observed.

^a 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.

^b Includes northern fulmar, petrel, cormorant, and jaeger.

In 2024, 54 stationary surveys were completed at Helicopter Island for marine mammals (Figure 3.2-1); however, no marine mammals were observed during the surveys. The vessel companies did not complete any moving vessel surveys in 2024 between Helicopter Island and Baker Lake, except for the Tuvaq W., which had a local monitor onboard recording incidental sightings. On 12 August, there was one incidental sighting of a harbour seal.

For seabirds, 79 stationary surveys were completed while anchored at Helicopter Island, 49 of which had survey effort data recorded. There was a total of 24.6 hours of survey time across those 49 surveys, lasting an average of 0.5 hours per survey. During the stationary surveys, including those without full survey effort, a total of 25 individual seabirds were recorded (6 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 surveys, 13 had sufficient spatial data to calculate spatial effort, all of which were completed onboard the Tuvaq W. Spatial effort for these 13 surveys was 129.0 km, with an average distance of 9.9 km per survey. During moving transect surveys (including those that did not record survey effort), 54 individual seabirds (9 different species) were observed (included in Section 3.3). Additional incidental sightings were recorded by MMSOs on the Tuvaq W. on August 1, between August 6 and 9, and on August 11. A total of 36 incidental sightings of seabirds were recorded during this time, 31 of which were of gulls (glaucous gulls or unidentified gulls), and the remaining five sightings were of unknown eider species (2 sightings: a group of 2 individuals and the other of 10 individuals), black guillemot (1 sighting of 1 bird) Canada goose (1 sighting of 4 birds), and Pomeranian jaeger (1 sighting of 1 bird), included in Table 3.4-2 and 3.4-3).

4. CONCLUSIONS

Overall, survey effort and quality of data collected by the MMSOs have improved since 2019. The marine mammal survey effort in 2024 shows continued improvements since 2019. Attention to recording all data (i.e., positions and times) is required to ensure all survey effort is included in the summary of the surveys. It is likely that the enhanced training for vessel crew members over the last 5 years helped improve the number of surveys completed, as well as the quality of data collected. The seabird survey effort in 2024 illustrated that the vessel captains and crew have increased their understanding of the MMSO Program requirements of completing the 5-minute interval surveys.

Agnico Eagle will continue to improve vessel crew member training in the following five areas:

1. The training given to the vessel's crew MMSOs will be reviewed every year to prepare crew members for the shipping season.
2. The seabird surveys were primarily completed in six consecutive 5-minute periods, according to the ECSAS protocol. Updated datasheets helped emphasize the correct data collection protocol in 2024. Training for the MMSOs will again focus on this aspect of the methodology in 2025.
3. Incomplete data entry (i.e., data entry fields for survey effort left blank) continues to occur. In 2024, approximately 14% of marine mammal survey data was missing information such as start or end times or positions. This percentage was a decrease from the early years of the program and was similar to the percentage of missing information from 2021 through 2023. For seabird surveys, 62 (39%) of moving vessel surveys were missing spatial effort. Temporal effort was missing from 30 moving vessel surveys in 2024 (19%) and from 69 (34%) of stationary surveys, which is an improvement from 2023. Although reporting of seabird survey spatial effort decreased in 2024, and several surveys still lack the effort data required for statistical analysis, the trend overall has become more consistent since the start of the program in 2018. 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 has been providing species identification sheets to the vessels since 2020, and additional aids (e.g., species identification posters) were provided in recent years. Agnico Eagle will continue to work with the shipping companies to provide relevant aids, as needed.
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 2022a; 2022b) 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

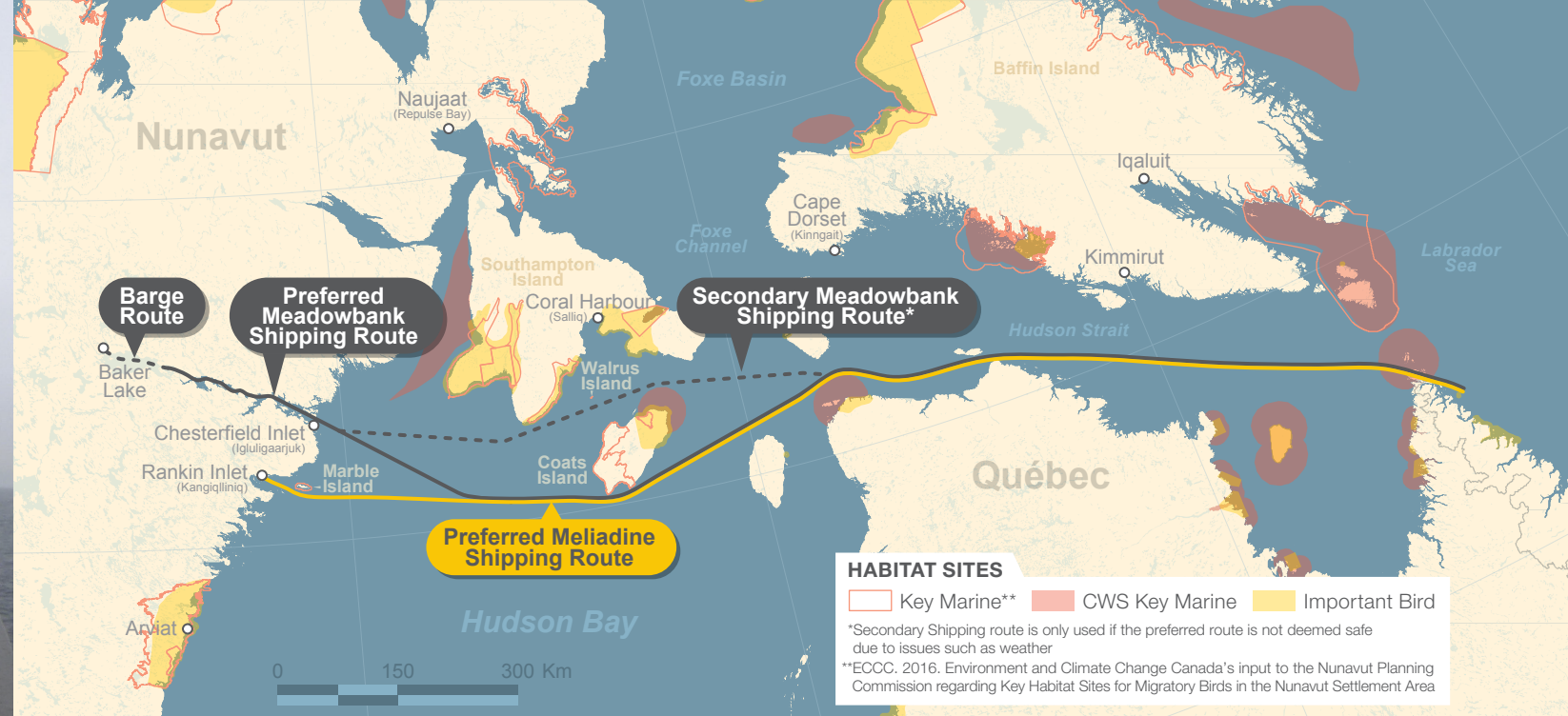
4. Reporting: Monitoring data sent to Agnico Eagle. How to report collisions or incidents to Agnico Eagle and the government.

Monitoring data sent to Agnico Eagle

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



SHIPPING MITIGATION & MANAGEMENT MEASURES



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:

- Ships will, when possible, maintain a straight course and constant speed, and avoid erratic behaviour;
- Marine mammals will be given right of way as safe navigation allows;
- 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;
- 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



- Ships will use a routing south of Coats Island as the primary shipping route;
- 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:

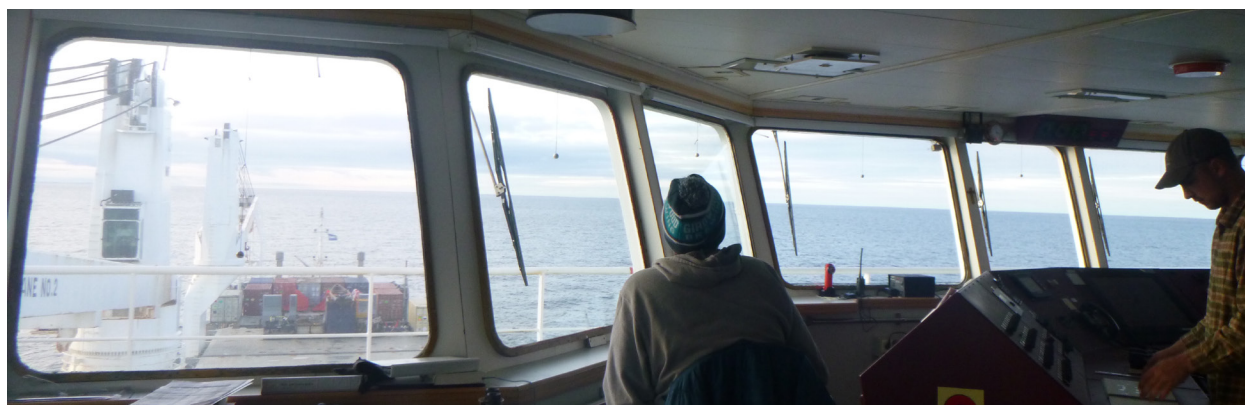
Meadowbank – Maintain 500 m away from feeding marine mammals and aggregations of seabirds and marine mammals
Meliadine – Maintain 300 m from feeding marine mammals.
Meliadine – Maintain 100 m away at all times.

- 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).
- The ship's Master will be notified if there is a concern of the ship striking a marine mammal.
- Ship personnel will make a decision if actions are required to avoid a possible collision by implementing management measures, if safe to do so.
- 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.

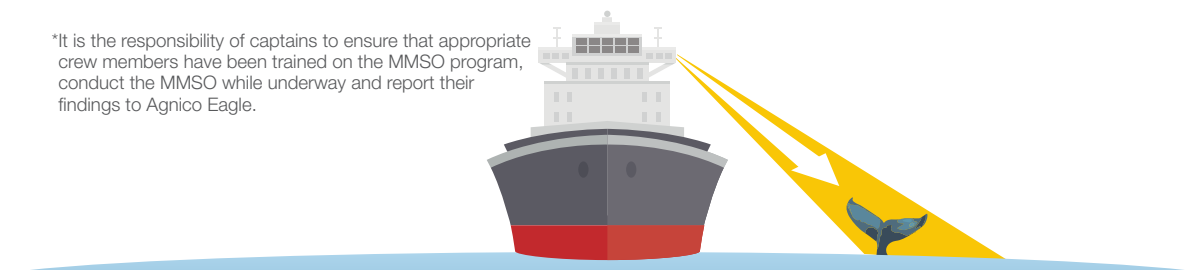
A Marine Mammal and Seabird Observer (MMSO) will be assigned by the captain prior to departure. The role of the MMSO is to record and report on marine mammals and seabird sightings during shipping activities along the shipping routes, and to advise the ship's crew on the location of observed marine mammals 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 4603212 Cell: +1 (819) 856-9349
Robin Allard: Cell: +1 (819) 860-1414



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:

mmso@agnicoeagle.com

If a Seabird and Vessel Collision Occurs Contact:

ECCC Wildlife Enforcement: ec.dalfnord-wednorth.ec@canada.ca





REFERENCES

Agnico Eagle (2022a).

Agnico Eagle- Meadowbank Division – Shipping Management Plan Version 4. Agnico Eagle.

Agnico Eagle (2022b).

Agnico Eagle – Meliadine Division – Shipping Management Plan Version 9. Agnico Eagle.

APPENDIX B MARINE MAMMAL MONITORING STANDARD OPERATING PROCEDURE



Meadowbank and Meliadine Projects

Marine Mammal Monitoring

STANDARD OPERATING PROCEDURE

SHIP-01

June 14 2023

Version B.4

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: **Agnico Eagle**
mmso@agnicoeagle.com

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ATTACHMENT A **MARINE MAMMAL SIGHTINGS FORM**

ATTACHMENT B **MARINE SHIPPING MITIGATION SUMMARY**

ATTACHMENT C **MARINE MAMMAL ID GUIDES**

ATTACHMENT D **MMSO INCIDENT REPORT FORM**

ATTACHMENT E **INCIDENTAL MARINE WILDLIFE SIGHTINGS FORM**



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).

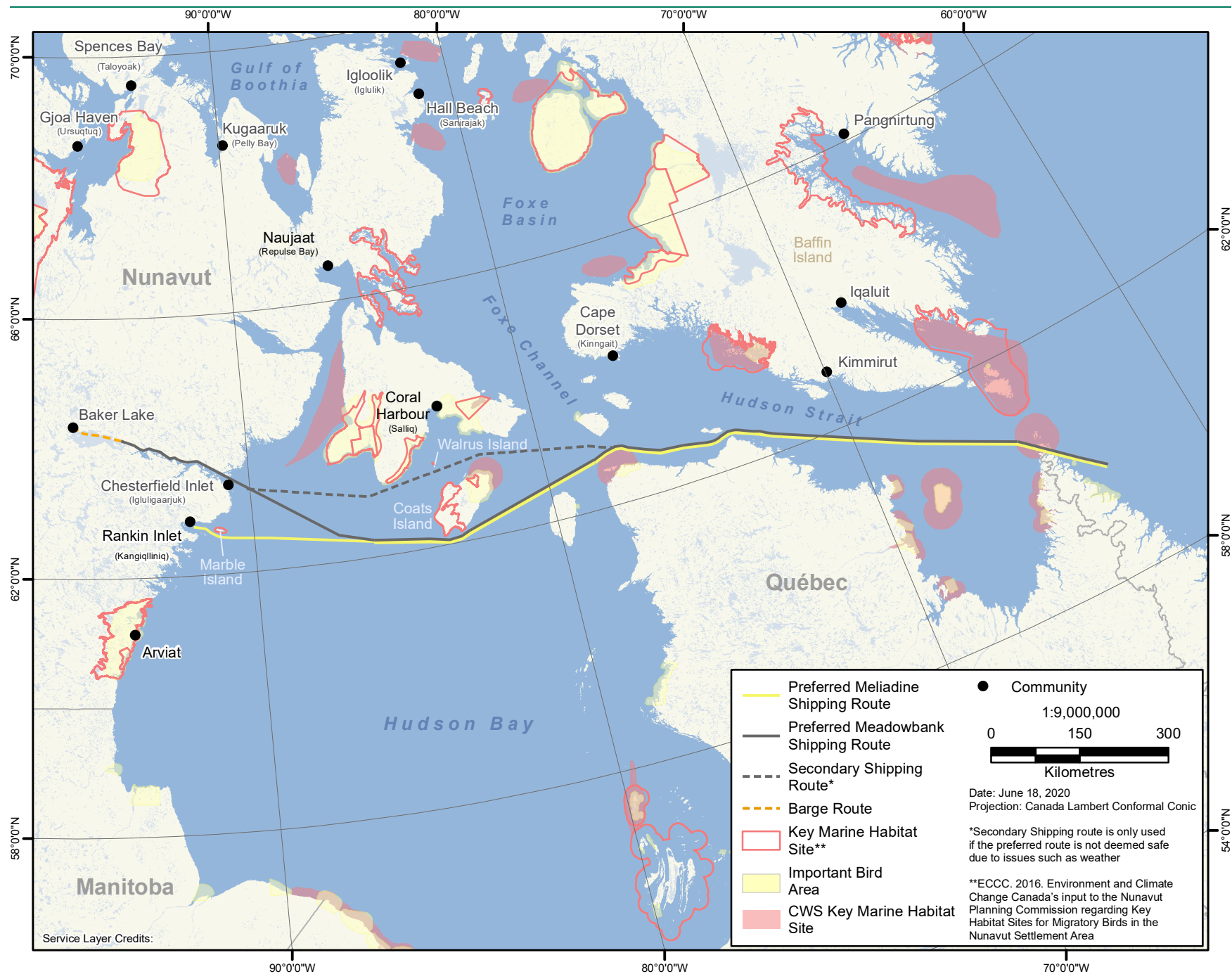
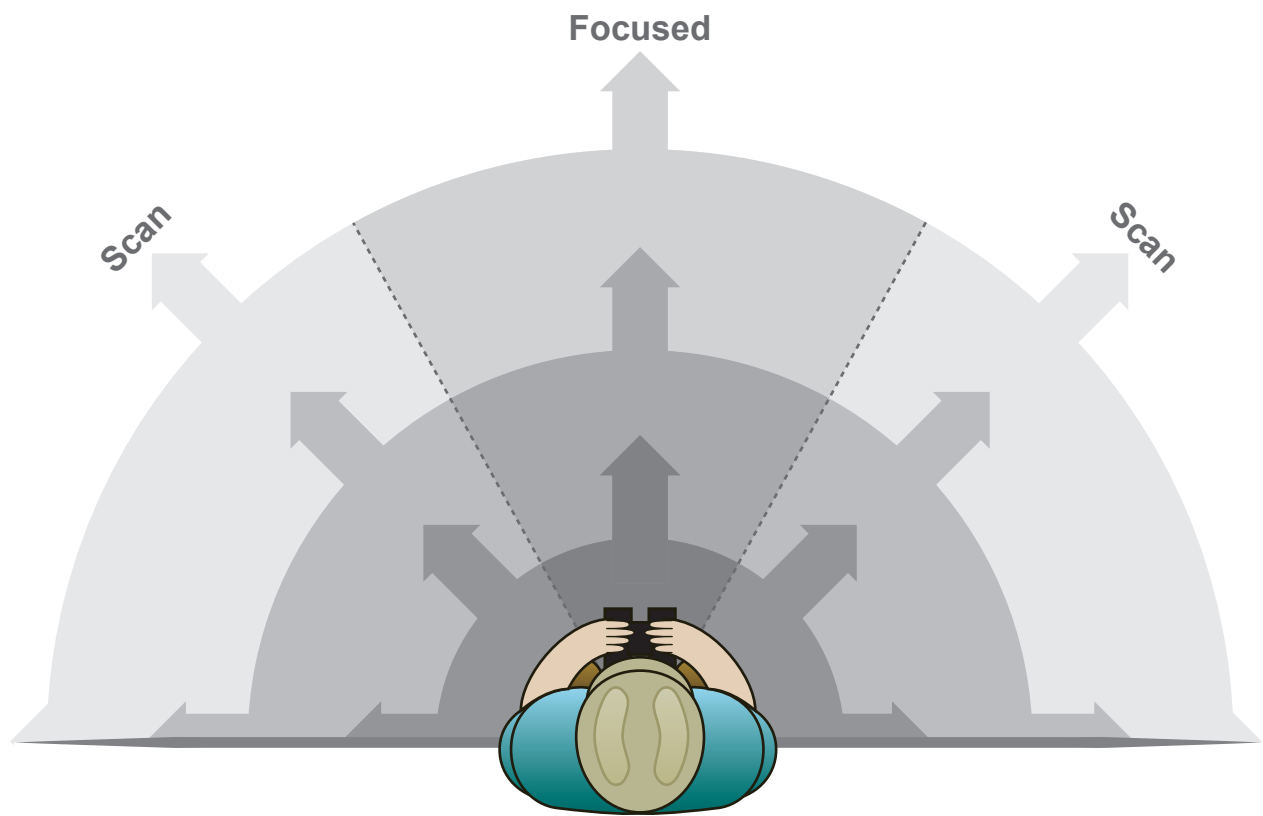


Figure 2.4-1: Shipping Routes during the Open Water Season



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

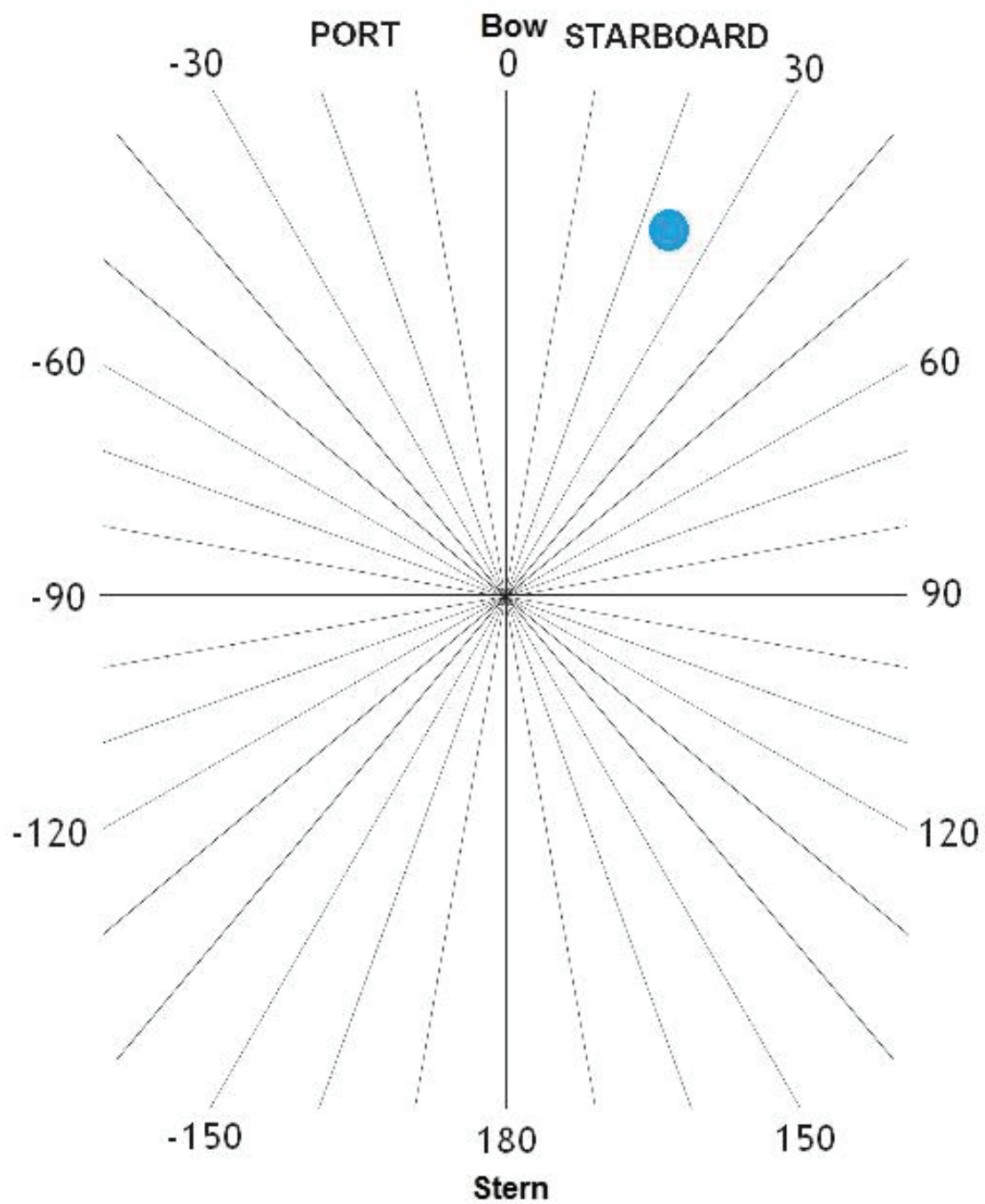
2.4.3 Scan Routine

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.



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

**Marine Mammal Sightings Form** (circle options that are *italicized* as appropriate)[illegible]

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: Agnico Eagle		Date:	
Project Name (circle one): <i>Meadowbank</i> <i>Meliadine</i>		General Location:	
Latitude (DD):		Longitude (DD):	
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:

Record of Vessel-Animal Collisions/Interactions in Water

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

Record of Bird on Deck

Species	Number of Individuals	State of Bird (injured, stranded, or dead)	Time (HH:MM)	Visibility (m)/ Sea State	Comments

Mitigation Log

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


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 ¹		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> _____ OR <i>Maximum/Minimum:</i> _____		
Behaviour	Mammals: <i>Swimming</i> <i>Diving</i> <i>Feeding</i> <i>Dead</i> <i>Resting on land</i> <i>Resting on ice</i> <i>Other:</i>		
	Birds: <i>Flying</i> <i>Feeding</i> <i>Resting on ocean surface</i> <i>Resting on land</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]	 OR <i>Variable Travel Directions</i>
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)		ACTION: RESULT:	

¹ Refer to list of species in the ID Guides.

APPENDIX C SEABIRD MONITORING STANDARD OPERATING PROCEDURE



Meadowbank and Meliadine Projects

Seabird Monitoring

STANDARD OPERATING PROCEDURE

SHIP-02

June 25, 2024

Version C.3

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:

Agnico Eagle
mmso@agnicoeagle.com

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ATTACHMENT A SEABIRD SIGHTINGS FORM

ATTACHMENT B MMSO INCIDENT REPORT FORM

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.
- 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 moving vessel:
 - 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.
- 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.

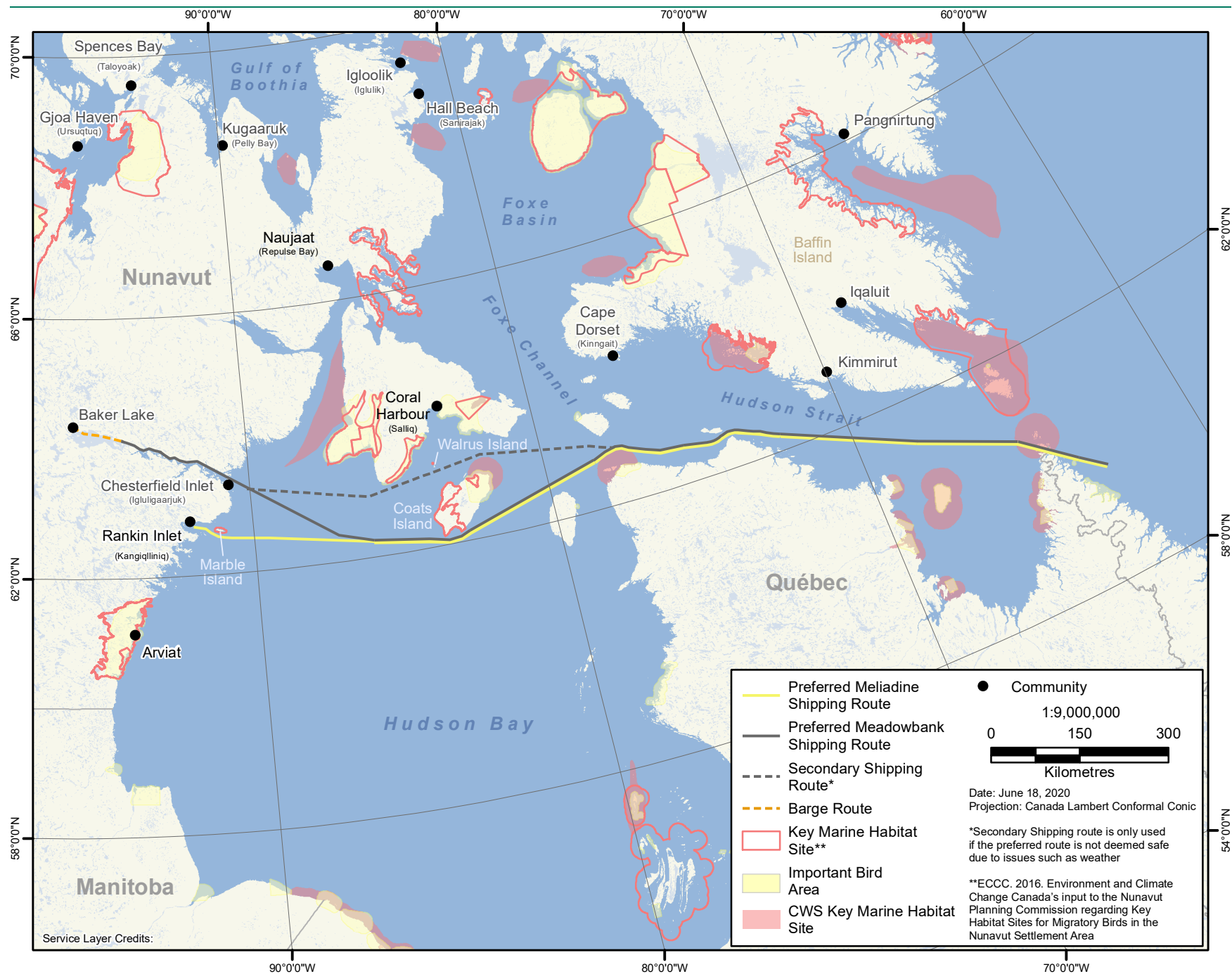


Figure 2.4-1: Shipping Routes during the Open Water Season

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.

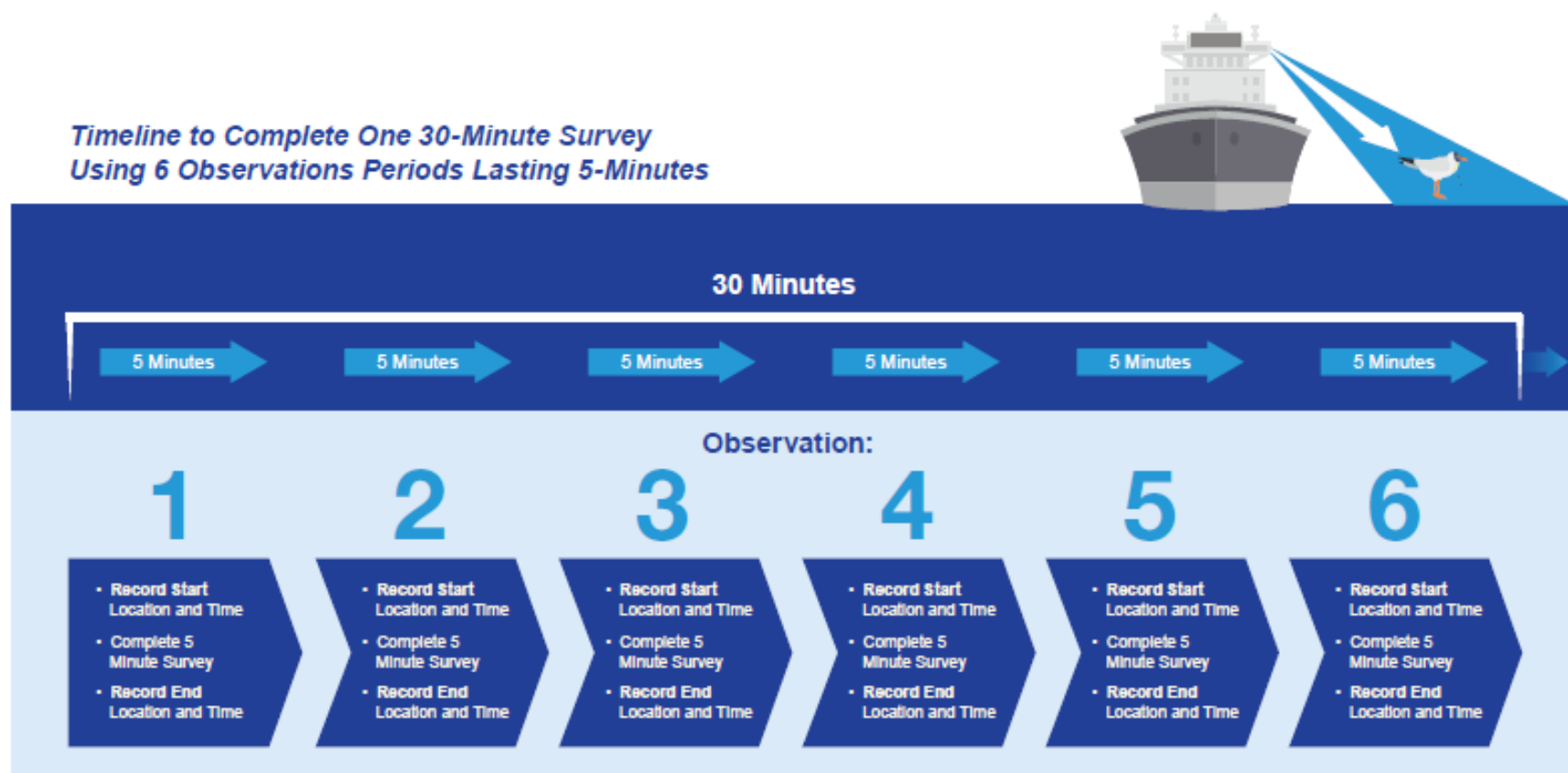
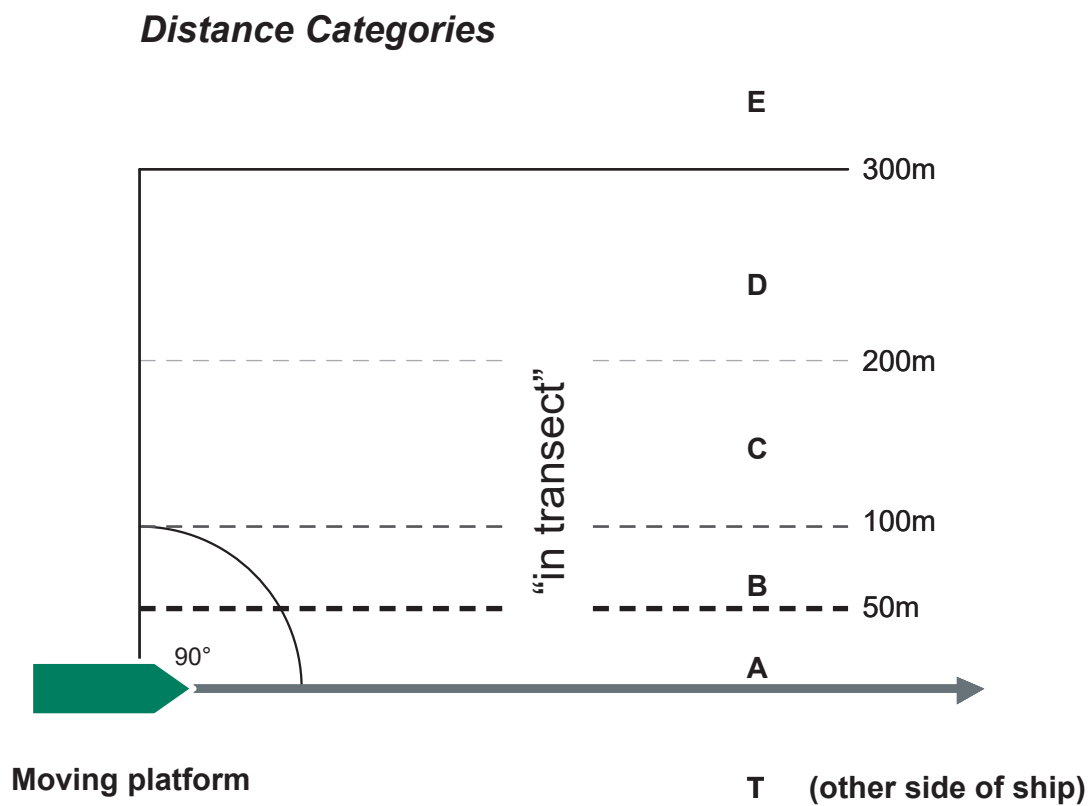


Figure 2.4-2: Seabird Survey Methodology using Six Consecutive 5-Minute Observation Periods



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

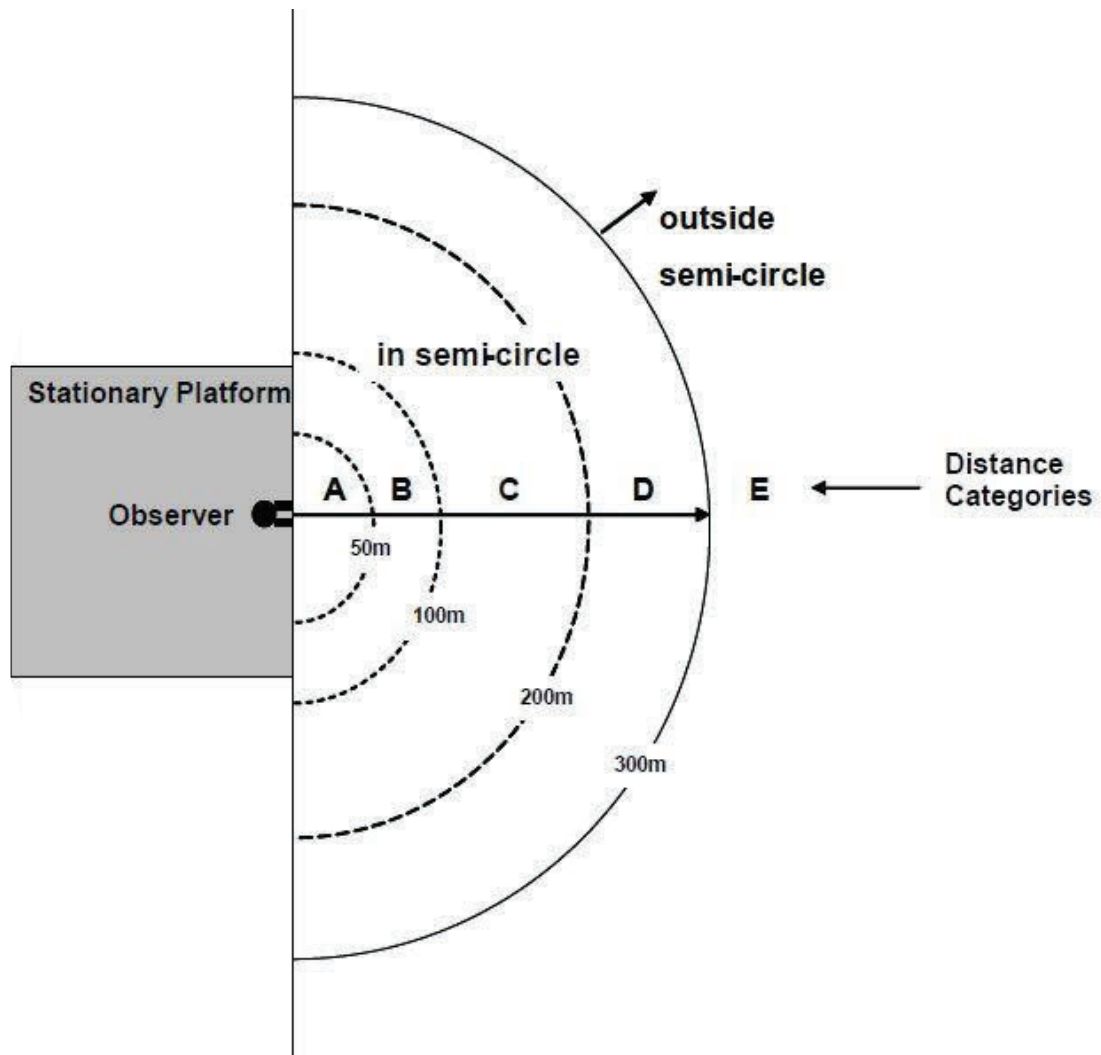
- If it is not practical to estimate distance to each bird or flock of birds, record whether the birds were observed in or out of transect. If it is not practical to note which birds are on the water and which are in flight use the following guidelines:
 - If the majority of the birds are in the air, 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 every hour while anchored. A minimum of one survey per day should be conducted.
- 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 COLLISION 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
Seabirds	
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. In the event of a suspected ship strike with birds on the water, the water will be scanned for any evidence of injured or deceased birds. In the event of a suspected ship strike with birds flying into the vessel, the MMSO will be tasked with immediately scanning the water and with undertaking a systematic walk-through to search the vessel deck for dead, stranded or injured birds.

In addition, as vessel strikes with marine birds often occur at night due to birds being attracted to vessel lights, the MMSO will also be tasked with undertaking opportunistic walk-throughs of the deck in the mornings. All birds found injured, stranded or dead on each vessel will be documented in accordance with the *Procedures for handling and documenting stranded birds encountered on infrastructure offshore Atlantic Canada* (ECCC-CWS 2017) on the *Incident Report Form* (Attachment B).

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:

- ECCC Wildlife Enforcement: 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)

Survey Type (circle one):		<i>Moving Vessel</i>		<i>Stationary Vessel</i>	
General Information					
Date (DD/MMM/YYYY)		Observer Name		Height of Eye (m)	
Vessel Information					
Company/Agency		Vessel Type		Vessel Heading	
Vessel Name		Vessel Activity	<i>Moving</i> <i>Stationary</i>	Vessel Speed (kt)	
Environmental Information					
Weather	<i>Clear</i> <i>Partly Cloudy</i> <i>100% Cloud</i> <i>Fog</i> <i>Rain</i> <i>Snow</i>			Sea State (0-9)	
Beaufort Wind Force	<i>Calm</i> <i>Light Wind</i> <i>Strong Wind</i> <i>Gale Force Wind</i> <i>Stormy</i>			Wave Height (m)	
Wind Direction (Deg)		Glare Conditions	<i>None</i> <i>Slight Grey</i> <i>Bright</i>	Visibility (km)	
Survey Information					
Observer Location	<i>Outdoors</i> <i>Indoors</i>	Observation Side	<i>Starboard</i> <i>Port</i> <i>Bow</i>		
Notes:					

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:	
Latitude (DD):		Longitude (DD):	
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:

Record of Vessel-Animal Collisions/Interactions in Water

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

Record of Bird on Deck

Species	Number of Individuals	State of Bird (injured, stranded, or dead)	Time (HH:MM)	Visibility (m)/ Sea State	Comments

Mitigation Log

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

ATTACHMENT C COMMON SEABIRD ID GUIDE