



# Drilling Seabird, Marine Mammal and Sea Turtle Monitoring Report

## Newfoundland & Labrador Orphan Basin Exploration Drilling Program

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# Drilling Seabird, Marine Mammal and Sea Turtle Monitoring Report

**Vessel:** Stena IceMax

**Position:** 50° 34.05' North, 49° 44.16' West (Ephesus)

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## **1. Introduction**

bp Canada Energy Group ULC (bp) contracted the Stena IceMax drill ship (Figure 1-1) to conduct an exploratory drilling program at the Ephesus wellsite in May and June of 2023. The wellsite is 395 km northeast of St. John's in the West Orphan Basin in Exploration License (EL) 1168 (a consolidation of EL1145 and 1146) (Figure 1-2).

For a detailed description of the drilling program, see Section 2.0 of the September 2018 Newfoundland Orphan Basin Exploration Drilling Program Environmental Impact Statement (EIS), which was conducted under the Canadian Environmental Assessment Act 2012 (CEAA 2012) (registration number 80147) and can be found at the website Environmental Impact Statement – Canada.ca (ceaa-acee.gc.ca).

The drilling program included the implementation of a seabird monitoring follow-up program which is described in bp Seabird Monitoring Plan (Plan) CN002-EV-PLN-600-00019 (bp 2022). bp contracted PAL Aerospace (PAL) Ice and Environmental Services (IES) to provide seabird and marine mammal monitoring services on the Stena IceMax in transit to, from, and at the Ephesus F-94 wellsite.

Both stationary and moving surveys were recorded throughout the project. Two PAL Marine Mammal, Sea Turtle, and Seabird Observers (observers) were placed on the Stena IceMax from May 06, 2023, to July 01, 2023. The observers conducted hourly seabird surveys and visual observations of marine mammals each day in accordance with the Plan which references the Eastern Canada Seabirds at Sea (ECSAS) Standardized Protocol for Pelagic Seabird Surveys from Moving and Stationary Platforms (Gjerdrum et al. 2012). The observers also conducted systematic searches for stranded seabirds which were conducted each morning in accordance with Environment and Climate Change Canada's (ECCC-CWS) Procedures for Handling and Documenting Stranded Birds Encountered on Infrastructure Offshore Atlantic Canada (ECCC-CWS 2016) and Guidance for Developing Systematic Stranded Bird Survey Protocols for Vessels and Platforms (ECCC-CWS 2016). Personnel on the supply vessels supporting the drilling program were trained by PAL to conduct daily systematic searches for stranded seabirds in accordance with the ECCC-CWS guidance note above.





Figure 1-1: Stena IceMax

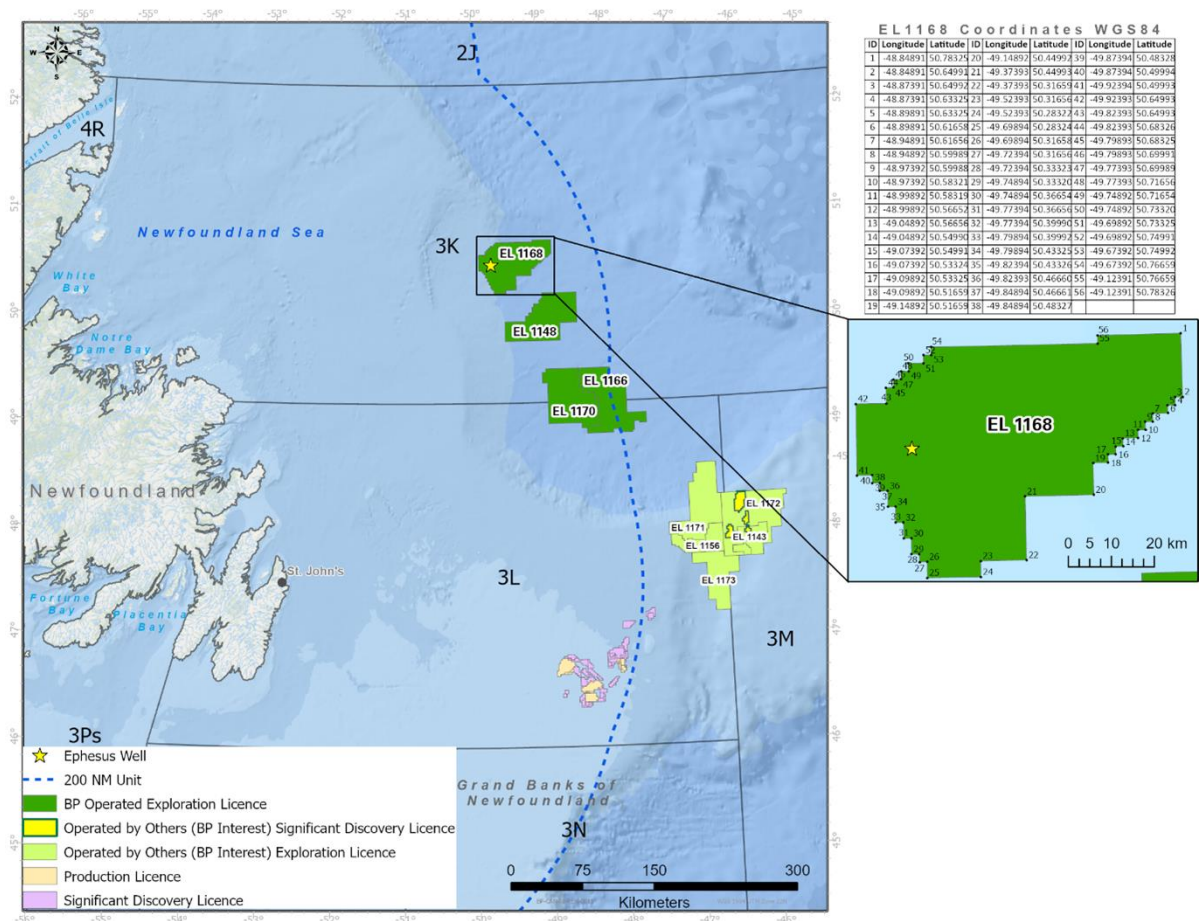


Figure 1-2: Ephesus Wellsite Within EL1168



## 1.1. Purpose

In February of 2019, bp developed and issued to the C-NLOPB an environmental assessment report titled BP Canada Energy Group ULC (bp) Newfoundland Orphan Basin Exploration Drilling Program which was developed in accordance with the requirements of the Canadian Environmental Assessment Act, 2012. This assessment was developed to support an application to the C-NLOPB for an operations authorization to conduct exploration drilling. Following the public and regulatory review of the environmental impact statement, in a February 2020 Decision Statement, the Minister of Environment and Climate Change determined that, with mitigations, the proposed project was not likely to cause significant adverse environmental effects (IAAC 2020).

The Decision Statement contained a series of conditions which bp committed to address prior to, during, and after drilling. The following coral and sponge related conditions are applicable to the drilling program. The purpose of this report is to demonstrate the environmental assessment condition described in Table 1-1 have been appropriately addressed.

**Table 1-1: EIS Decision Statement Conditions**

Condition	Condition Details
2.5	The Proponent shall, where a follow-up program is a requirement of a condition set out in this Decision Statement, determine the following information, for each follow-up program:
2.5.1	the methodology, location, frequency, timing and duration of monitoring associated with the follow-up program as necessary to verify the accuracy of the environmental assessment predictions as they pertain to the particular condition and to determine the effectiveness of any mitigation measure(s);
2.5.2	the scope, content, and frequency of reporting of the results of the follow-up program
2.5.3	the levels of environmental change relative to baseline conditions and predicted effects as described in the environmental impact statement, which would require the Proponent to implement modified or additional mitigation measure(s), including instances where the Proponent may be required to stop Designated Project activities; and
2.5.4	the technically and economically feasible mitigation measures to be implemented by the Proponent if monitoring conducted as part of the follow-up program shows that the levels of environmental change have reached or exceeded the limits referred to in condition 2.5.3
2.6	The Proponent shall submit the information referred to in condition 2.5 to the Board prior to the implementation of each follow-up program. The Proponent shall update that information in consultation with relevant authorities during the implementation of each follow-up program, and shall provide the updated information to the Board within 30 days of the information being updated.
2.7	The Proponent shall, where a follow-up program is a requirement of a condition set out in this Decision Statement:
2.7.1	conduct the follow-up program according to the information determined pursuant to condition 2.5;
2.7.2	undertake monitoring and analysis to verify the accuracy of the environmental assessment as it pertains to the particular condition and/or to determine the effectiveness of any mitigation measure(s);

Condition	Condition Details
2.7.3	determine whether modified or additional mitigation measures are required based on the monitoring and analysis undertaken pursuant to condition 2.7.2; and
2.7.4	if modified or additional mitigation measures are required pursuant to condition 2.7.3, develop and implement these mitigation measures in a timely manner and monitor them pursuant to condition 2.7.2.
4.1	The Proponent shall carry out the Designated Project in a manner that protects migratory birds and avoids harming, killing or disturbing migratory birds or destroying, disturbing or taking their nests or eggs. In this regard, the Proponent shall be in compliance, where applicable, with the Migratory Birds Convention Act, 1994, the Migratory Birds Regulations and with the Species at Risk Act and shall take into account Environment and Climate Change Canada's Avoidance Guidelines.
4.2	The Proponent shall implement measures to avoid harming, killing or disturbing migratory birds, including:
4.2.6	controlling lighting required for the operation of the Designated Project for the duration of the drilling program, including the direction, timing, intensity, and glare of light fixtures, while meeting operational health and safety requirements;
4.2.7	requiring supply and other support vessels to maintain a minimum lateral distance of 300 metres from Cape St. Francis and Witless Bay Islands Important Bird and Biodiversity Areas, unless there is an emergency situation; and
4.2.8	requiring supply helicopters to fly at altitudes greater than 300 metres above sea level from active bird colonies and at a lateral distance of 1000 metres from Cape St. Francis and Witless Bay Islands Important Bird and Biodiversity Areas except for approach, take-off and landing maneuvers, as required under the Canadian Civil Aviation Regulations or if not feasible for safety reasons.
4.3	The Proponent shall develop, prior to the start of the drilling program and in consultation with Environment and Climate Change Canada and the Board, follow-up requirements, pursuant to condition 2.5, to verify the accuracy of the environmental assessment as it pertains to migratory birds and to determine the effectiveness of the mitigation measures implemented by the Proponent to avoid harm to migratory birds, their eggs and nests, including the mitigation measures used to comply with conditions 4.1 and 4.2. The Proponent shall implement these follow-up requirements for the duration of the drilling program. As part of the follow-up, the Proponent shall:
4.3.1	monitor daily for the presence of marine birds from the drilling installation using a trained observer following Environment and Climate Change Canada's Eastern Canada Seabirds at Sea Standardized Protocol for Pelagic Seabird Surveys from Moving and Stationary Platforms; and
4.3.2	monitor the drilling installation and supply vessels daily for the presence of stranded birds and follow Environment and Climate Change Canada's Procedures for Handling and Documenting Stranded Birds Encountered on Infrastructure Offshore Atlantic Canada.

## 2. Objectives

The objectives of this report are as follows:

- To minimize seabird mortalities associated with strandings on the Stena IceMax and support vessels
- To enhance existing knowledge and understanding of seabird occurrences at and in

transit to and from the Ephesus F-94 well site

- To ensure compliance with regulations and conditions, and commitments arising from the project's environmental impact assessment, and
- To ensure the drilling program is aligned with ECCC-CWS Avoidance Guidelines.

### 3. Seabird, Marine Mammal, Sea Turtle Monitoring

bp implemented the Seabird Monitoring Plan on the Stena IceMax from May 06, 2023, when it left Bay Bulls, until July 01, 2023, when observers were transferred from the Stena IceMax to the Maersk Mobiliser. The monitoring program was conducted under the Canadian Wildlife Service Scientific Permit LS2815 issued under the Migratory Birds Convention Act and Regulations.

#### 3.1. Surveys from Moving Platforms

Several moving platform surveys were conducted on the Stena IceMax while in transit to the Ephesus wellsite on the starboard bridge wing. Upon arrival at the Ephesus F-94 wellsite the moving surveys were no longer applicable due to vessel speed being less than 4 knots (bp 2022) and stationary surveys commenced.

When moving platform surveys were conducted, the observer completed surveys looking forward on the vessel, scanning at a 90° angle from the starboard side of the vessel, covering a 300-metre band (Figure 3-1).

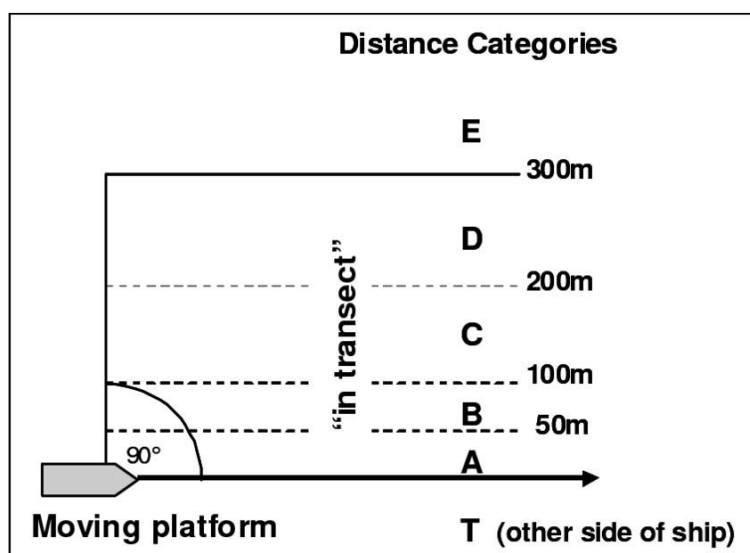


Figure 3-1: Survey Method using a 90° Scan

Observers completed scanning using the naked eye. Binoculars were used to confirm species and other details (i.e. moult, age, carrying fish, etc.). However, when large concentrations of birds occurred in the survey area, and birds fly away as the vessel approached, binoculars were used to count individuals.

The observer also scanned ahead regularly to increase the likelihood of detecting birds prone

to diving as the vessel approached.

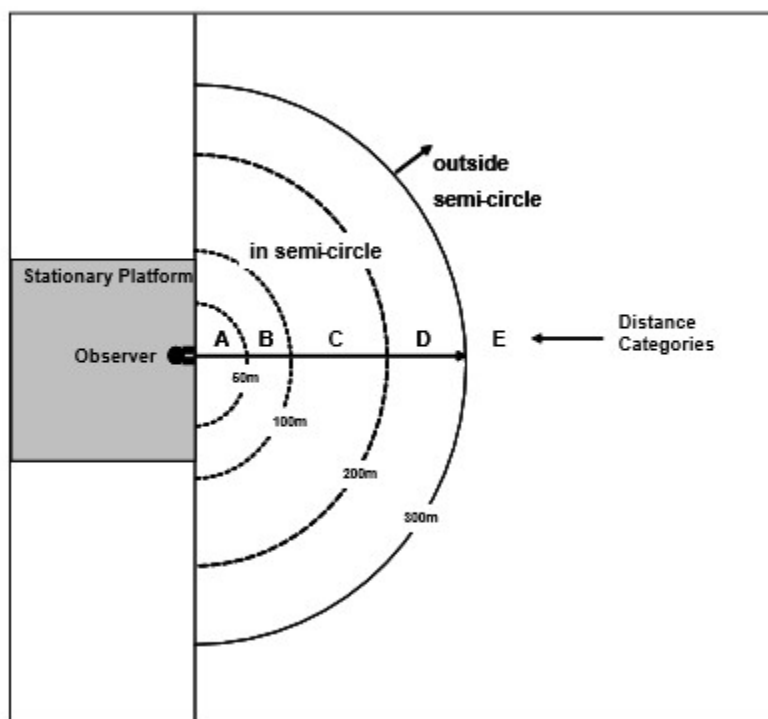
### 3.2. Surveys from Stationary Platforms

When the Stena IceMax was at the wellsite, observers conducted observations using instantaneous counts, or snapshots, of birds within a 300m radius semi-circle area from the starboard bridge wing or the deck immediately above. These scans occurred at regular intervals throughout the day and lasted only a few seconds.

Observers conducted observations once per hour during dayshift regardless if birds were present or not. Observations were recorded and logged digitally in the Canadian Wildlife Services (CWS) Access database and recorded physically on the record sheet for a stationary platform survey.

In addition, observers scanned from the same location each time to increase the comparability among scans. Surveys were conducted by scanning a 180° arc, prioritizing birds within a 300 m semi-circle (Figure 3-2). The semi-circle is divided into five zones

- A: 0 - 50m
- B: 50 - 100m
- C: 100 - 200m
- D: 200 - 300m
- E: >300m



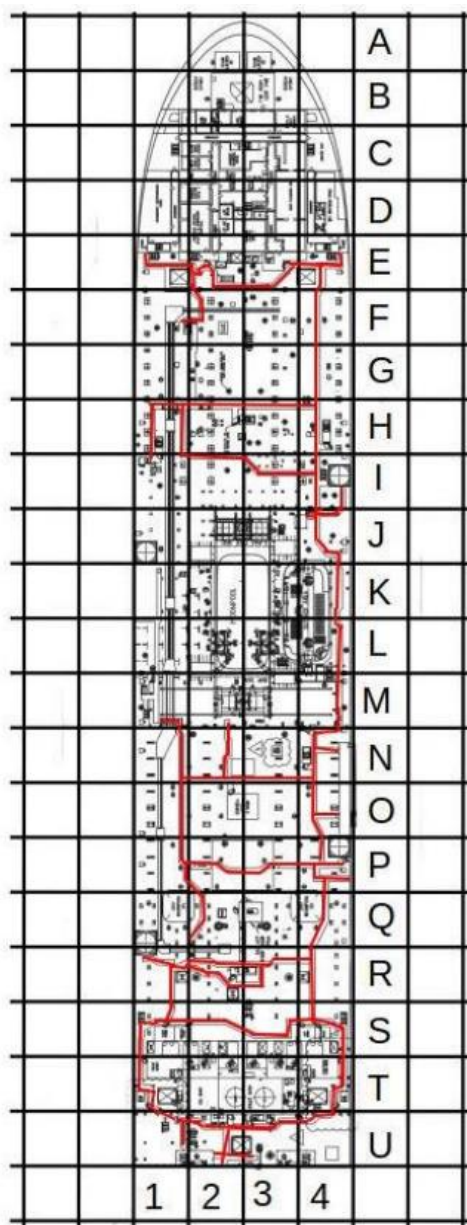
**Figure 3-2: 180° Survey from a Stationary Platform**

The observer visually swept the area once per scan, from one side to the other. All birds on the water and in flight were systematically recorded at that time. The distance to birds from the observer was estimated and recorded for all birds. Range sticks were also used to gauge the distance to birds when the observer could see the horizon. As necessary, binoculars and spotting scopes were utilized to confirm species identification and other details.

When the entire width of the 300-metre semi-circle was not visible, the observer indicated the limit of visibility on the datasheet. When no birds were detected during a scan, the observer recorded the whole observation, leaving any bird information blank. Any gaps between observations would be due to the requirement of helicopter operations, crew changes, onboard operation (i.e. drills), or when the weather was too poor to complete the observation (i.e. no visibility due to fog).

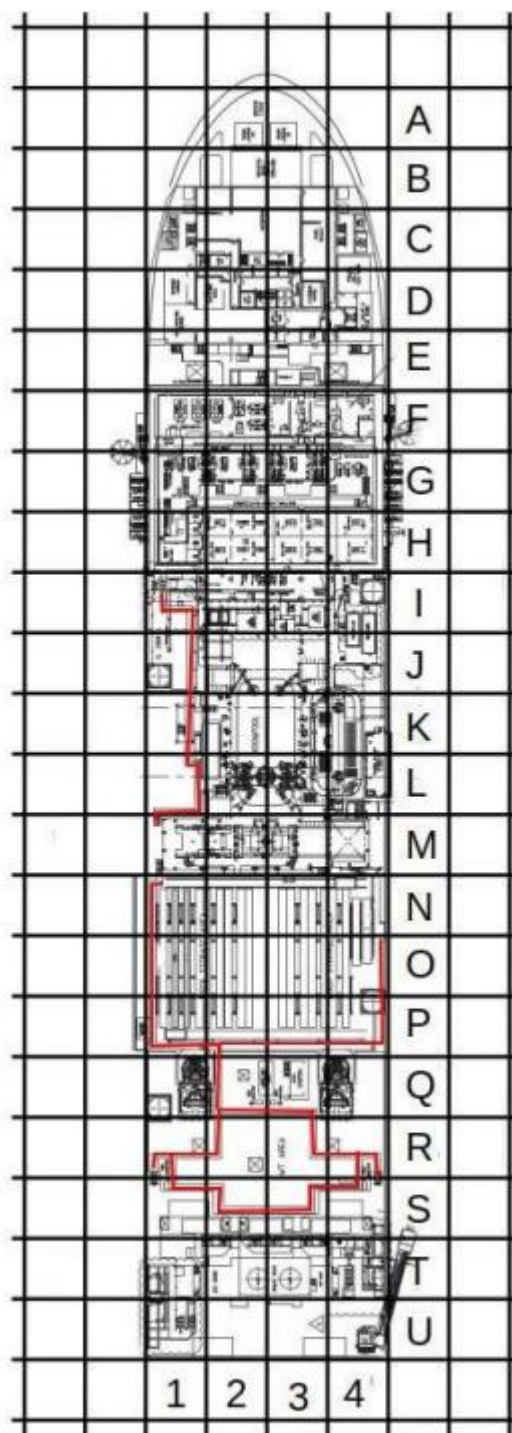
### **3.3. Stranded Seabird Search Procedures for the Stena IceMax**

The PAL observers also conducted systematic surveys around the Stena IceMax for stranded and deceased birds at least once daily. All crew members were also requested to notify the observer if stranded birds were found. The systematic survey routes are reflected in Figure 3-3, Figure 3-4, Figure 3-5, Figure 3-6, Figure 3-7, Figure 3-8, and Figure 3-9. The area covers 724 metres on Deck 4, 381 metres on Deck 5, 221 meters on Deck 6, 156 meters on Deck 7, 239 meters on Deck 9, 88 meters on Deck 11, and another 91 metres on Deck 12, totalling 1900 metres. The red line in the figures referenced above illustrate the systematic search route. This survey quantifies species numbers and status (alive or dead) and the timing of migratory bird strandings in the area.

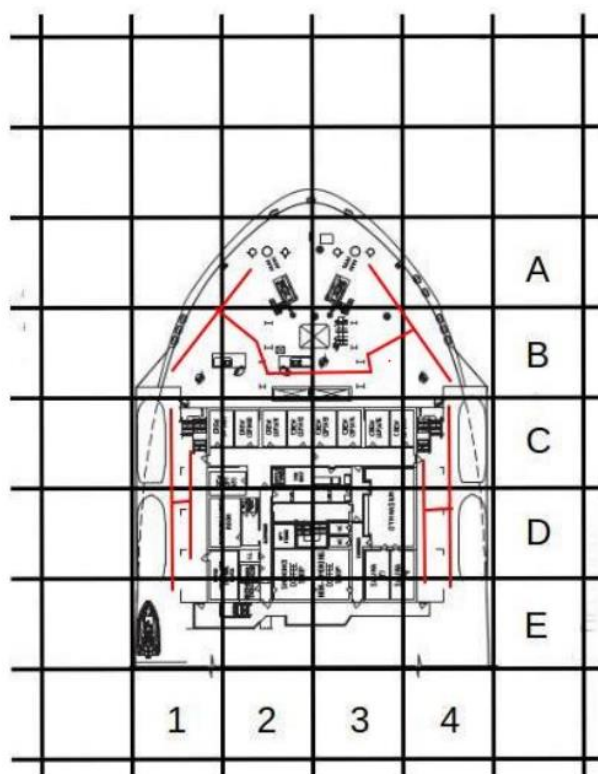


**Figure 3-3: Stena IceMax Search Plan Deck 4 (724 Metres)**

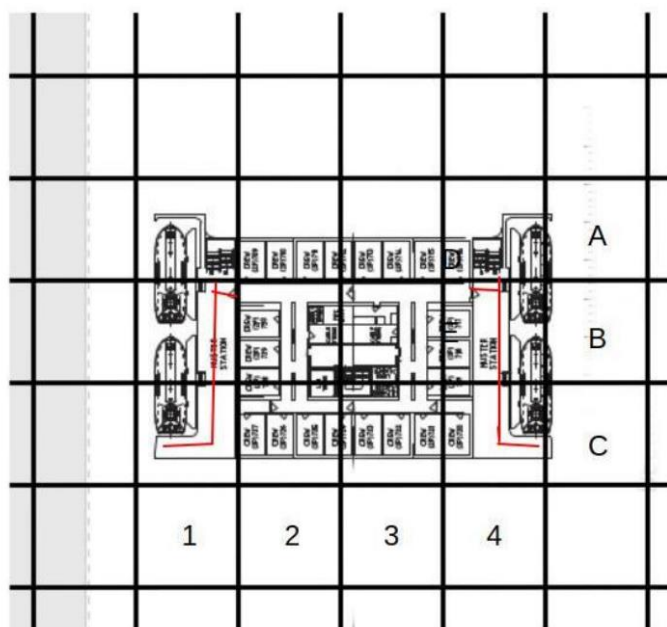




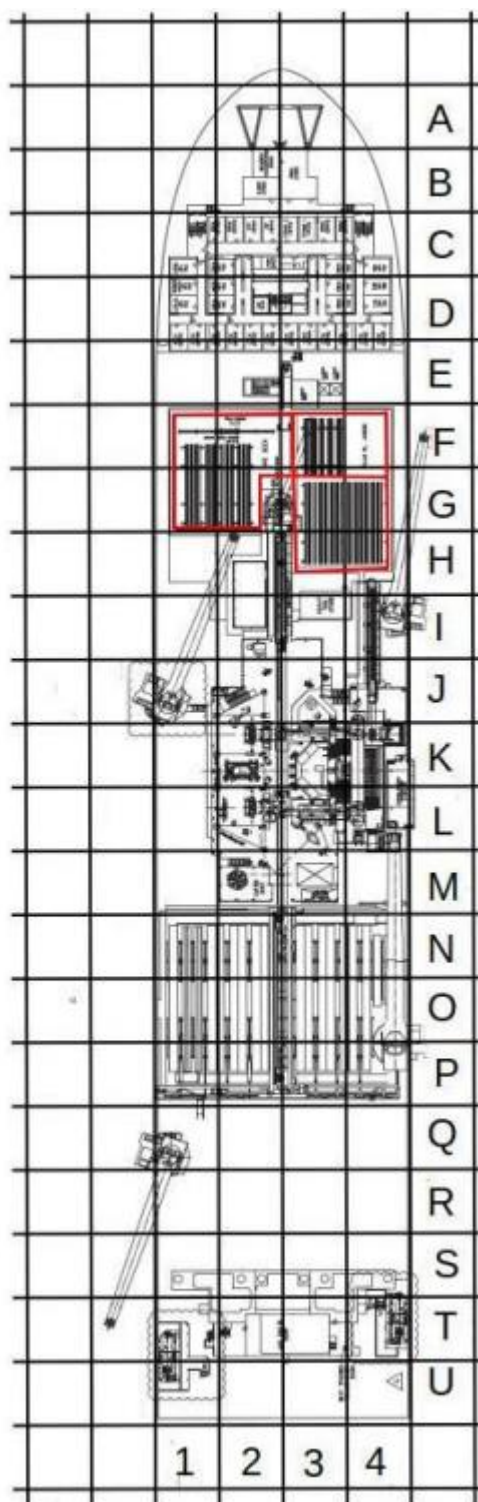
**Figure 3-4: Stena IceMax Search Plan Deck 5 (381 Metres)**



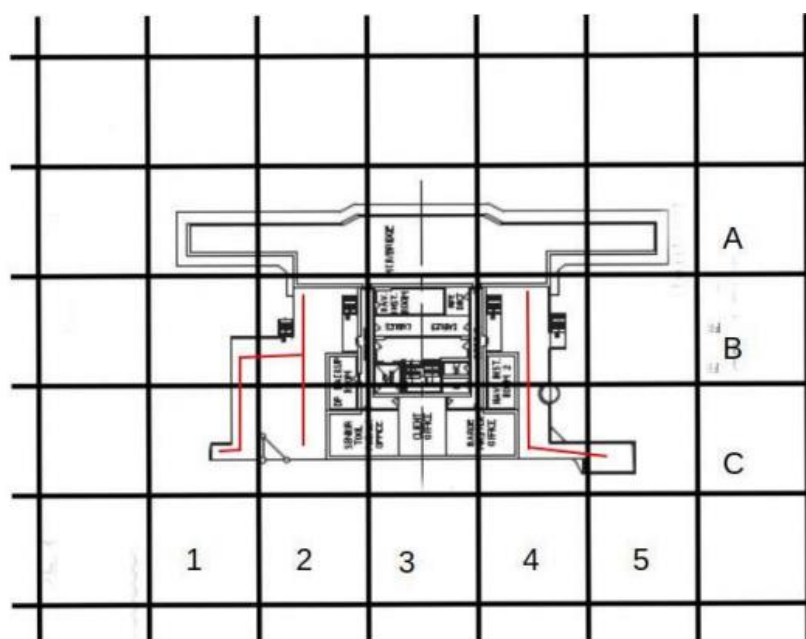
**Figure 3-5: Stena IceMax Search Plan Deck 6 (221 Metres)**



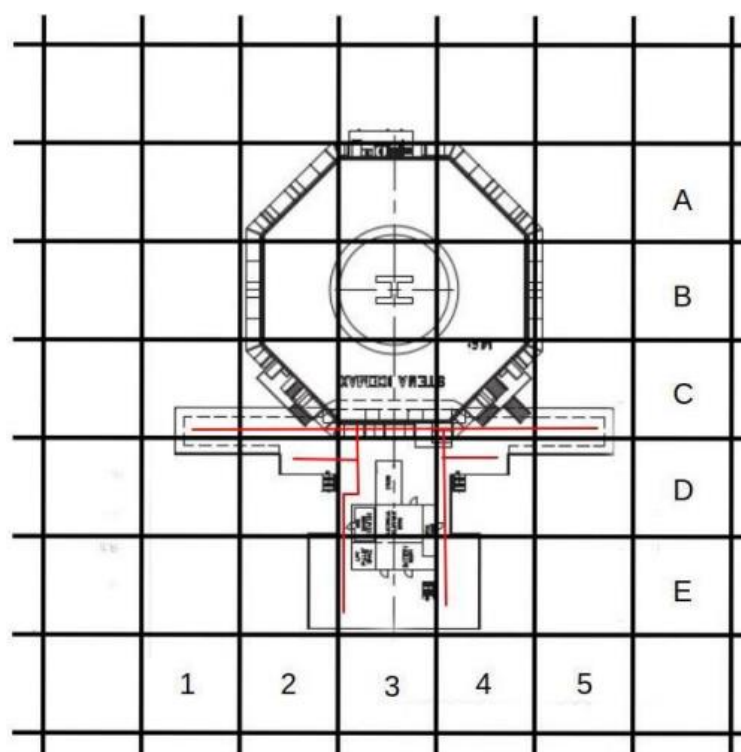
**Figure 3-6: Stena IceMax Search Plan Deck 7 (156 Metres)**



**Figure 3-7: Stena IceMax Search Plan Deck 9 (239 Metres)**



**Figure 3-8: Stena IceMax Search Plan Deck 11 (88 Metres)**



**Figure 3-9: Stena IceMax Search Plan Deck 12 (91 Metres)**

3.4.                    **Stranded Seabird Search Procedures for the Atlantic Kingfisher**

Vessel crew members who were trained by PAL also conducted systematic surveys around the Atlantic Kingfisher for stranded and deceased birds at least once daily. The systematic survey routes are reflected in Figure 3-10, Figure 3-11, Figure 3-12, Figure 3-13, and Figure 3-14. The area covers 156 metres on the main deck, 10 metres on B-Deck, 98 meters on the forecastle deck, 27 metres on the bridge deck, and an additional 25 metres on the bridge top deck, totalling 316 metres. The green arrows in the figures referenced above illustrate the systematic search route. This survey quantified species numbers and status (alive or dead) and the timing of migratory bird strandings in the area.

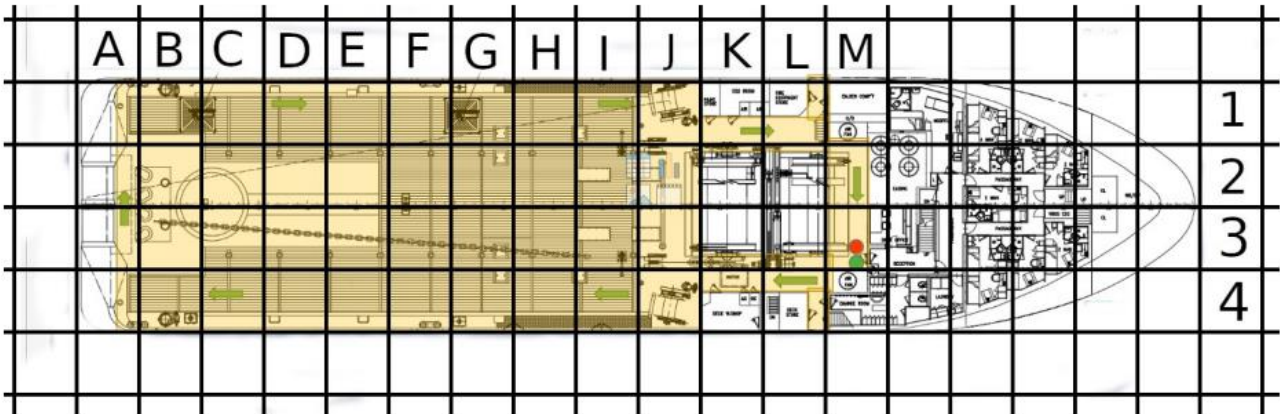


Figure 3-10: Atlantic Kingfisher Search Plan Main Deck (156 Metres)

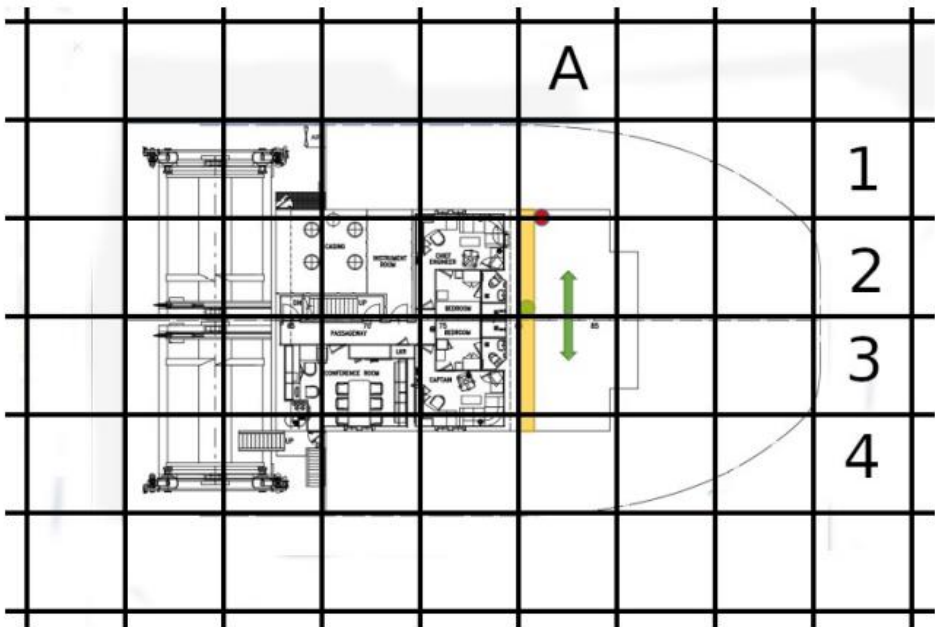


Figure 3-11: Atlantic Kingfisher Search Plan B-Deck (10 Metres)



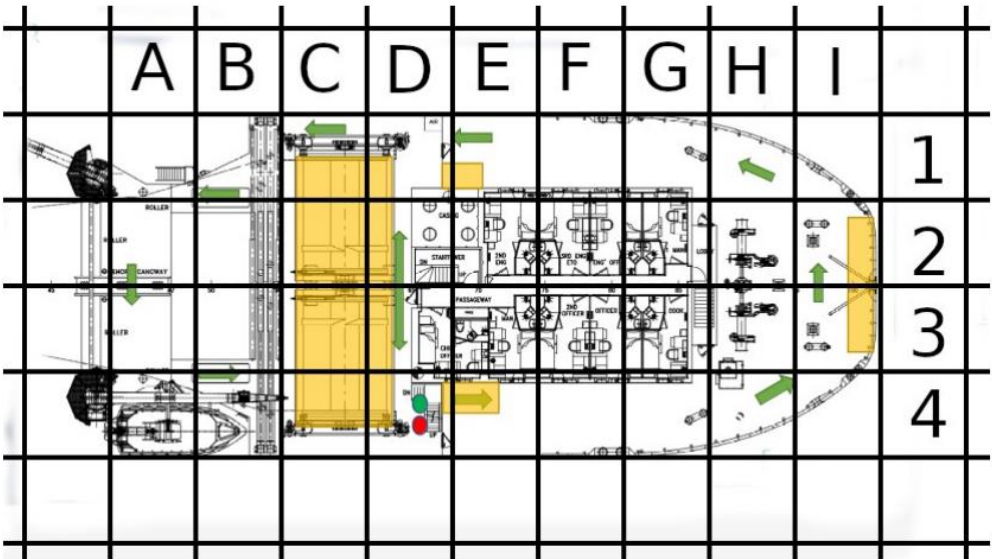


Figure 3-12: Atlantic Kingfisher Search Plan Forecastle Deck (98 Metres)

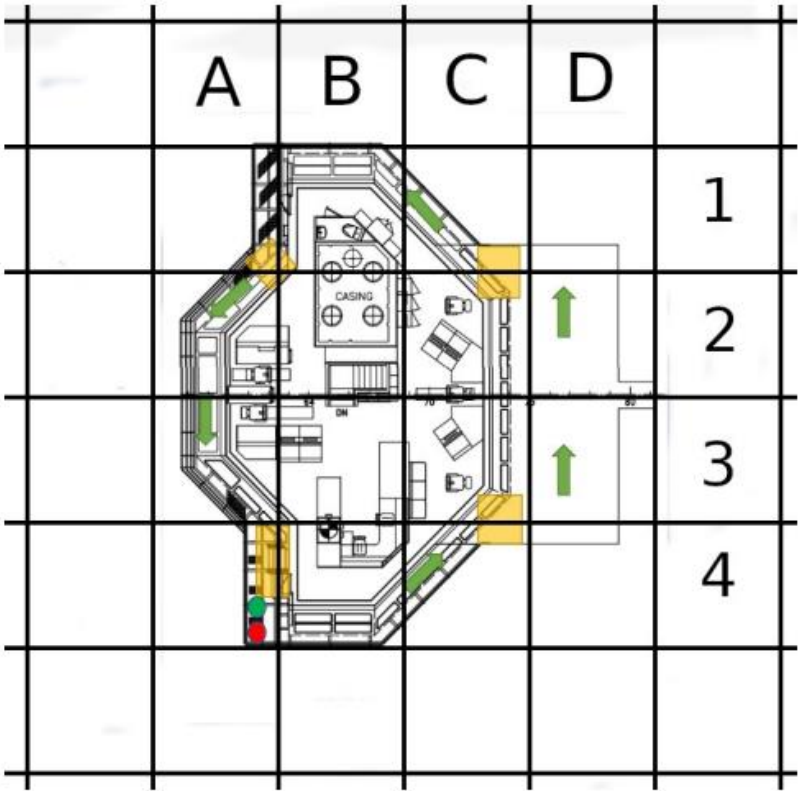
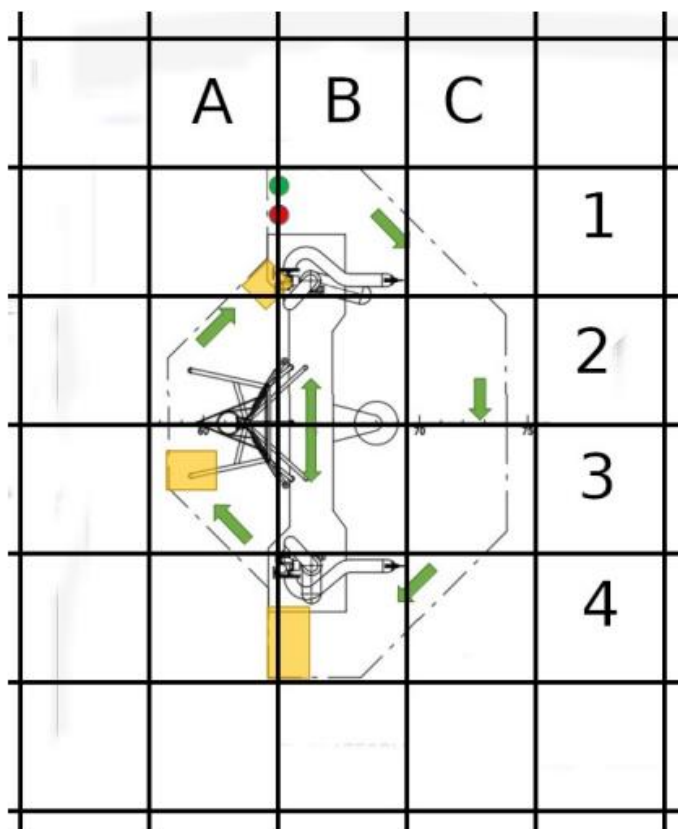


Figure 3-13: Atlantic Kingfisher Search Plan Bridge Deck (27 Metres)

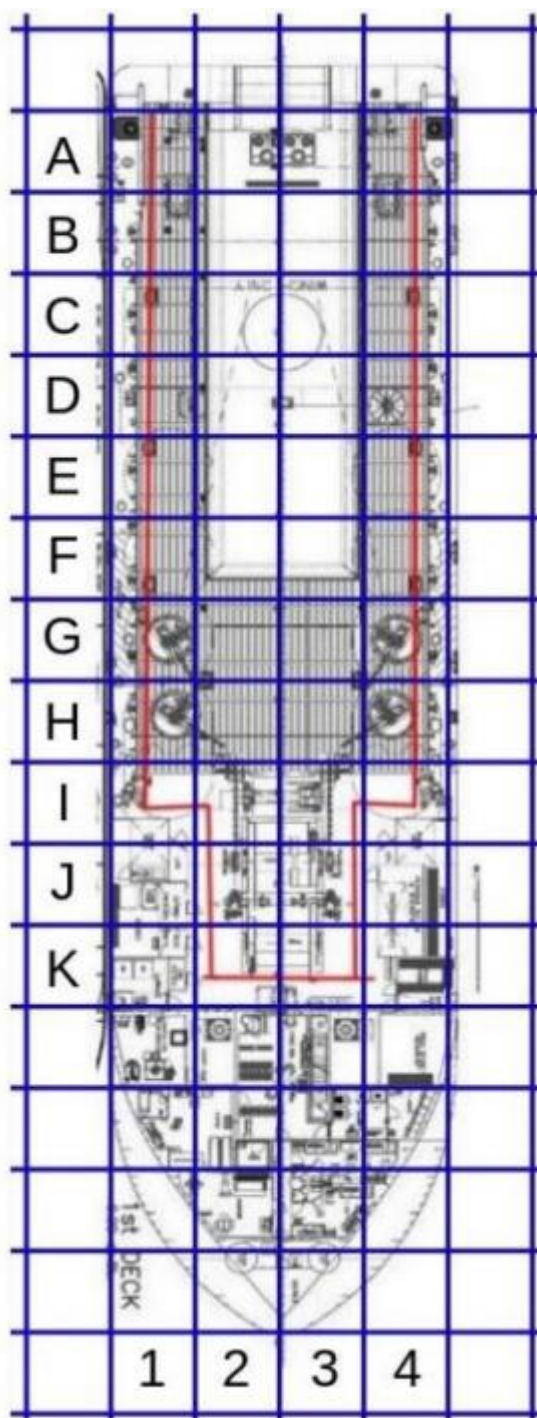




**Figure 3-14: Atlantic Kingfisher Search Plan Bridge Top Deck (25 Metres)**

### 3.5. Stranded Seabird Search Procedures for the Atlantic Merlin

The PAL-trained observers also conducted systematic surveys around the vessel for stranded and deceased birds at least once daily. The systematic survey routes are reflected in Figure 3-15, Figure 3-16, and Figure 3-17. The area covers 120 metres on the main deck, 55 metres on A-Deck, and an additional 40 metres on the bridge top deck, totalling 215 metres, as indicated by the red line in the figures below. This survey quantifies species numbers and status (alive or dead) and the timing of migratory bird strandings in the area.



**Figure 3-15: Atlantic Merlin Search Plan Main Deck (120 Metres)**

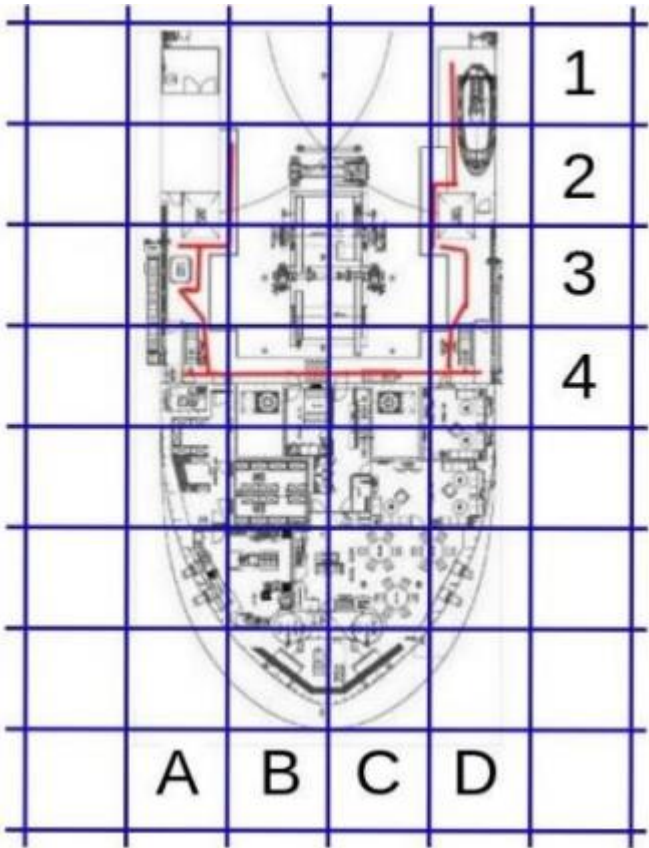


Figure 3-16: Atlantic Merlin Search Plan A-Deck (55 Metres)

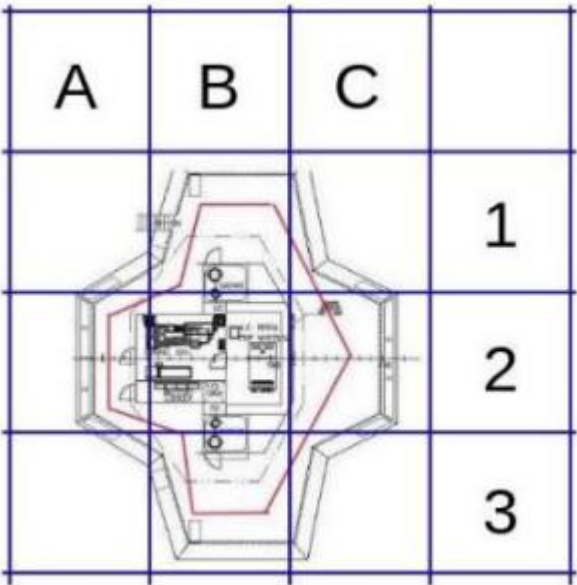


Figure 3-17: Atlantic Merlin Search Plan Bridge Top Deck (40 Metres)

### 3.6. Stranded Seabird Search Procedures for the KJ Gardner

Vessel crew members who were trained by PAL also conducted systematic surveys around the KJ Gardner for stranded and deceased birds at least once daily. The systematic survey routes are reflected in Figure 3-18, Figure 3-19, Figure 3-20, and Figure 3-21. The area covers 40 metres on the A-Deck, 80 metres on B-Deck, 30 metres on the bridge top deck, and an additional 100 metres on the main deck, totalling 250 metres. The red line in the figures referenced above illustrate the systematic search route. This survey quantifies species numbers and status (alive or dead) and the timing of migratory bird strandings in the area.

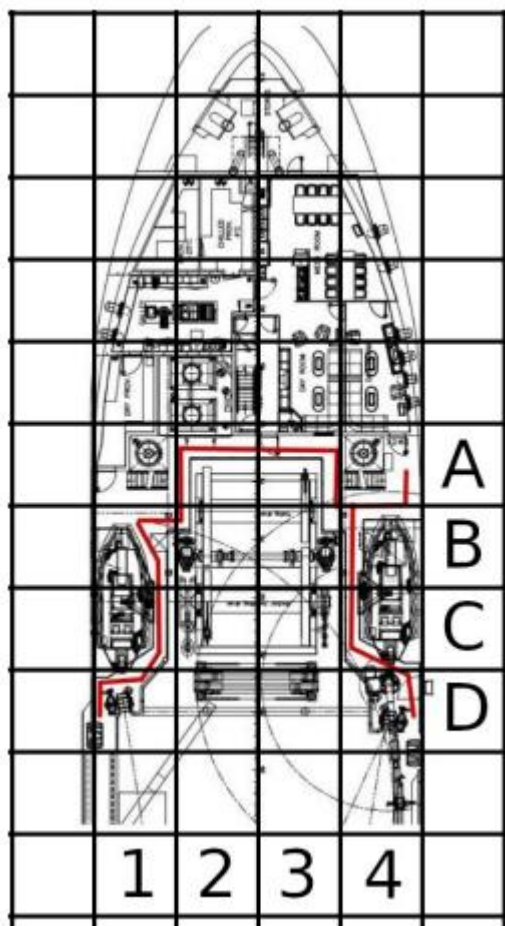


Figure 3-18: KJ Gardner Search Plan A-Deck (40 Metres)

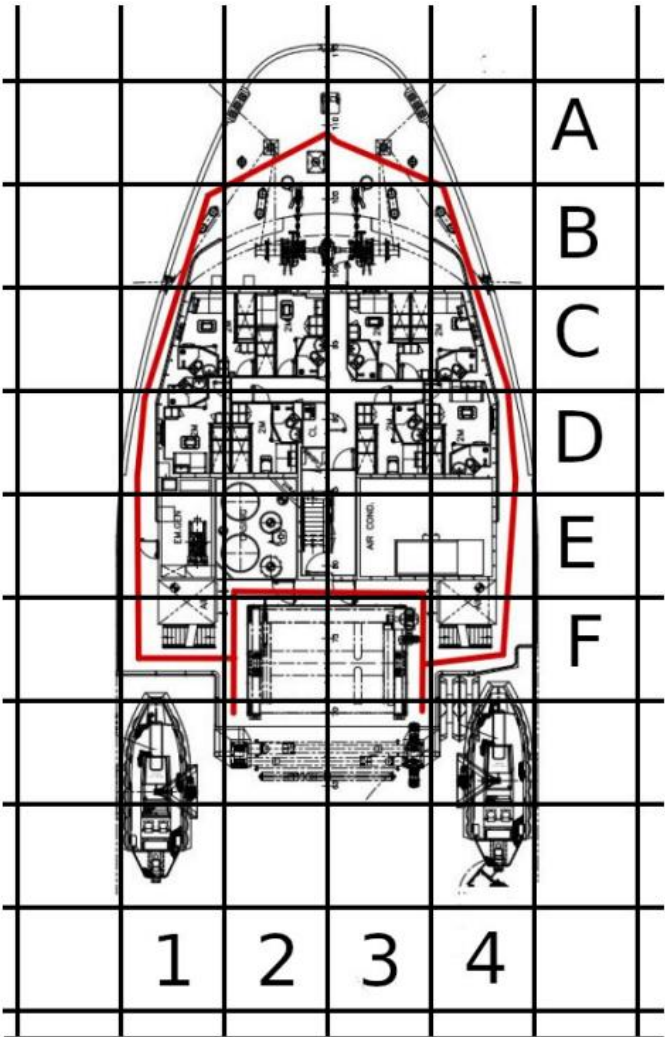


Figure 3-19: KJ Gardner Search Plan B-Deck (80 Metres)

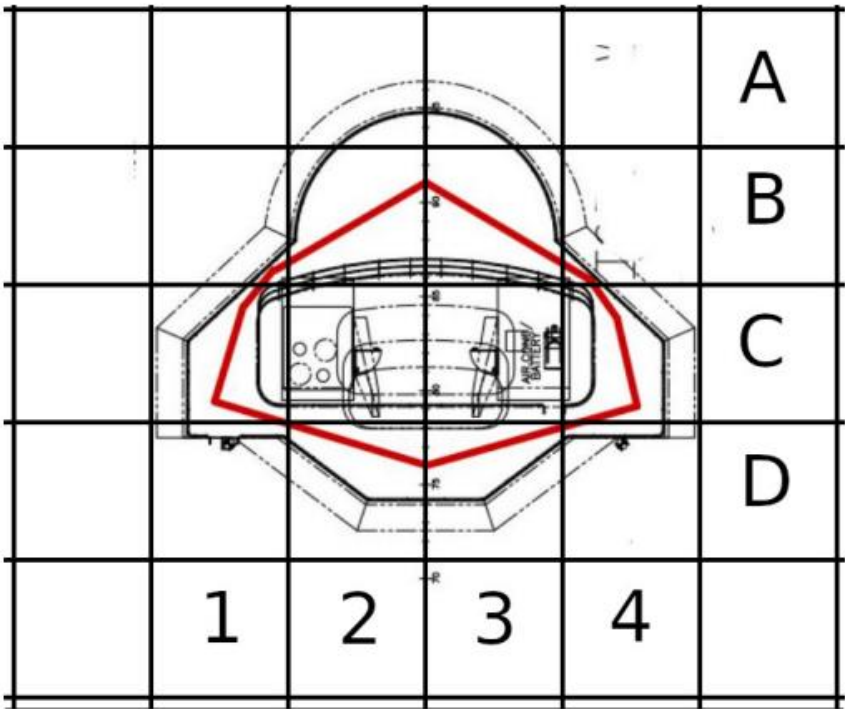
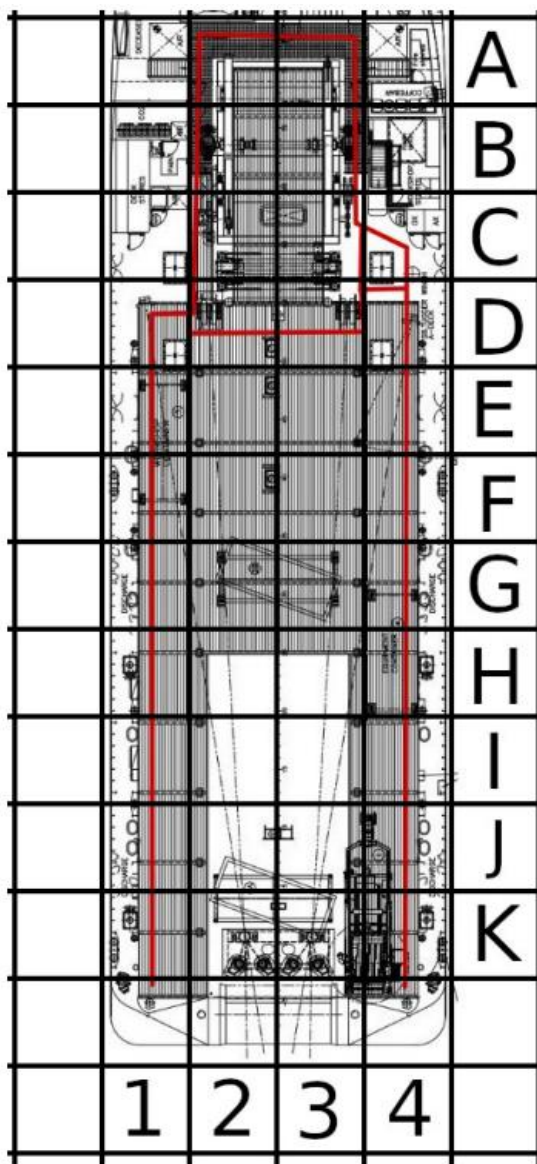


Figure 3-20: KJ Gardner Search Plan Bridge Top Deck (30 Metres)





**Figure 3-21: KJ Gardner Search Plan Main Deck (100 Metres)**



### 3.7. Stranded Seabird Search Procedures for the Maersk Clipper

Vessel crew members who were trained by PAL also conducted systematic surveys around the Maersk Clipper for stranded and deceased birds at least once daily. The systematic survey routes are reflected in Figure 3-22, Figure 3-23, Figure 3-24, and Figure 3-25. The area covers 120 metres on the main deck, 50 metres on A-Deck, 50 metres on the B-Deck, and an additional 50 metres on the bridge top deck, totalling 270 metres. The red line in the figures referenced above illustrate the systematic search route. This survey quantifies species numbers and status (alive or dead) and the timing of migratory bird strandings in the area.

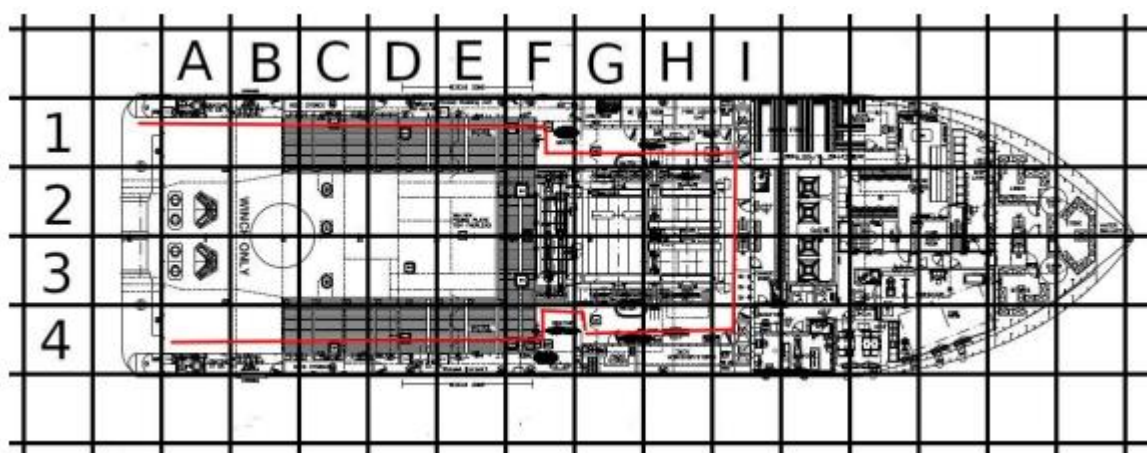


Figure 3-22: Maersk Clipper Search Plan A-Deck (120 Metres)

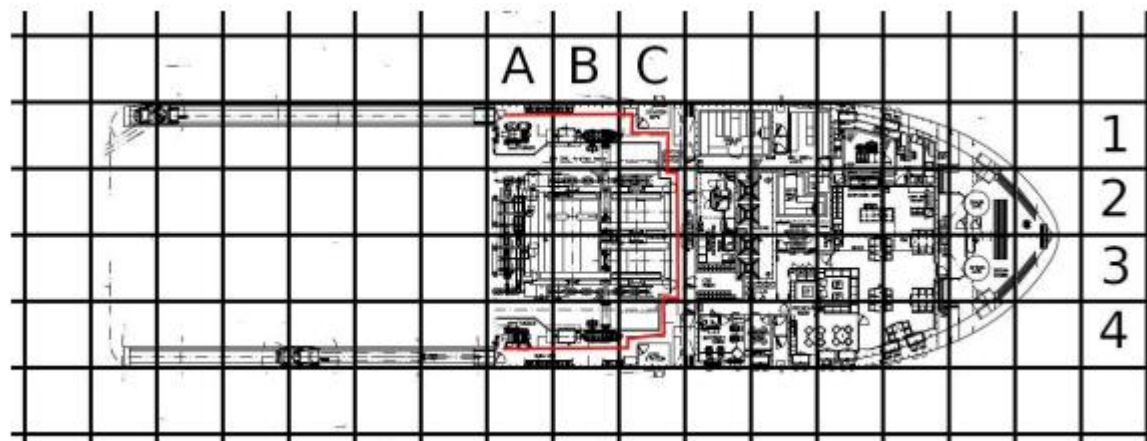
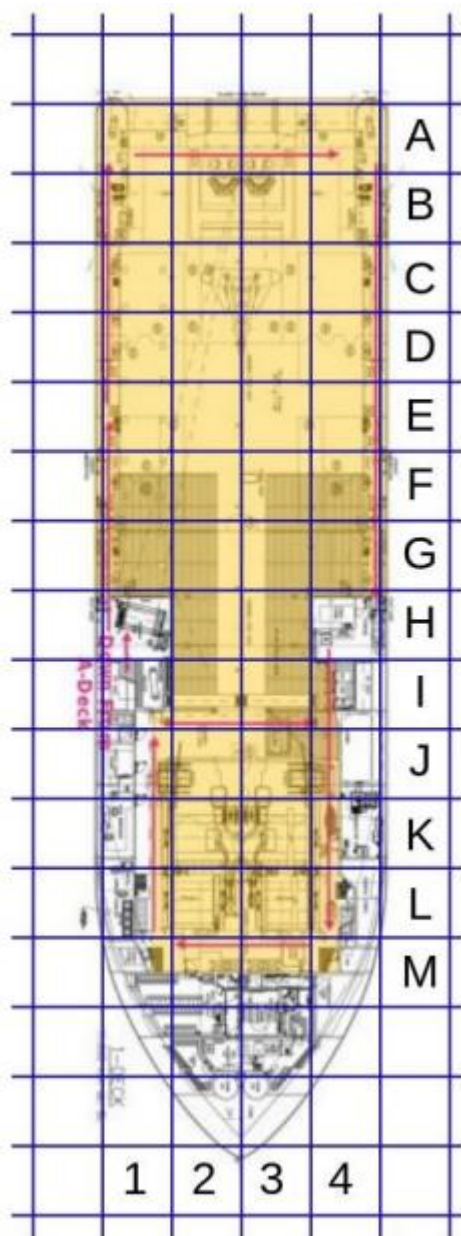


Figure 3-23: Maersk Clipper Search Plan A-Deck (50 Metres)

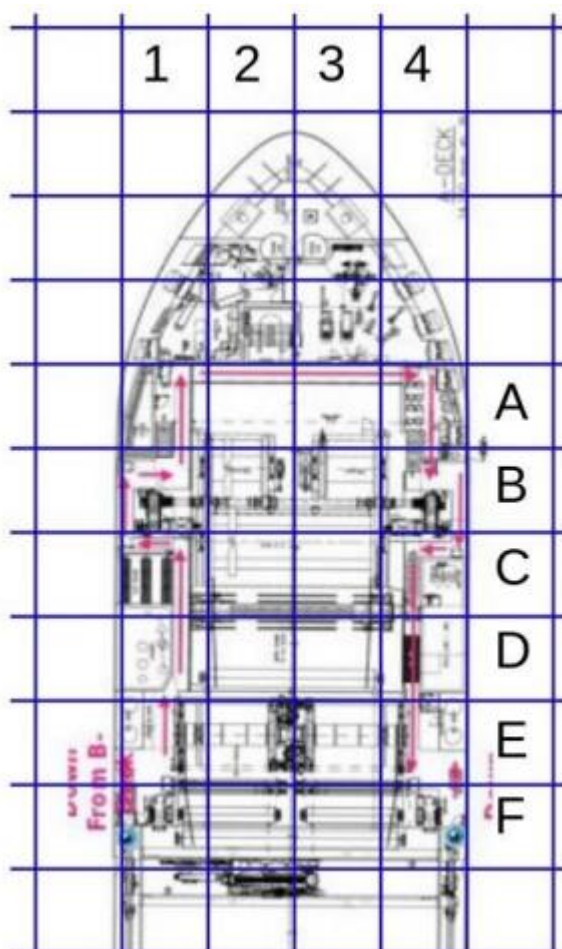


### 3.8. Stranded Seabird Search Procedures for the Maersk Mobiliser

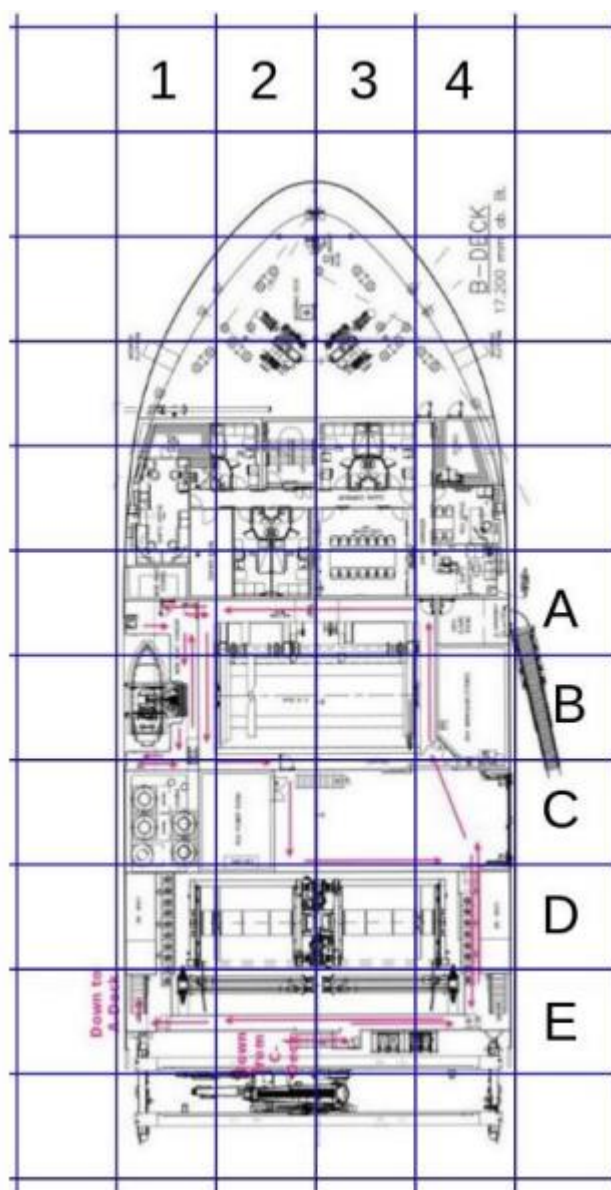
Vessel crew members training by PAL also conducted systematic surveys around the Maersk Mobiliser for stranded and deceased birds at least once daily. The systematic survey routes are reflected in Figure 3-26, Figure 3-27, Figure 3-28, Figure 3-29, Figure 3-30, and Figure 3-31. The area covers 200 metres on the main deck, 80 metres on A-Deck, 65 metres on the B-Deck, 100 meters on E-Deck, 70 metres on the bridge top deck, and an additional 50 metres on the roll reduction tank, totalling 565 metres. The red line in the figures referenced above illustrate the systematic search route. This survey quantifies species numbers and status (alive or dead) and the timing of migratory bird strandings in the area.



**Figure 3-26: Maersk Mobiliser Search Plan Main Deck (200 Metres)**



**Figure 3-27: Maersk Mobiliser Search Plan A-Deck (80 Metres)**



**Figure 3-28: Maersk Mobiliser Search Plan B-Deck (65 Metres)**



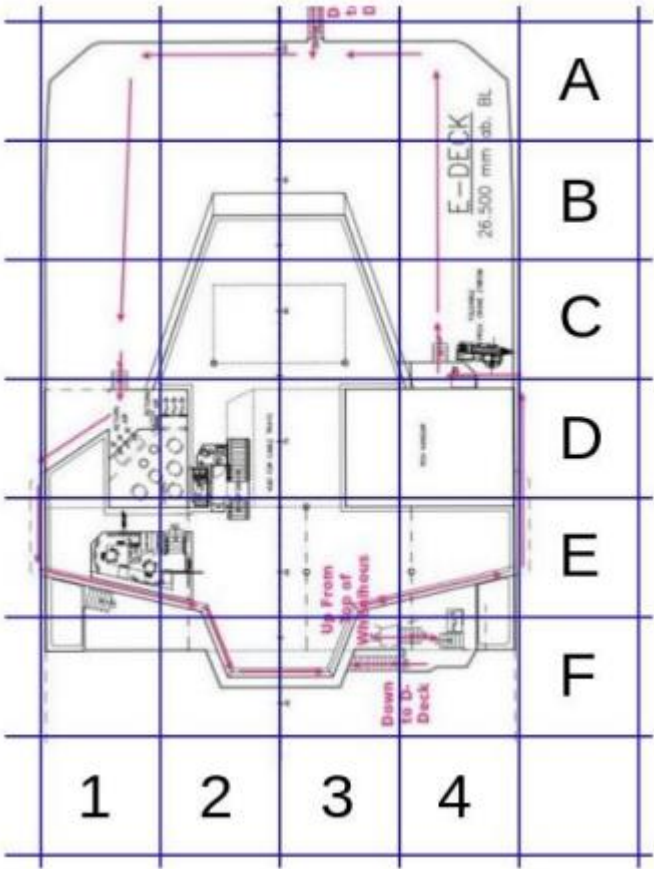


Figure 3-29: Maersk Mobiliser Search Plan E-Deck (100 Metres)

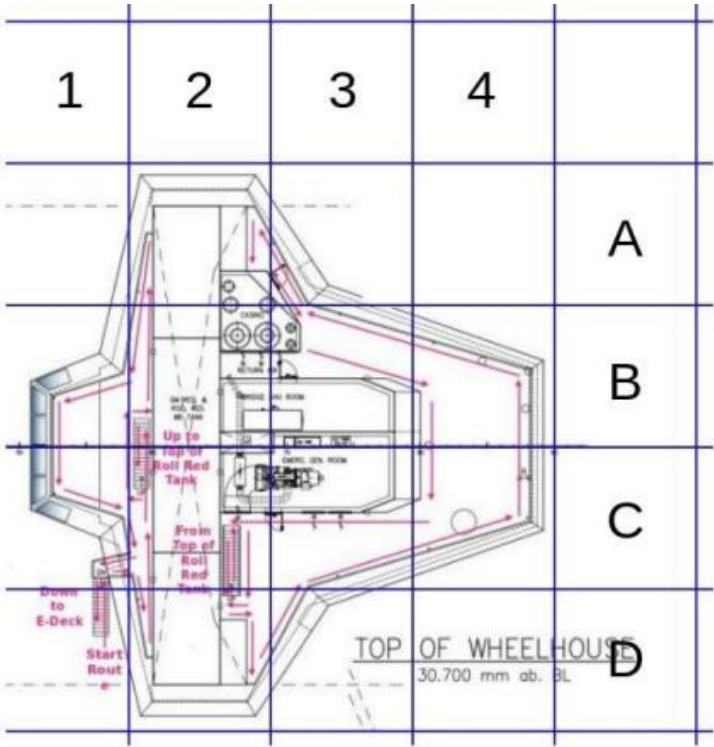
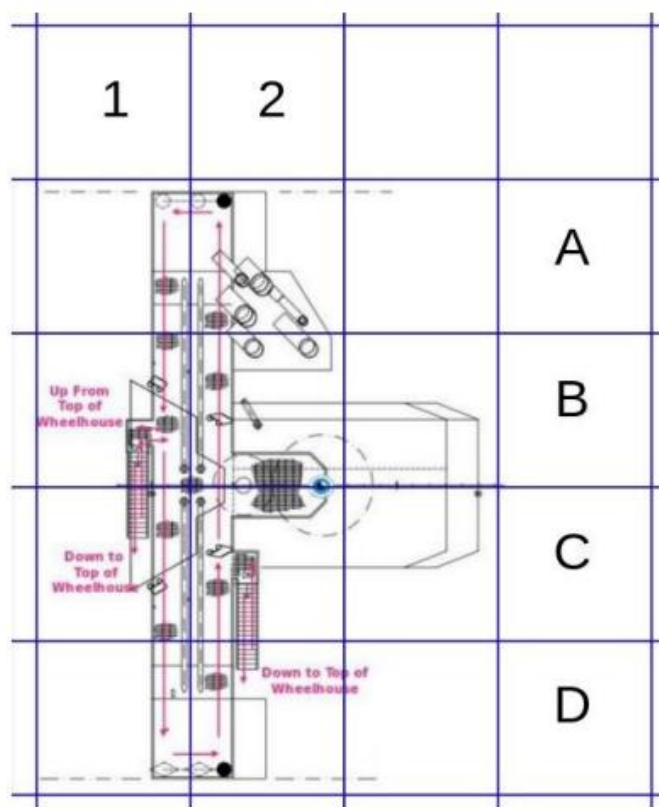


Figure 3-30: Maersk Mobiliser Search Plan Bridge Top Deck (70 Metres)

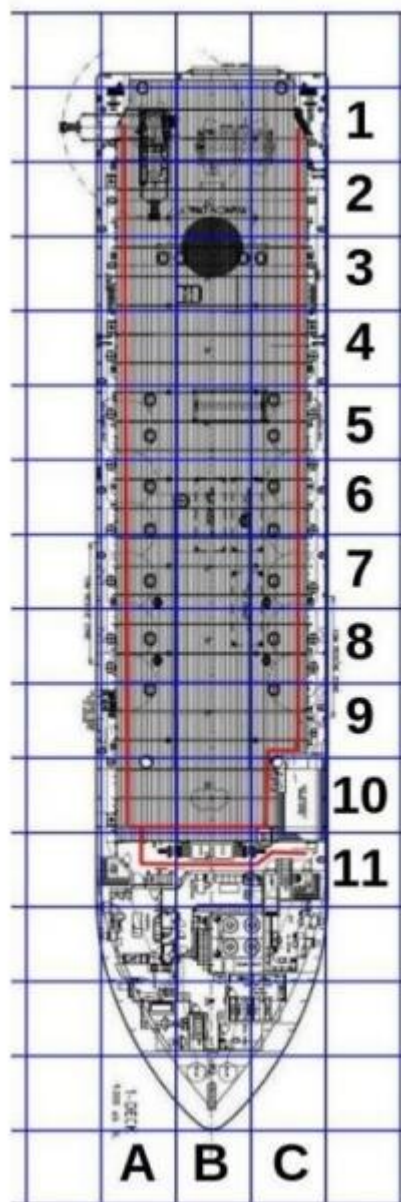




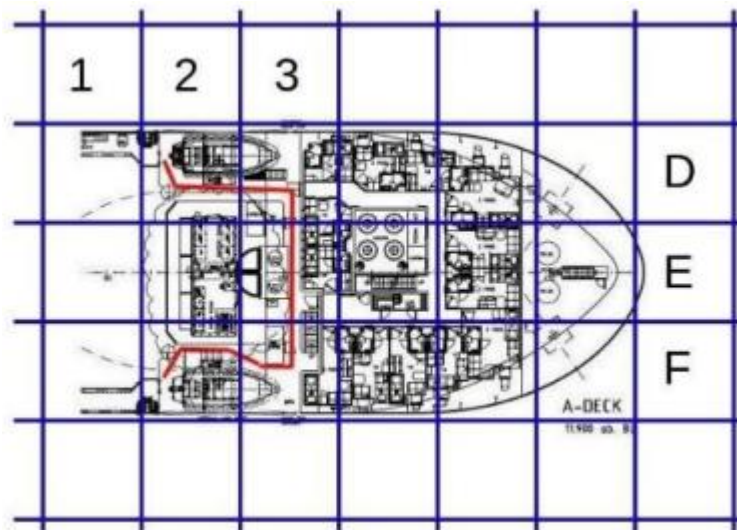
**Figure 3-31: Maersk Mobiliser Search Plan Roll Reduction Tank (50 Metres)**

### 3.9. Stranded Seabird Search Procedures for the Siem Symphony

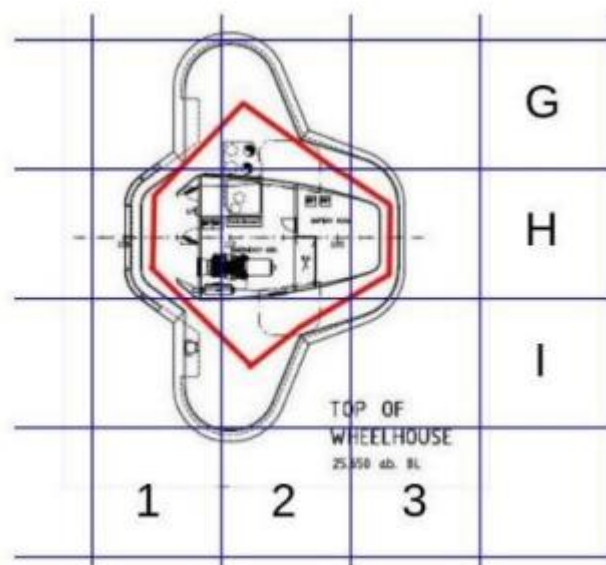
Vessel crew members who were trained by PAL also conducted systematic surveys around the Siem Symphony for stranded and deceased birds at least once daily. The systematic survey routes are reflected in Figure 3-32, Figure 3-33, and Figure 3-34. The area covers 125 metres on the main deck, 40 metres on A-Deck, and an additional 45 metres on the bridge top deck, totalling 210 metres. The red line in the figures referenced above illustrate the systematic search route. This survey quantifies species numbers and status (alive or dead) and the timing of migratory bird strandings in the area.



**Figure 3-32: Siem Symphony Search Plan Main Deck (125 Metres)**



**Figure 3-33: Siem Symphony Search Plan A-Deck (40 Metres)**



**Figure 3-34: Siem Symphony Search Plan Bridge Top Deck (45 Metres)**

3.10. Summary of Marine Mammal and Sea Turtle Monitoring

The onboard observer conducted visual observations on the Stena IceMax primarily from the bridge wings during daylight hours. Marine mammals were observed throughout the project however no sea turtles were seen.

Visual scans were made with the naked eye and with binoculars with 8x or 10x magnification. The detection cues used were the presence of groups of birds, unexpected splashes, blows, and black objects breaking the surface. Whenever possible, sightings would have been photographed to aid species identification.

Species were identified based on physical characteristics and behaviours. Identification is facilitated by consulting relevant field guides and by observer experience.

4. Results

The following sections outline the results from stationary seabird surveys, moving seabird surveys, stranded seabird searches, and marine mammals or sea turtles identified throughout the project.

4.1. Seabird Sightings

4.1.1. Seabird Sightings in Transit to Ephesus F-94

PAL observers conducted moving seabird monitoring surveys while in transit to the Ephesus wellsite from May 06, 2023, at 1002z until May 07, 2023, at 0800z as well as in transit from the Ephesus wellsite from July 01, 2023, at 0725z until 0925z on the same day. During this period, a total of 71 seabird observations recorded 9 individual seabirds. 64 of the 71 observations (90.1%) resulted in no seabirds identified.

The most frequent individual seabird sightings were various gulls, Northern Fulmar, Northern Gannet, and Rock Pigeon (2 birds of each sighted, 22.2% of all birds sighted), followed by the Black-legged Kittiwake (1 bird sighted, 11.1% of all birds sighted).

Table 4-1 and

Figure 4-1 summarizes all seabird observations while in transit to the Ephesus wellsite on May 06 to May 07, 2023, and in transit from the Ephesus wellsite on July 01, 2023.

Table 4-1: Seabird Sightings in Transit to Ephesus Wellsite

Species	Number
Black-legged Kittiwake	1
Genus: Gulls	2
Northern Fulmar	2
Northern Gannet	2
Rock Pigeon	2
Total	9

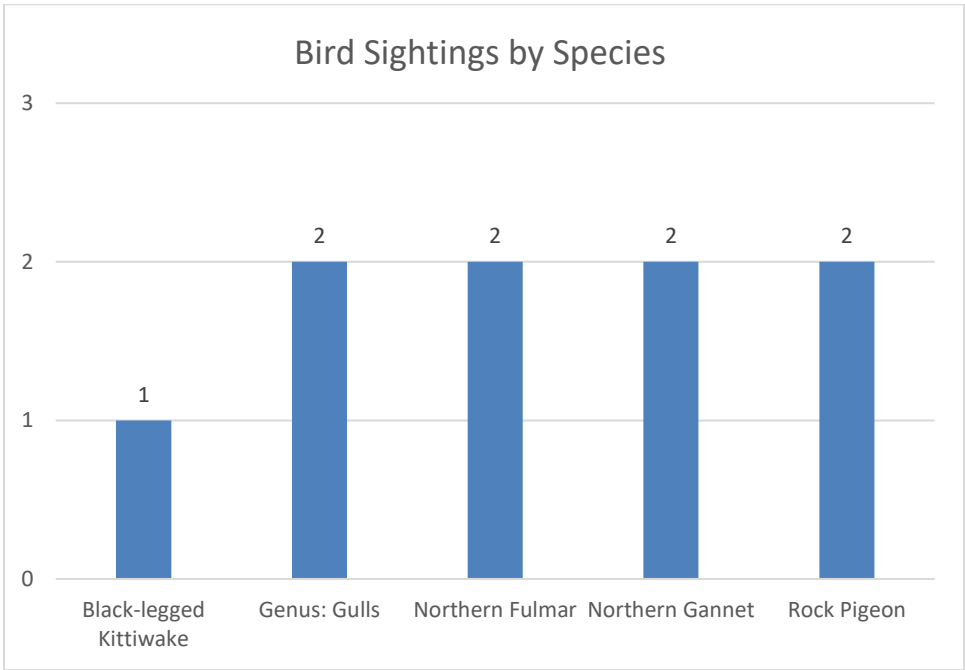


Figure 4-1: Seabird Sightings in Transit to and from Ephesus Wellsite

4.1.2. Seabird Sightings at Ephesus F-94

PAL observers conducted stationary seabird monitoring surveys at the Ephesus wellsite from May 07, 2023, at 1100z, to June 30, 2023, at 2300z. During this period, a total of 1,659 seabird observations recorded 10,392 individual seabirds. 391 of the 1,659 observations (23.6%) resulted in no seabirds identified.

The most frequent seabird sighting was the Northern Fulmar (8,360 birds sighted, 80.4% of all birds sighted), followed by the Black-legged Kittiwake (1,116 birds sighted, 10.7% of all birds sighted).

Table 4-2 and

Figure 4-2 summarize all seabird observations recorded at the Ephesus F-94 location from May 07, 2023, to June 30, 2023.

**Table 4-2: Seabird Sightings at Ephesus F-94 Wellsite**

<b>Species</b>	<b>Number</b>
Black-legged Kittiwake	1,116
Common Murre	15
Dovekie	90
Family: Hydrobatid Storm-Petrels	2
Family: Swallows	1
Genus: Gulls (Larus, Xema, Rissa, Pagophila, Rhodostethia)	185
Genus: Murres	27
Glaucous Gull	18
Great Black-backed Gull	16
Great Shearwater	92
Herring Gull	309
Iceland Gull	92
Leach's Storm-Petrel	6
Lesser Black-backed Gull	32
Northern Fulmar	8,360
Northern Gannet	5
Peregrine Falcon	4
Pomarine Jaeger	1
Rock Pigeon	2
Short-eared Owl	1
Sooty Shearwater	3
Thayer's Gull	14
Thick-billed Murre	1
<b>Total</b>	<b>10,392</b>



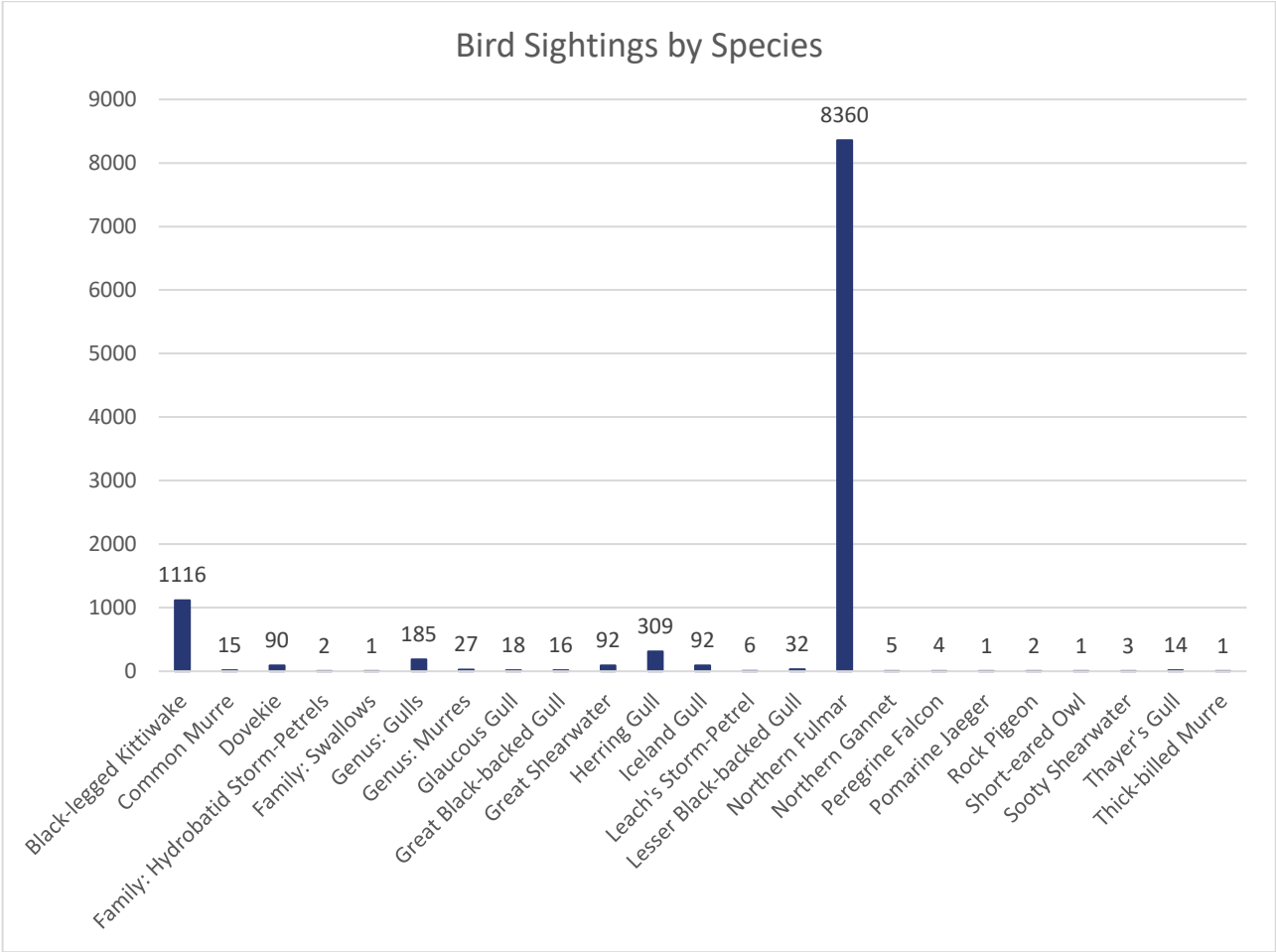
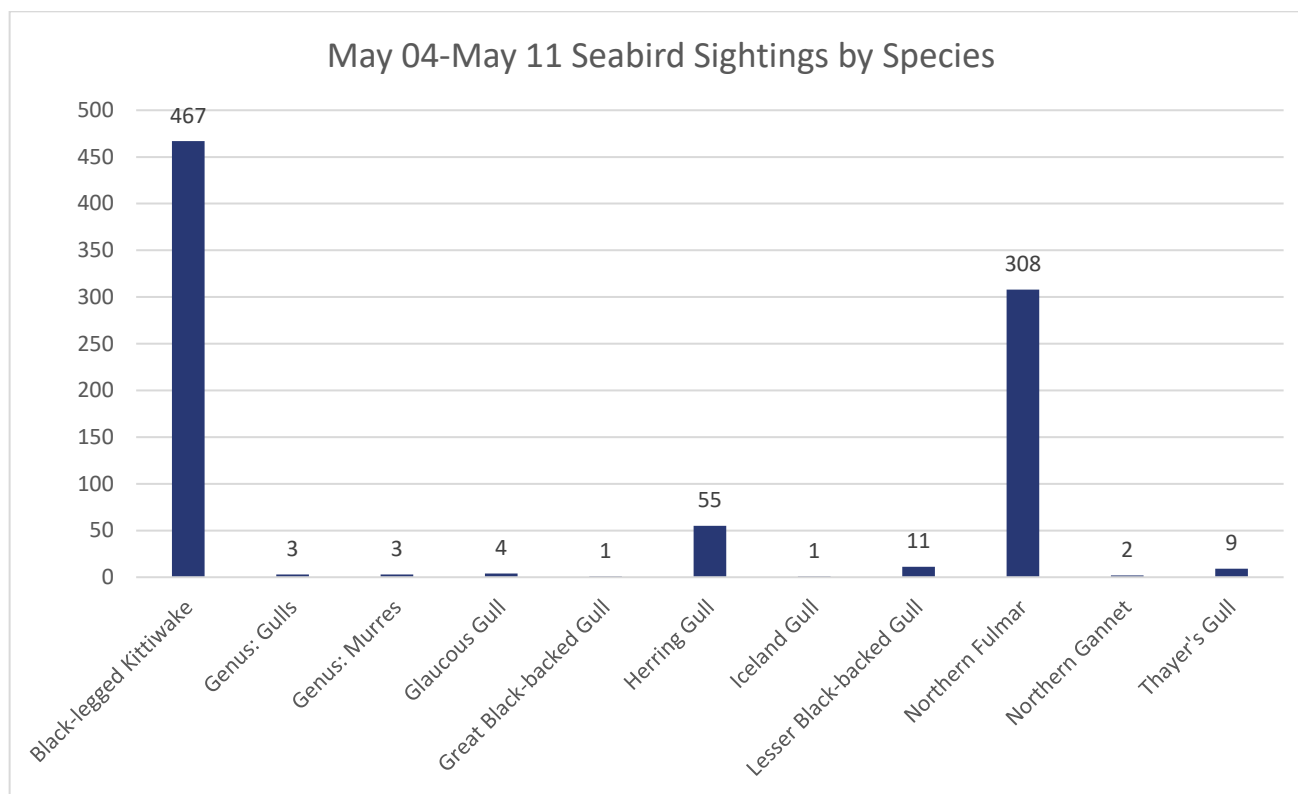


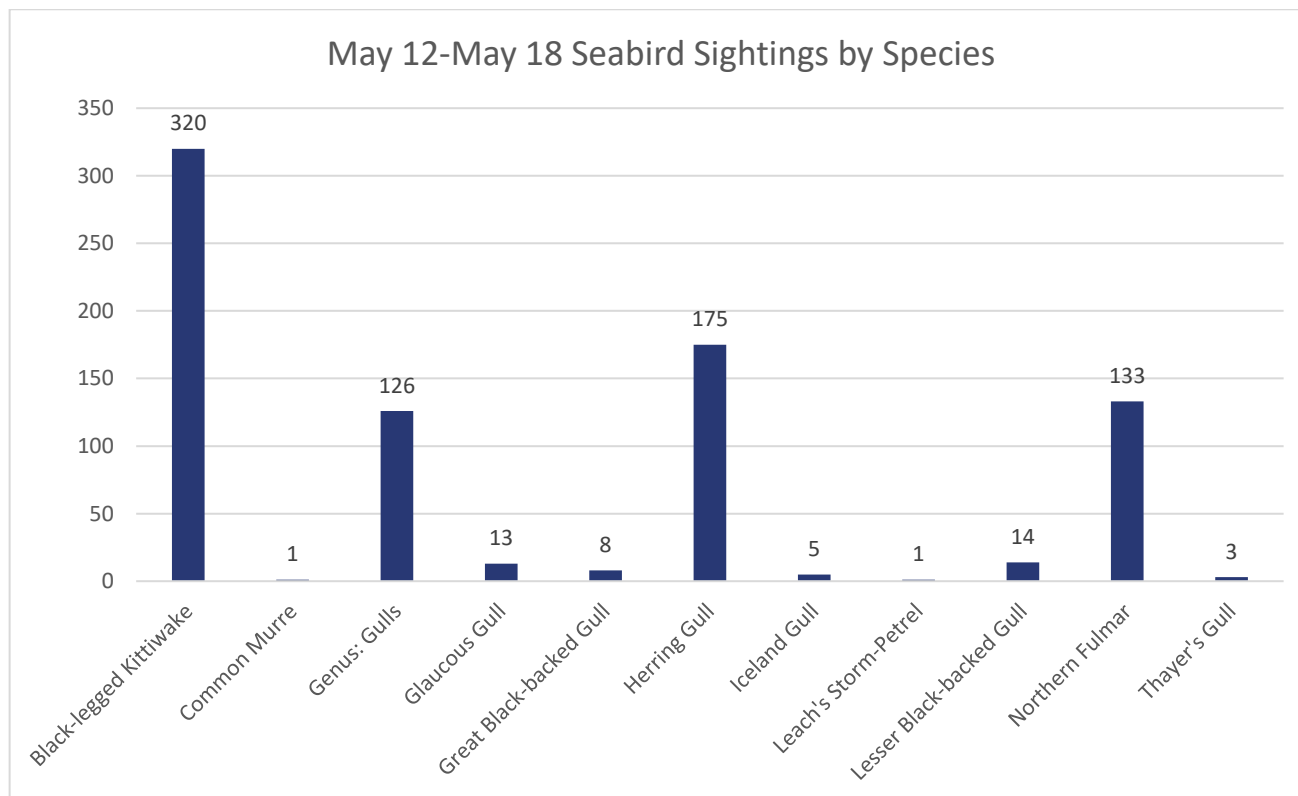
Figure 4-2: Seabird Sightings at Ephesus F-94 Wellsite

### 4.1.3. Weekly Seabird Sightings for Ephesus F-94

Figure 4-3 to Figure 4-11 outlines the detection of seabirds on a weekly basis.

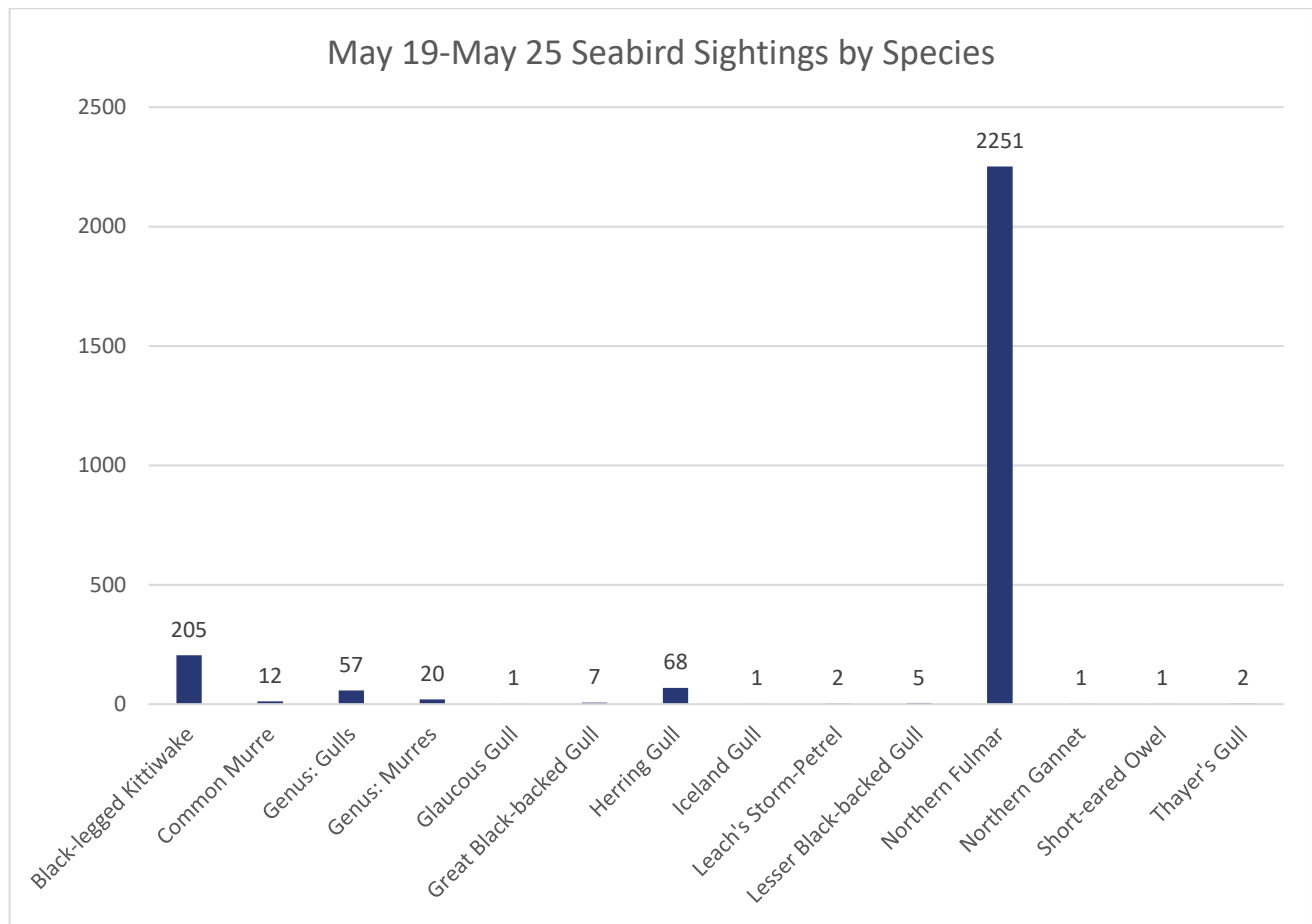
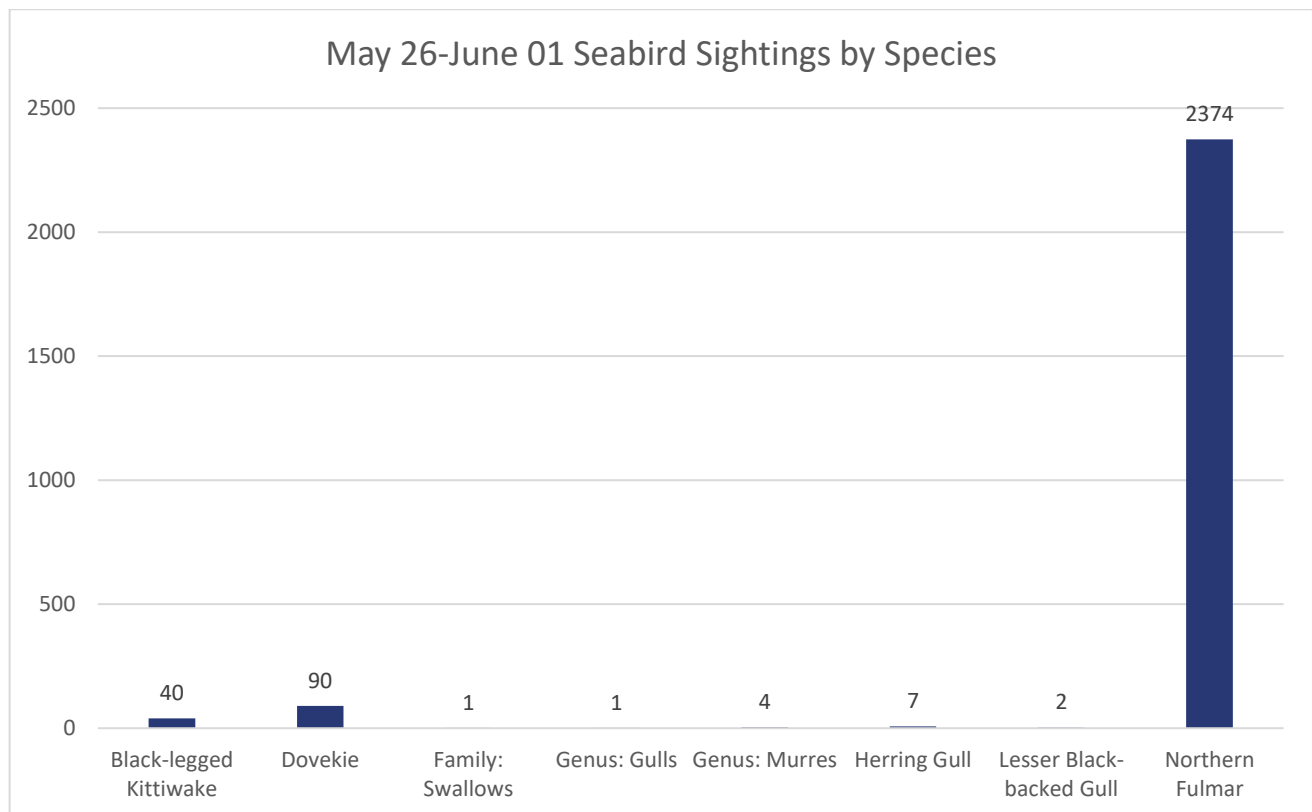


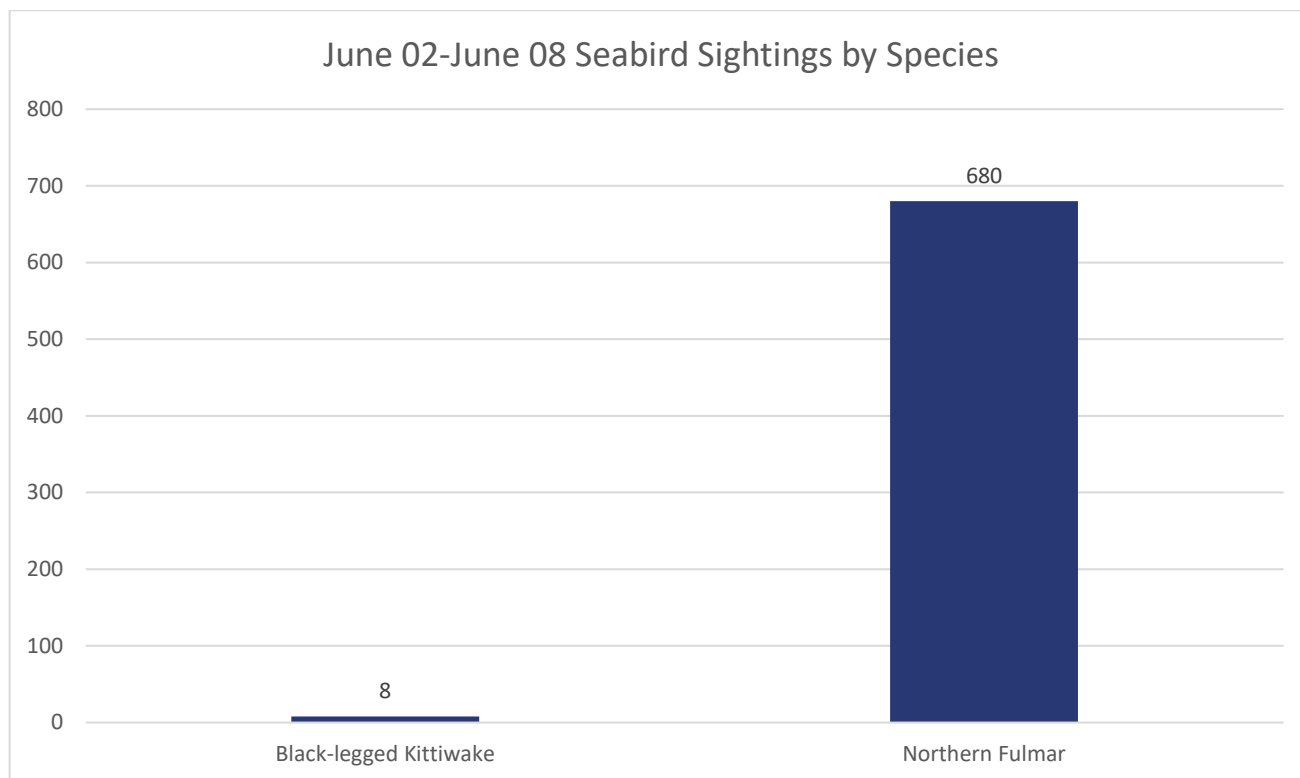
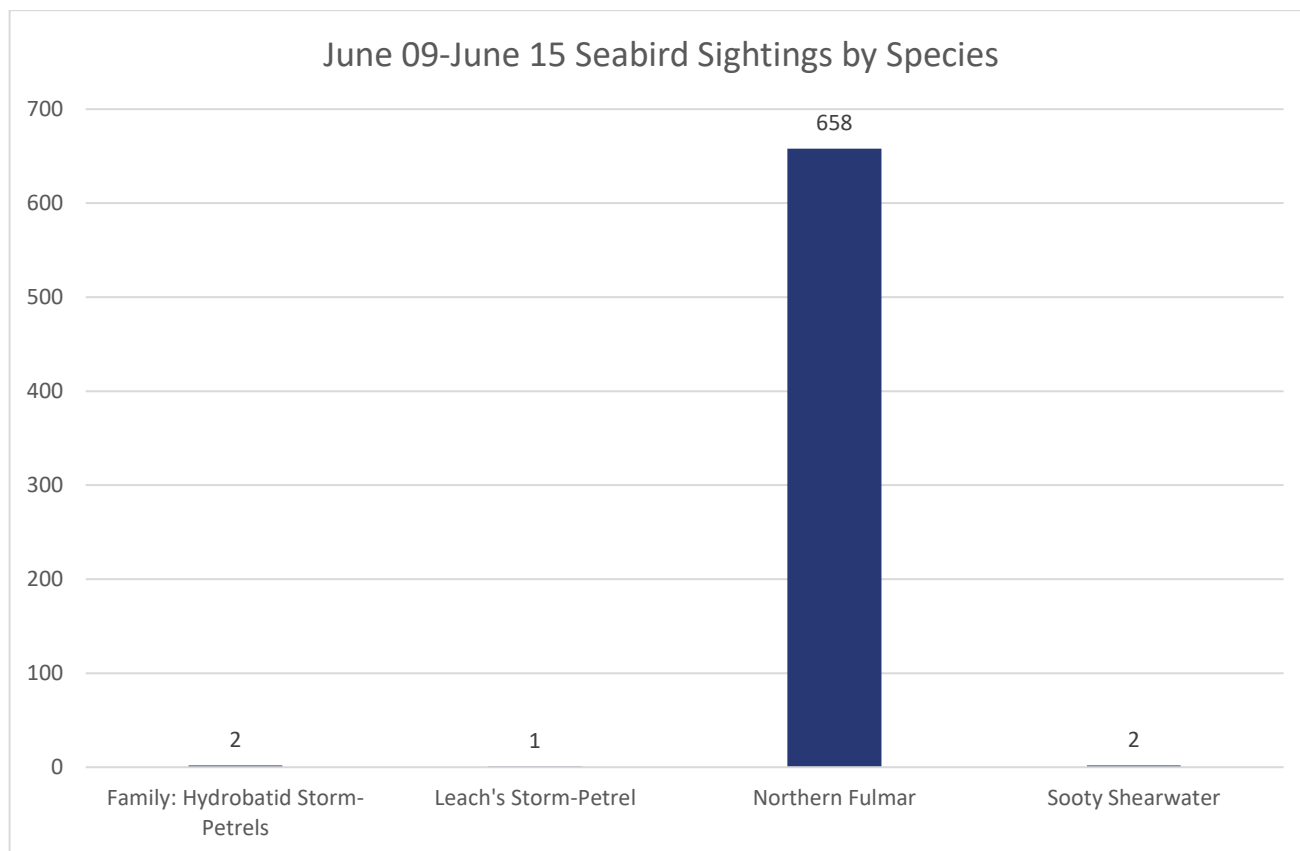
**Figure 4-3: May 04 – May 11 Seabird Sightings at Ephesus F-94 Wellsite**



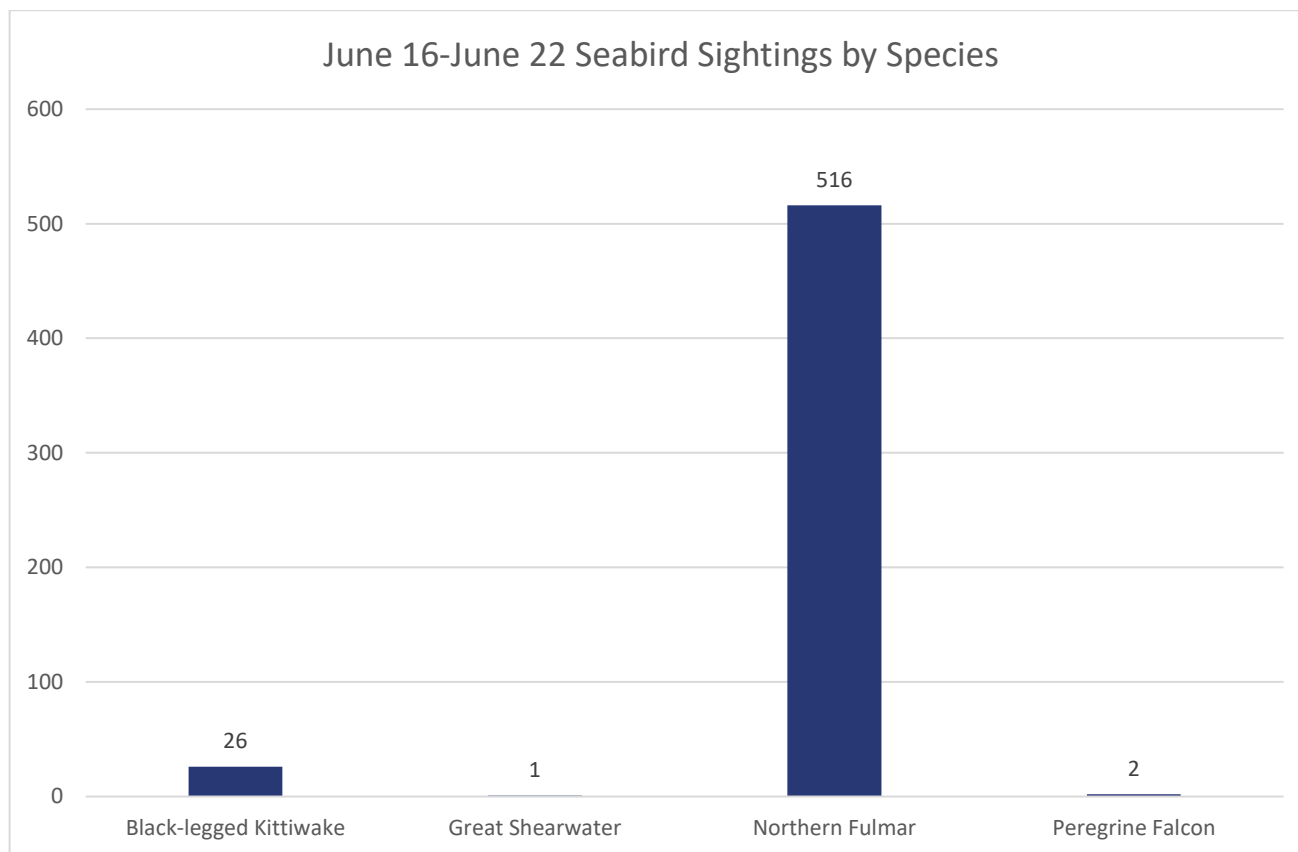
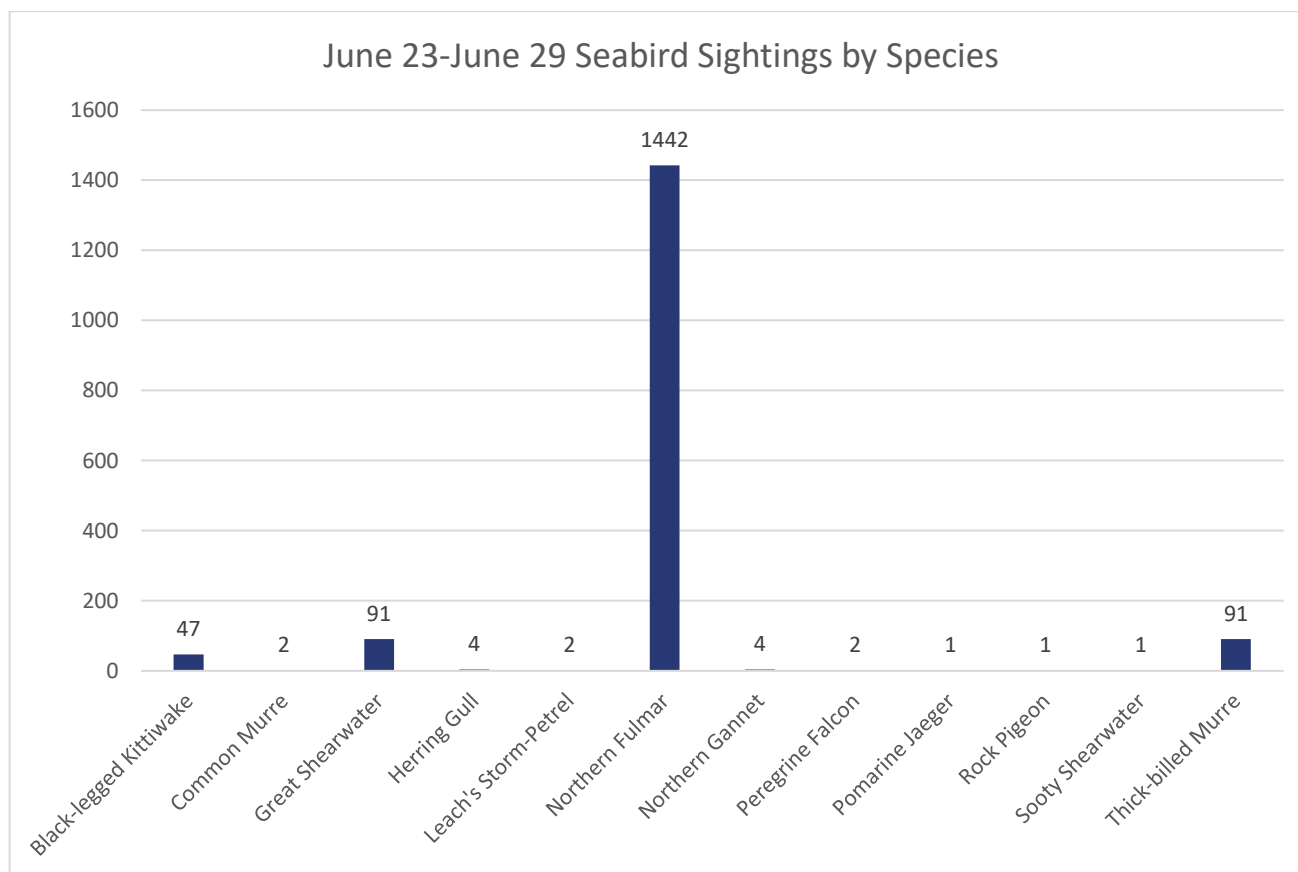
**Figure 4-4: May 12 – May 18 Seabird Sightings at Ephesus F-94 Wellsite**

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**Figure 4-5: May 19 – May 25 Seabird Sightings at Ephesus F-94 Wellsite****Figure 4-6: May 26 – June 01 Seabird Sightings at Ephesus F-94 Wellsite**

**Figure 4-7: June 02 – June 08 Seabird Sightings at Ephesus F-94 Wellsite****Figure 4-8: June 09 – June 15 Seabird Sightings at Ephesus F-94 Wellsite**

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**Figure 4-9: June 16 – June 22 Seabird Sightings at Ephesus F-94 Wellsite****Figure 4-10: June 23 – June 29 Seabird Sightings at Ephesus F-94 Wellsite**

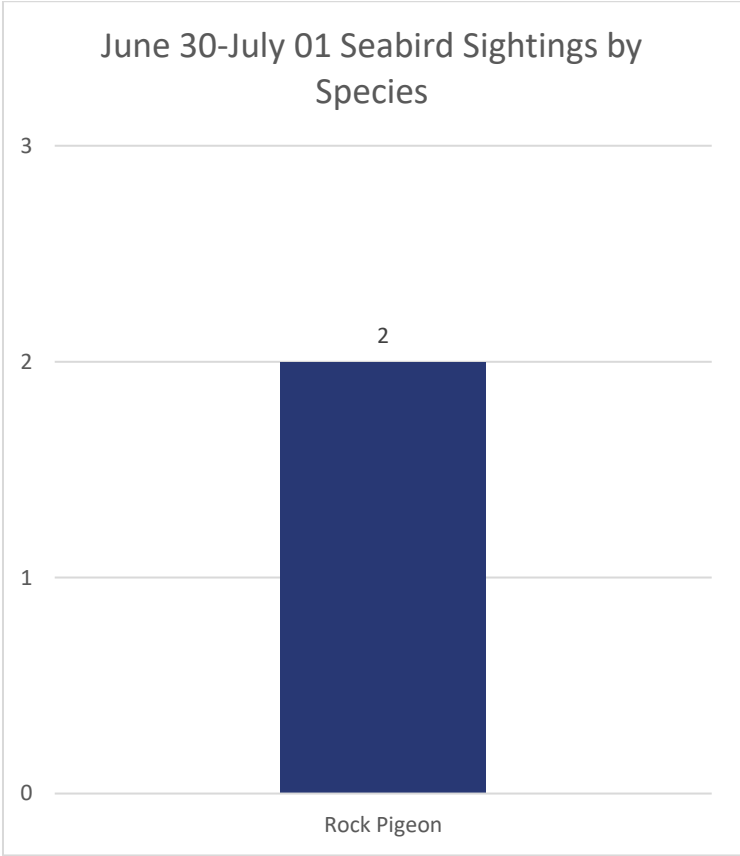


Figure 4-11: June 30 – July 01 Seabird Sightings at Ephesus F-94 Wellsite

4.1.4. Monthly Seabird Sightings for Ephesus F-94

Figure 4-12 to Figure 4-14 outlines the detection of seabirds on a monthly basis.

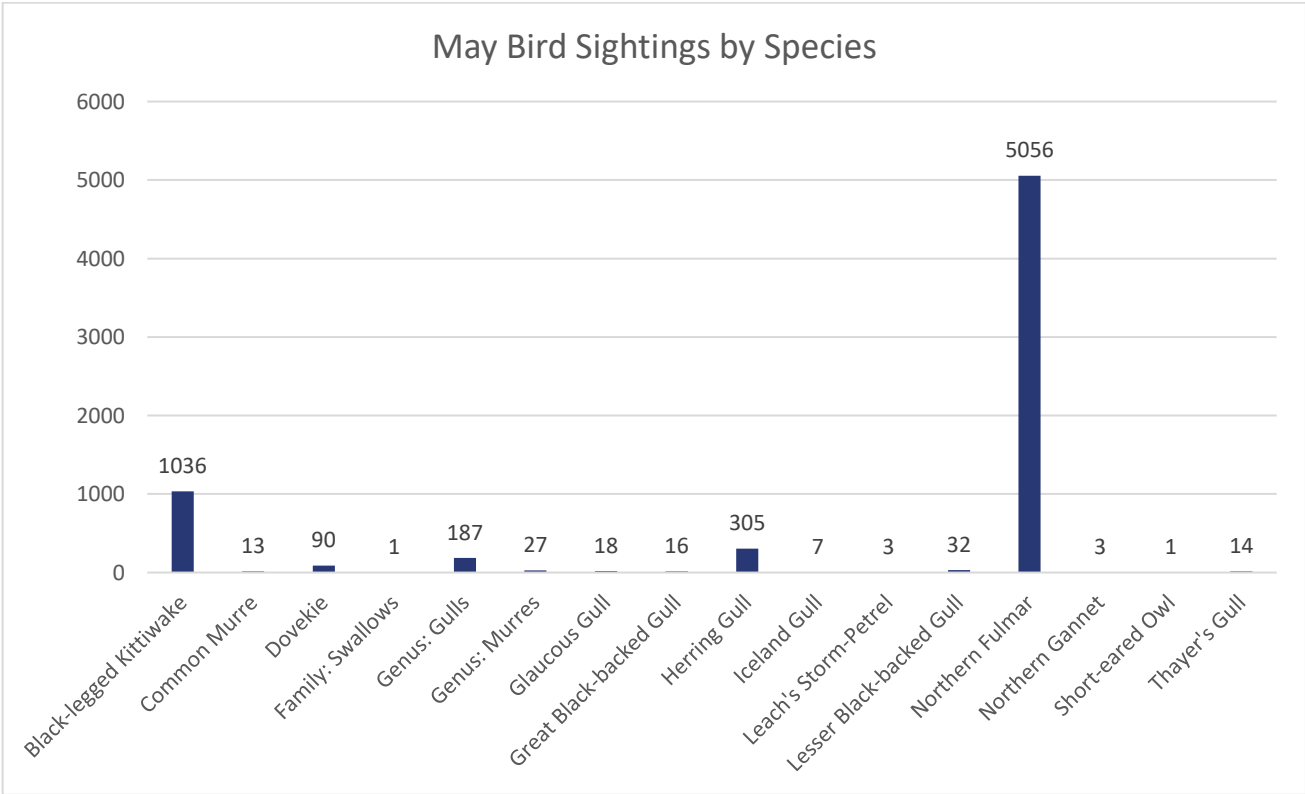
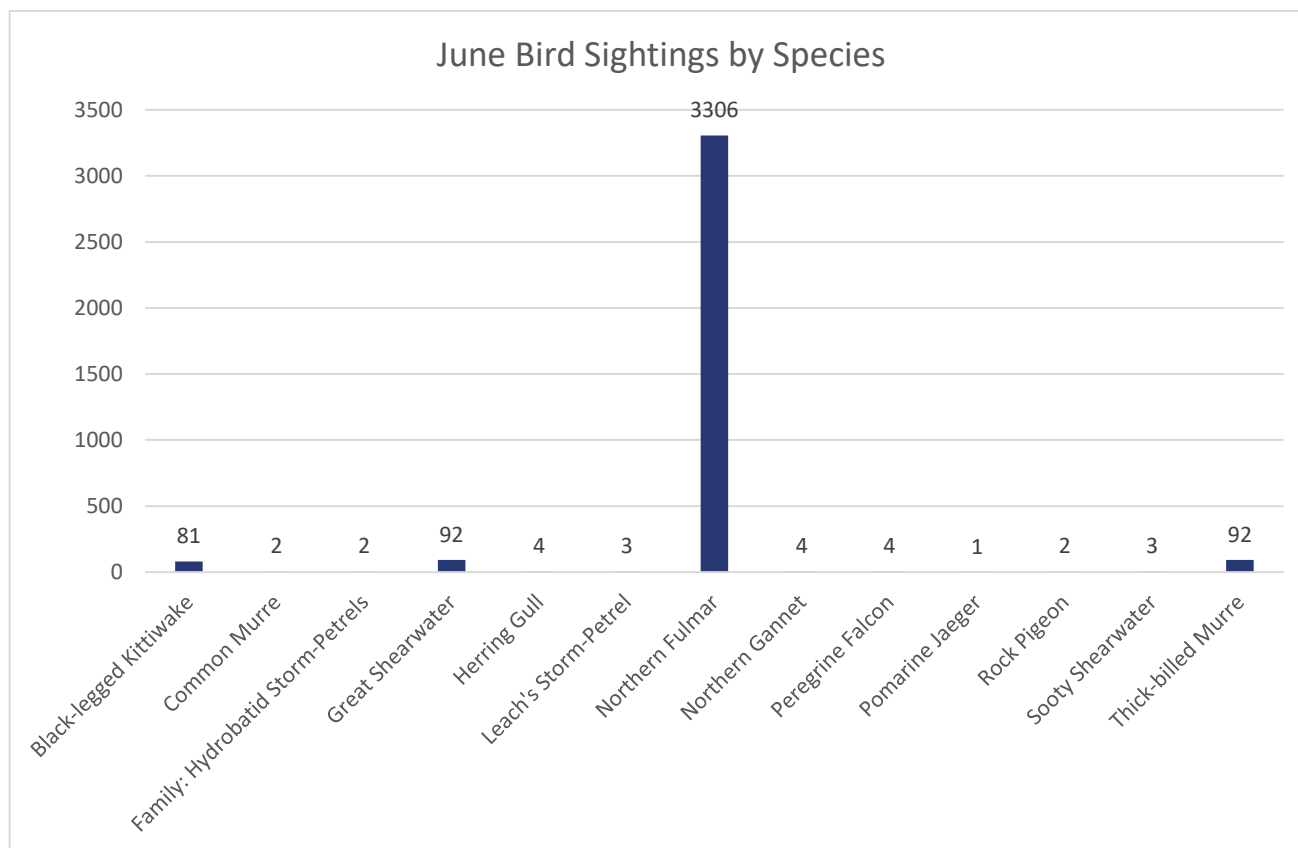


Figure 4-12: May Seabird Sightings at Ephesus F-94 Wellsite



During the month of May, the most commonly sighted seabird was the Northern Fulmar at 5,056 (74.3% of all seabirds counted), followed by the Black-legged Kittiwake at 1,036 (15.2% of all seabirds counted).



**Figure 4-13: June Seabird Sightings at Ephesus F-94 Wellsite**

During the month of June, the most commonly sighted seabird was the Northern Fulmar at 3,306 (91.9% of all seabirds counted), followed by the Great Shearwater and Thick-billed Murre (2.6% of all seabirds counted).

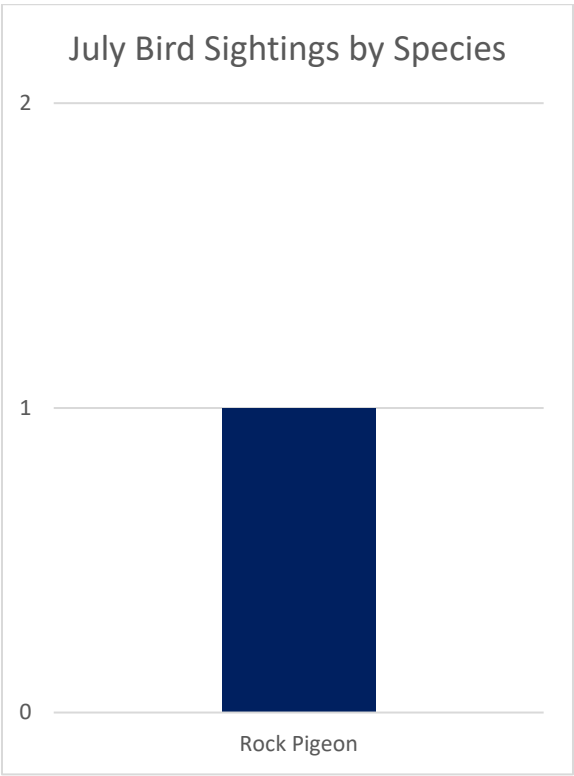


Figure 4-14: July Seabird Sightings at Ephesus F-94 Wellsite

During the month of July, the only seabird sighted was the Rock Pigeon).

4.1.5. Seabird Behavior for Ephesus F-94

The most commonly identified behaviour among seabirds was surface pecking (34.0%), followed by resting or sleeping (22.0%) and actively searching (22.0%).

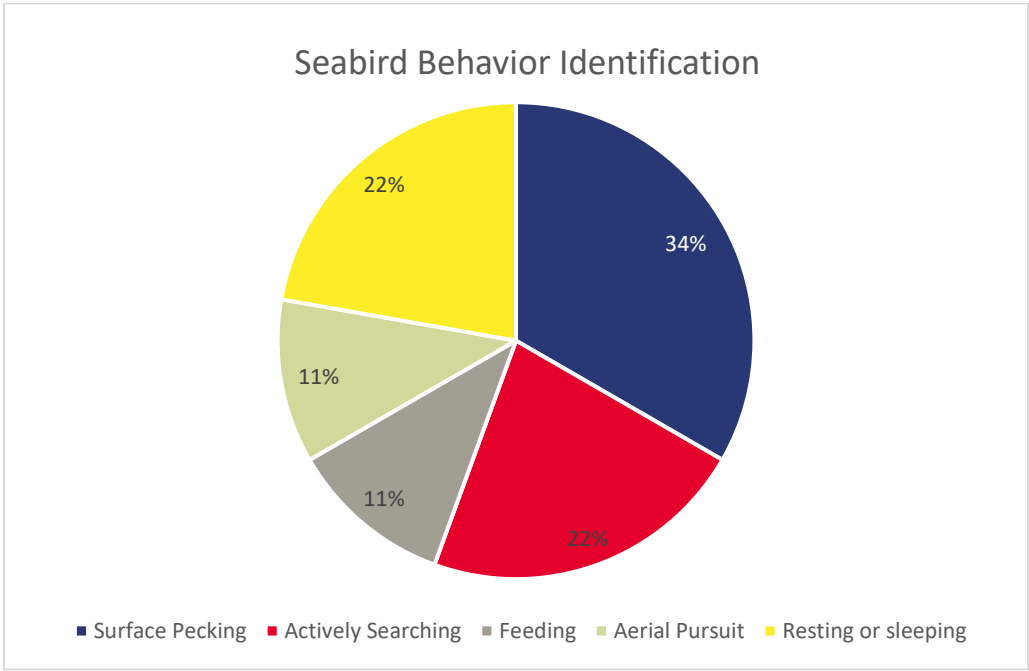


Figure 4-15: Seabird Behaviour Identification

## **4.2. Stranded Seabird Searches on Stena IceMax**

### **4.2.1. Stranded Seabird Searches in Transit to Ephesus**

Two stranded seabird searches were completed while the Stena IceMax was in transit to and from the Ephesus wellsite. One occurred on May 07, 2023, at 0705z and another on July 01, 2023, at 0730z. Of the 2 moving stranded bird surveys, 1 (50.0%) covered a 630 metres path, and 1 (50.0%) covered the full 1900 metres path. There were instances where sections could not be reached due to safety barriers in place in some search areas. No stranded seabird were observed while in transit from Bay Bulls to the wellsite.

### **4.2.2. Stranded Seabird Searches at Ephesus F-94**

Throughout the time that the Stena IceMax was at the wellsite, a total of 71 stranded seabird searches were completed. In 46 of the 71 searches (63.9%) no seabirds were found. In 21 of the 71 searches (29.2%) one seabird was present and in 4 searches (5.6%) more than one seabird was found.

The Leach's Storm-Petrel was the most commonly identified stranding, accounting for 10 (34.4%) of all identified birds found. Please see Table 4-3, Table 4-4, Table 4-5 and Figure 4-16 to Figure 4-29 for reference to all findings.

Based on previous experience with another similar vessel, the observers noted that save-alls/berms are areas potentially prone to strandings. These areas were checked daily on the Stena IceMax and just 1 stranded bird was found. This may be due to the fact that no lights are positioned directly above the save-alls/berms on the Stena IceMax.

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Table 4-3: Seabird Strandings on Stena IceMax (1/3)

Date			May 15	May 18	May 21	May 24	May 24	May 24	May 24	May 25	May 25	May 25
Location of stranding (Lat/Long, or Name)			Grid A7	Grid A11	Grid B3	Grid K1	Grid G1	Deck 4, U2	Deck 4, L2	Grid S2	Grid 4S	Moonpool
Species			Junco	Junco	Leach's Storm-Petrel	Tennessee Warbler	White-throated Sparrow	White-throated Sparrow	Leach's Storm-Petrel	Leach's Storm-Petrel	Leach's Storm-Petrel	Unknown Passerine
Total # of Stranded Birds			1	1	1	1	1	1	1	1	1	2
Found Dead	# Oiled		0	0	0	0	0	0	0	0	0	0
	Fate	Disposed of at Sea	1	1	0	1	1	1	0	0	0	2
		Sent Ashore	0	0	1	0	0	0	1	0	0	0
Found Alive	Oiled	Died in Care	0	0	0	0	0	0	0	0	0	0
		Released Alive	0	0	0	0	0	0	0	0	0	0
		Sent Ashore	0	0	0	0	0	0	0	0	0	0
	Not Oiled	Died in Care	0	0	0	0	0	0	0	0	0	0
		Released Alive	0	0	0	0	0	0	0	1	1	0
		Sent Ashore	0	0	0	0	0	0	0	0	0	0
		Fog (Y/N)		Y	Y	N	N	N	N	N	N	N
Rain (Y/N)		Y	Y	N	N	N	N	N	N	N	N	

## Drilling Seabird, Marine Mammal and Sea Turtle Monitoring Report

Table 4-4: Seabird Strandings on Stena IceMax (2/3)

Date			May 28	May 30	May 30	May 31	June 01	June 02	June 04	June 04	June 04	June 06
Location of stranding (Lat/Long, or Name)			Grid P2	Grid S3	Grid S2	Grid P2	Grid H4	Grid E2	Grid K1	Grid U4	Grid E2	Grid Q1
Species			Unknown Passerine	Lincoln’s Sparrow	Wilson’s Warbler	Leach’s Storm- Petrel	Cliff Swallow	Blackpoll Warbler	Unknown Passerine	Unknown Passerine	White- throated Sparrow	Unknown Passerine
Total # of Stranded Birds			1	1	1	1	1	1	1	1	1	1
Found Dead	# Oiled		0	0	0	0	0	0	0	0	0	0
	Fate	Disposed of at Sea	1	1	1	0	1	1	1	1	1	1
		Sent Ashore	0	0	0	1	0	0	0	0	0	0
Found Alive	Oiled	Died in Care	0	0	0	0	0	0	0	0	0	0
		Released Alive	0	0	0	0	0	0	0	0	0	0
		Sent Ashore	0	0	0	0	0	0	0	0	0	0
	Not Oiled	Died in Care	0	0	0	0	0	0	0	0	0	0
		Released Alive	0	0	0	0	0	0	0	0	0	0
		Sent Ashore	0	0	0	0	0	0	0	0	0	0
Fog (Y/N)			N	N	N	N	Y	Y	Y	Y	Y	Y
Rain (Y/N)			N	N	N	N	N	N	N	N	N	N

## Drilling Seabird, Marine Mammal and Sea Turtle Monitoring Report

Table 4-5: Seabird Strandings on Stena IceMax (3/3)

Date			June 12	June 14	June 21	June 23	June 24	June 26	June 26	June 27	June 27	June 27
Location of stranding (Lat/Long, or Name)			Grid M3	Grid S2	Grid 4P	Grid 4P	Grid C5	Grid O1	Grid N2	Grid S4	Grid T3	Grid T1
Species			Leach's Storm Petrel	Tennesse e Warbler	Leach's Storm-Petrel	Leach's Storm-Petrel	Leach's Storm-Petrel	Leach's Storm-Petrel	Leach's Storm-Petrel	Magnolia Warbler	Yellow-Bellied Flycatcher	Unknown Passerine
Total # of Stranded Birds			1	1	1	1	1	1	1	1	2	1
Found Dead	# Oiled		0	0	0	0	0	0	0	0	0	0
	Fate	Disposed of at Sea	0	1	0	0	0	0	0	1	2	1
		Sent Ashore	0	0	0	0	0	1	1	0	0	0
Found Alive	Oiled	Died in Care	0	0	0	0	0	0	0	0	0	0
		Released Alive	0	0	0	0	0	0	0	0	0	0
		Sent Ashore	0	0	0	0	0	0	0	0	0	0
	Not Oiled	Died in Care	0	0	0	0	0	0	0	0	0	0
		Released Alive	1	0	1	1	1	0	0	0	0	0
		Sent Ashore	0	0	0	0	0	0	0	0	0	0
Fog (Y/N)			Y	N	N	N	N	Y	Y	N	N	N
Rain (Y/N)			N	N	N	N	N	Y	Y	N	N	N



On May 15, 2023, at 0730z, a Junco was found deceased, and the carcass was disposed of on-site.

Two seabird searches were conducted on May 18, 2023, at 0740z and 1605z. One Junco was found deceased at 1605z, and the carcass was disposed of on-site. No birds were found at 0740z.

On May 21, 2023, two seabird searches were conducted at 0330z and 0740z. During the 0740z search, one Leach's Storm-Petrel carcass was discovered and sent to shore to CWS (Figure 4-16).

Of the two seabird searches on May 24, 2023, two carcasses were located during the 0730z survey. One was a Tennessee Warbler which was found on a raised metal platform. The other carcass was a White-throated Sparrow on the starboard side beneath the fast rescue craft (Figure 4-18). Both birds were disposed of on-site. During the second survey at 1810z, a White-throated Sparrow was discovered deceased and disposed of on-site. A Leach's Storm-Petrel carcass was also found in the entrance to the moon pool and sent to shore to ECCC-CWS (Figure 4-17).

On May 25, 2023, four seabird searches were conducted at 0110z, 0440z, 0740z, and 2000z. At 0110z, a Leach's Storm-Petrel was found alive and released at the site (Figure 4-19). At 0440z, another Leach's Storm-Petrel was found alive and released. Its left leg was injured, and ECCC-CWS was contacted. It was released at 1330z as per protocol. At 2000z, the crew discovered two unidentified passerine carcasses in the moonpool and reported them to the seabird observer. They were unable to be recovered from the water.

During the second seabird search on May 28, 2023, at 1450z, one small unknown Passerine (likely from the Warbler Family) was found desiccated and covered in dust. The carcass was then disposed of on-site (Figure 4-20).

On May 30, 2023, at 0740z, a Lincoln's Sparrow was discovered deceased and was disposed of on-site. At 2200z, a Wilson's Warbler carcass was also disposed of on-site (Figure 4-21).

A Leach's Storm-Petrel carcass was discovered on May 31, 2023, at 0930z and was sent ashore to CWS (Figure 4-22).

On June 01, 2023, at 2100z, a Cliff Swallow was observed laying on pipes on the deck. The bird was deceased and disposed of on-site (Figure 4-23).

While on the second seabird search of the day on June 02, 2023, at 1810z, a Blackpoll Warbler carcass was discovered and disposed of on-site (Figure 4-24).

On June 04, 2023, at 0750z, two unknown Passerines were discovered. One was described as the size of a Starling. It was found under a cable management bracket beneath a handrail. The other Passerine was described as the size of a Warbler. This was found in a save-all on the stern. Both were decomposed and disposed of on-site. At 2240z, a White-throated Sparrow carcass was found and disposed of.

At 1515z on June 06, 2023, an Unidentified Passerine carcass was discovered, covered in grease from machinery. It was described as Sparrow-sized. Then it was disposed of on-site (Figure 4-25).

A Leach's Storm-Petrel was discovered on June 12, 2023, at 0500z. It was placed in a recovery box to rest and dry until it was released at 1610z.

A male Tennessee Warbler was discovered and disposed of on June 14, 2023 (Figure 4-26).

On June 21, 2023, at 0245z, a Leach's Storm-Petrel was placed in a recovery box to rest and dry until release. It was released successfully at 1620z (Figure 4-27).

During the seabird search on June 23, 2023, a Leach's Storm-Petrel was found on Deck 4, Grid 4P. The Leach's Storm-Petrel was dry, and there were no predators in the area, so it was released. It flew away unharmed at 0800z.

On June 24, 2023, at 2230z, a Leach's Storm-Petrel was found in the stairwell, not wet, and looked healthy, so it was released successfully.

During a systematic survey, on June 26, 2023, at 0730z, a Leach's Storm-Petrel carcass was discovered and sent to shore and delivered to ECCC-CWS (Figure 4-29). A second seabird search was conducted at 1210z and another Leach's Storm-Petrel carcass was sent to shore for the ECCC-CWS. The Leach's Storm-Petrel was found in thick mud water (Figure 4-28).

A systematic survey was conducted at 0730z on June 27, 2023. A Magnolia Warbler, two Yellow-Bellied Flycatchers, and an unknown Passerine were discovered deceased and disposed of on-site.



**Figure 4-16: Leach's Storm-Petrel – May 21, 2023**



**Figure 4-17: Leach's Storm-Petrel – May 24, 2023**



**Figure 4-18: White-throated Sparrow – May 24, 2023**



**Figure 4-19: Leach's Storm-Petrel – May 25, 2023**





**Figure 4-20: Unidentified Passerine – May 28, 2023**



**Figure 4-21: Lincoln's Sparrow – May 30, 2023**



**Figure 4-22: Leach's Storm Petrel – May 31, 2023**



**Figure 4-23: Cliff Swallow – June 01, 2023**





**Figure 4-24: Blackpoll Warbler – June 02, 2023**



**Figure 4-25: Unidentified Passerine – June 06, 2023**





**Figure 4-26: Tennessee Warbler – June 14, 2023**



**Figure 4-27: Leach's Storm-Petrel – June 21, 2023**

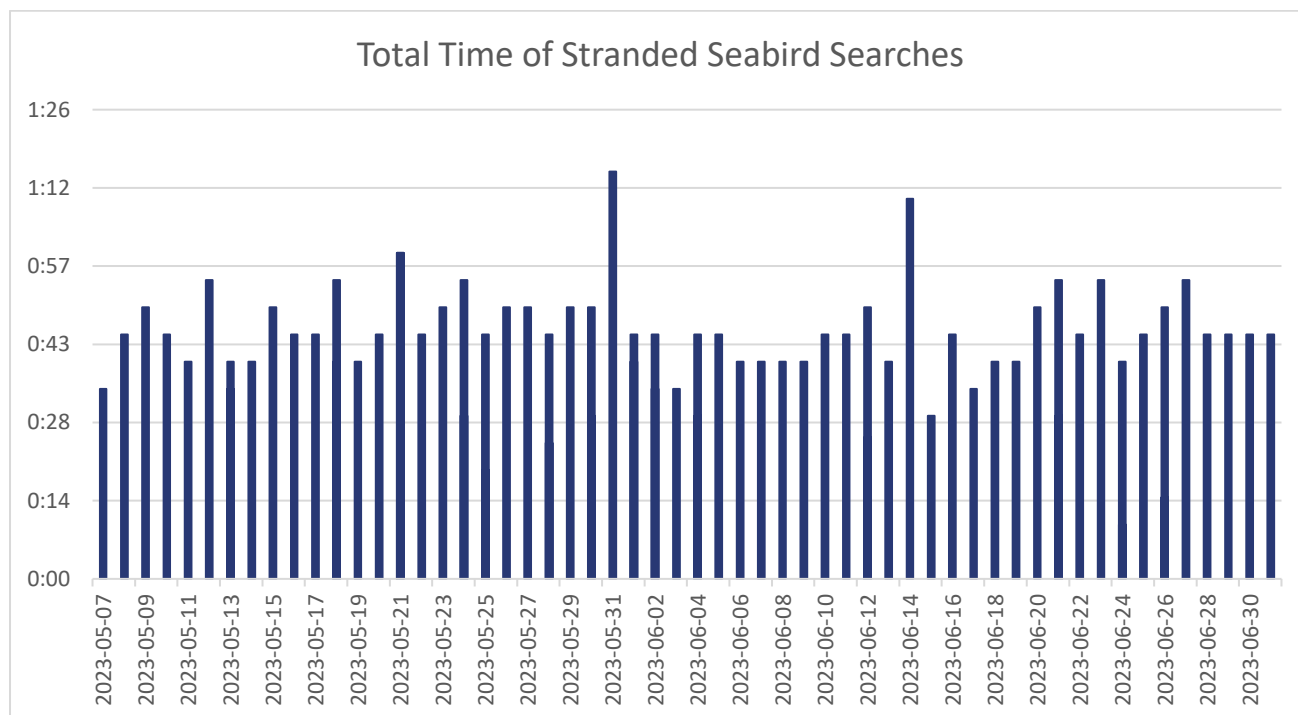


**Figure 4-28: Leach's Storm-Petrel – June 26, 2023**



**Figure 4-29: Leach's Storm-Petrel – June 26, 2023**

Figure 4-30 illustrates the total time the observer spent searching during stranded seabird searches. The longest stranded seabird search lasted 75 minutes on May 30, 2023. The shortest search occurred on June 24, 2023, lasting 10 minutes. It should be noted that two opportunistic searches were recorded with a duration of 0 minutes on May 25, 2023, and June 06, 2023. Since these were opportunistic searches that crew members reported, they do not have an end time, unlike a typical systematic search. The observer then reported the strandings in the database and on a record sheet.



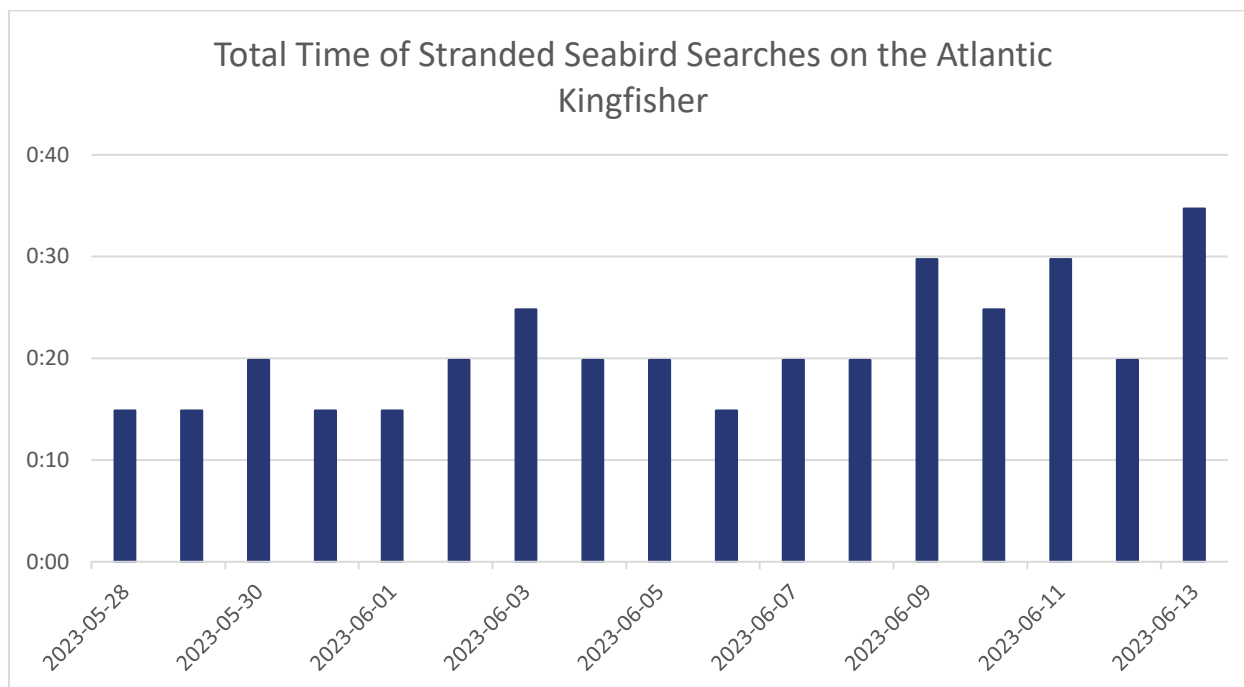
**Figure 4-30: Total Time of Stationary Stranded Seabird Searches**

The stationary stranded seabird searches on the Stena IceMax are based on the search routes shown in Figure 3-3, Figure 3-4, Figure 3-5, Figure 3-6, Figure 3-7, Figure 3-8, and Figure 3-9. Of the 71 stationary stranded bird surveys, 23 (32.4%) covered the entire 1900m path, and 48 (67.6%) covered a path less than 1900m. There were instances where sections could not be reached due to operations in those areas, barriers, and opportunistic searches.

#### 4.2.3. Stranded Seabird Searches on the Atlantic Kingfisher

Throughout the time that the Atlantic Kingfisher was in transit to, from, and at the Ephesus wellsite from May 28, 2023, at 0655z, until June 13, 2023, at 0715z, there were 17 stranded seabird searches completed. No stranded seabird were found on the vessel.

Figure 4-31 illustrates the total time the observer took to complete the systematic searches. The longest stranded seabird search lasted 35 minutes on June 13, 2023. The shortest search lasted 15 minutes from May 28, May 29, May 30, May 31, June 01, and June 06, 2023.



**Figure 4-31: Total Time of Stranded Seabird Searches on the Atlantic Kingfisher**

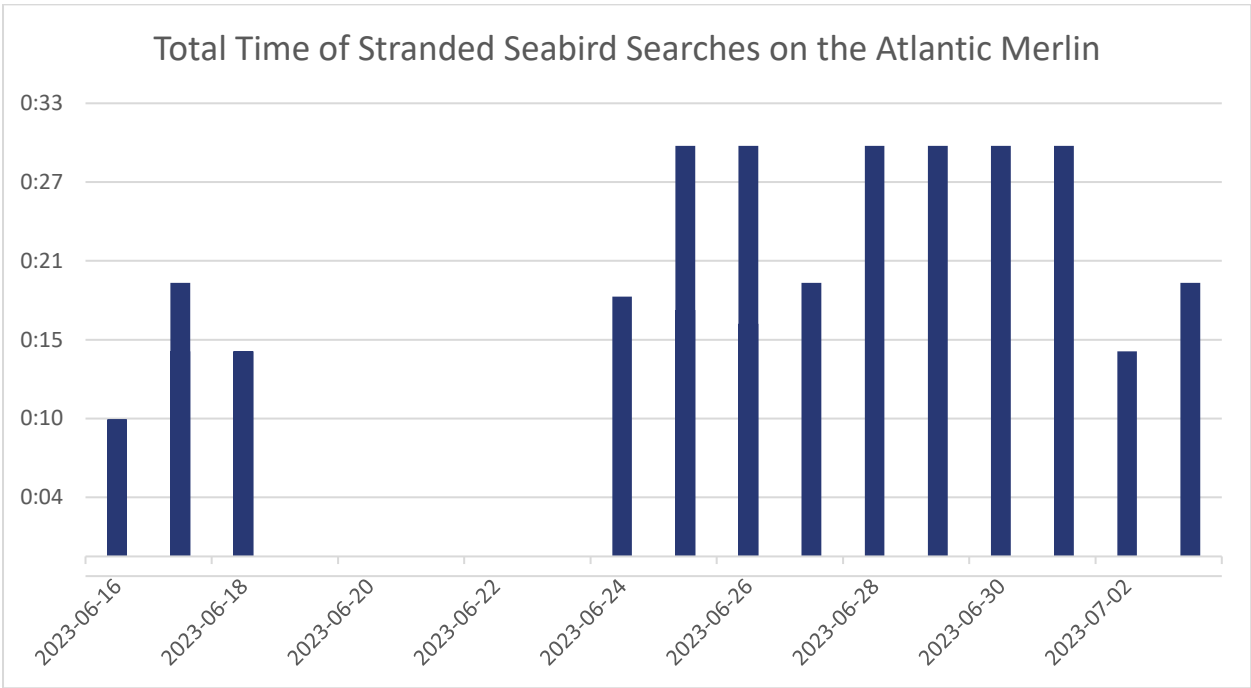
The stationary stranded seabird searches on the Atlantic Kingfisher are based on the search routes shown in Figure 3-10, Figure 3-11, Figure 3-12, Figure 3-13, and Figure 3-14. Of the 17 moving stranded bird surveys, 17 (100.0%) covered a 316m path.

#### 4.2.4. Stranded Seabird Searches on the Atlantic Merlin

Throughout the time that the Atlantic Merlin was in transit to, from, and at the Ephesus wellsite from June 16, 2023, at 0940z, until June 18, 2023, at 2245z, and again, from June 24, 2023, 2343z, until July 03, 2023, at 0915z, 18 stranded seabird searches were completed. No stranded seabirds were found on the vessel.

Figure 4-32 identifies the total time the observer took to complete the systematic searches. The longest stranded seabird search lasted 30 minutes on May 25 and May 26, 2023, as well as from May 28, 2023, until July 01, 2023. The shortest search lasted 10 minutes on May 16, 2023.





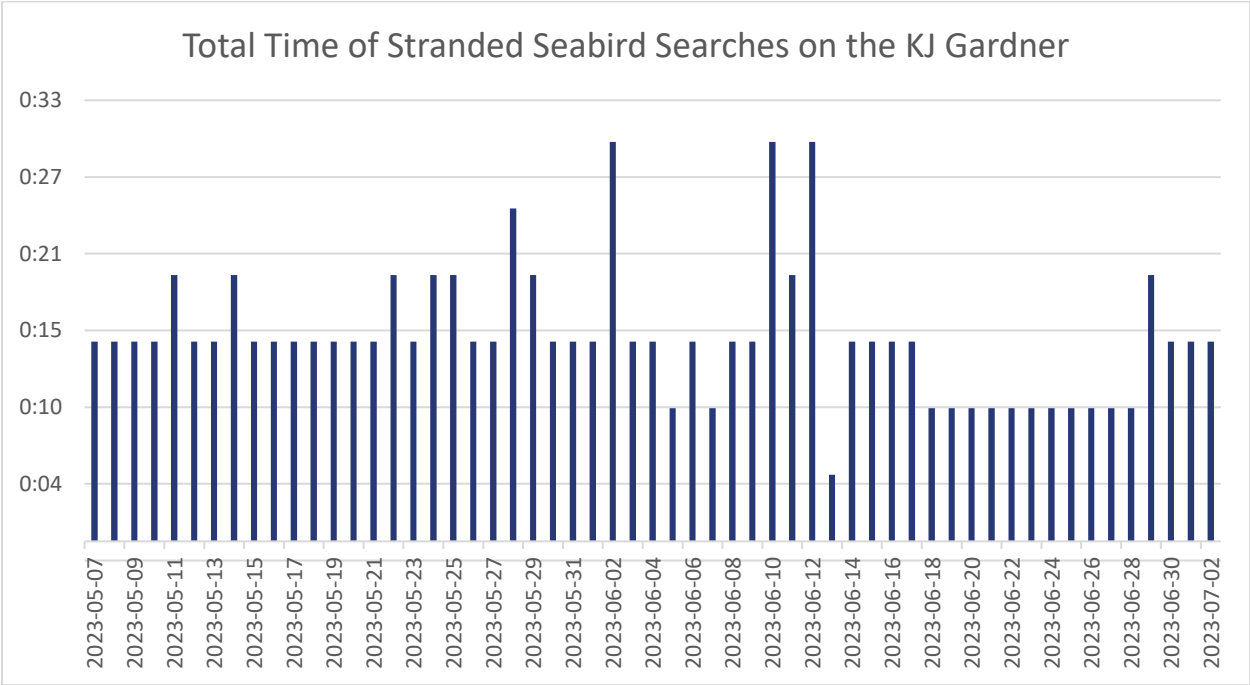
**Figure 4-32: Total Time of Stranded Seabird Searches on the Atlantic Merlin**

The stationary stranded seabird searches on the Atlantic Merlin are based on the search routes shown in Figure 3-15, Figure 3-16, and Figure 3-17. Of the 18 moving stranded bird surveys, 18 (100.0%) covered 160 metres of the 215m path. No stranded seabird searches were conducted from June 19 – 23, 2023, due to the vessel being off-hire and not supporting the drilling program.

**4.2.5. Stranded Seabird Searches on the KJ Gardner**

Throughout the time the KJ Gardner was in transit to, from, and at the Ephesus wellsite from May 05, 2023, at 0800z, until July 02, 2023, at 0840z, there were 57 stranded seabird searches completed. No stranded seabirds were found on the vessel

Figure 4-33 identifies the total time the observer took to complete the systematic searches. The longest stranded seabird search lasted 30 minutes on June 02, 10, and 12, 2023. The shortest search lasted 5 minutes on June 13, 2023.



**Figure 4-33: Total Time of Stranded Seabird Searches on the KJ Gardner**

The stationary stranded seabird searches on the KJ Gardner are based on the search route shown in Figure 3-18, Figure 3-19, Figure 3-20, and Figure 3-21. Of the 57 moving stranded bird surveys, 56 (98.2%) covered a 250m path, while 1 (1.8%) covered a 10m path.

**4.2.6. Stranded Seabird Searches on Maersk Clipper**

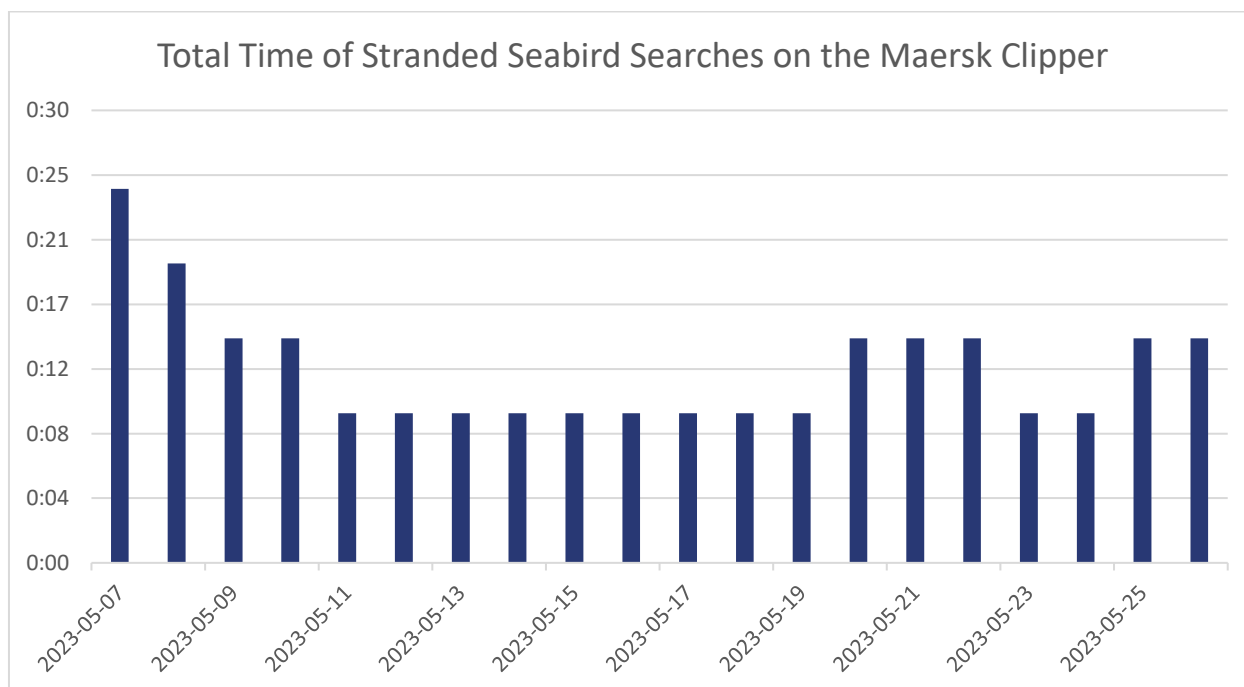
Throughout the time that the Maersk Clipper was in transit to, from, and at the Ephesus wellsite from May 07, 2023, at 0835z until May 26, 2023, at 0800z, there were a total of 20 stranded seabird searches. 19 (63.9% of all searches) had no seabirds found while 1 (5.0%) identified more than one seabird. One unidentified Murre was found as well as four Storm-Petrels. Please see Table 4 12 for reference to all findings.

**Table 4-6: Seabird Strandings for the Maersk Clipper**

Date			May 23, 2023	May 23, 2023
Location of stranding (Lat/Long, or Name)			50 08.7'N 050 08.9'W Main deck	50 08.7'N 050 08.9'W STBD wing bridge deck
Bird Species			Unidentified Murre	Leach's Storm-Petrel
Total # of Stranded Birds			1	4
Found Dead	# Oiled		0	0
	Fate	Disposed of at Sea	0	4
		Sent Ashore	0	0
Captured Alive	Oiled	Died in Care	0	0
		Released Alive	0	0
		Sent Ashore	0	0
	Not Oiled	Died in Care	0	0
		Released Alive	1	0
		Sent Ashore	0	0
Fog (Y/N)			N	N
Rain (Y/N)			N	N

On May 23, 2023, at 0800z, one Murre was discovered and flew off the vessel when approached. During the same search, four Leach's Storm-Petrels were found deceased, and carcasses were disposed of on-site.

Figure 4-34 identifies the total time the observer took to complete the systematic seabird searches. The longest stranded seabird search lasted 25 minutes on May 07, 2023. The shortest search lasted 10 minutes from May 11 – 19, 2023 and again from May 23 – 24, 2023.

**Figure 4-34: Total Time of Stationary Stranded Seabird Searches on the Maersk Clipper**



The stationary stranded seabird searches on the Maersk Clipper are based on the search route shown in Figure 3-22, Figure 3-23, Figure 3-24, and Figure 3-25. Of the 20 stationary stranded bird surveys, 20 (100.0%) covered a 270m path.

#### 4.2.7. Stranded Seabird Searches on the Maersk Mobiliser

Throughout the time that the Mobiliser was in transit to, from, and at the Ephesus wellsite from May 08, 2023, at 0730z, until June 30, 2023, 0650z, there were 53 stranded seabird searches completed. In 51 of the 53 (96%) searches no stranded seabirds were found and in 2 searches a single seabird was found.

The Wilson's Storm-Petrel and Warbler accounted for 1 (50.0%) of all identified birds found each. See Table 4-7 for reference to all findings.

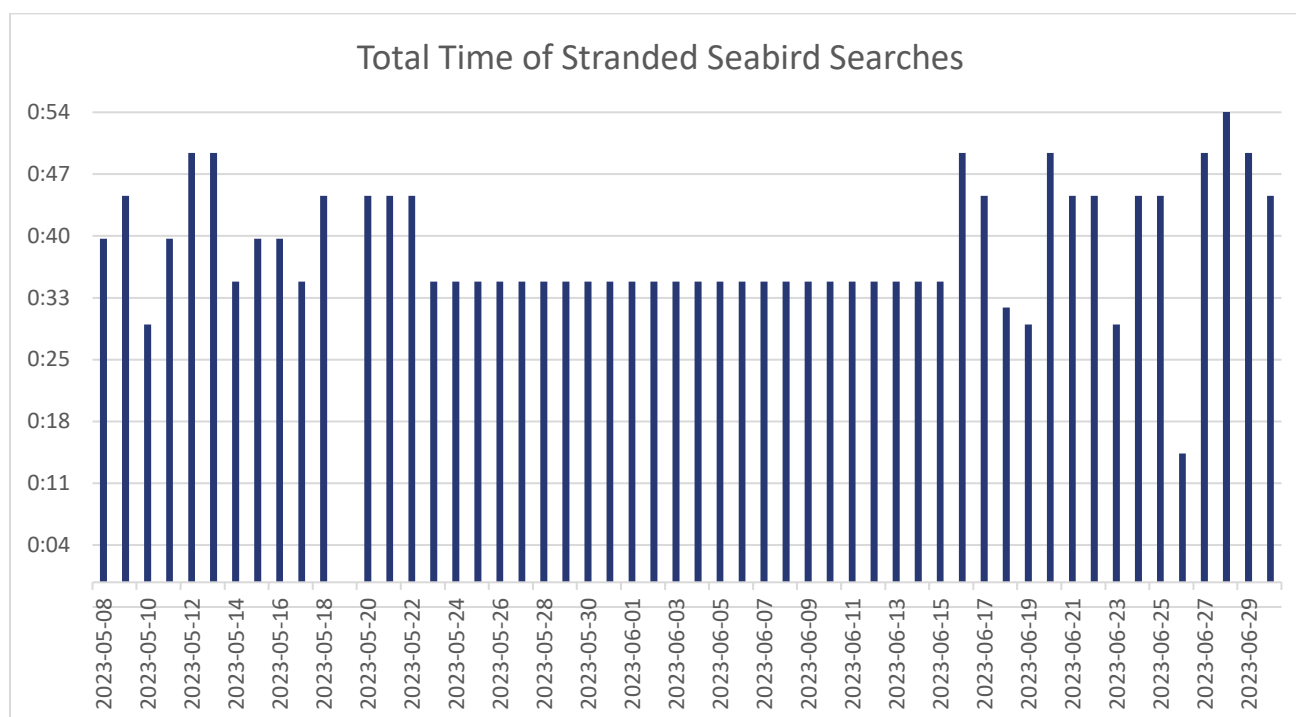
**Table 4-7: Seabird Strandings for the Maersk Mobiliser**

Date			May 11, 2023	June 24, 2023
Location of stranding (Lat/Long, or Name)			Grid K3	Grid F4
Bird Species			Warbler	Wilson's Storm Petrel
Total # of Stranded Birds			1	1
Found Dead	# Oiled		0	0
	Fate	Disposed of at Sea	0	0
		Sent Ashore	0	0
Captured Alive	Oiled	Died in Care	0	0
		Released Alive	0	1
		Sent Ashore	0	0
	Not Oiled	Died in Care	0	0
		Released Alive	1	0
		Sent Ashore	0	0
	Fog (Y/N)			N
Rain (Y/N)			N	N

On May 11, 2023, at 0650z, one Warbler was sighted and appeared healthy.

One search was conducted on June 24, 2023, at 0635z and one Wilson's Storm Petrel was found healthy and released alive on-site.

Figure 4-35 identifies the total time the observer took to complete the systematic seabird searches. The longest stranded seabird search lasted 30 minutes on May 25 – 26, 2023 and then again from May 28, 2023, until July 01, 2023. The shortest search lasted 10 minutes on May 16, 2023. Due to crew change, no stranded seabird searches were conducted on May 19, 2023.



**Figure 4-35: Total Time of Stranded Seabird Searches on the Maersk Mobiliser**

The stationary stranded seabird searches on the Maersk Mobiliser are based on the search route shown in Figure 3-26, Figure 3-27, Figure 3-28, Figure 3-29, Figure 3-30, and Figure 3-31. Of the 53 stranded bird surveys, 50 (93.3%) covered a 550m path, and 3 (5.7%) covered a path less than 550m due to wind, sea state and ongoing cargo operations.

#### **4.2.8. Stranded Seabird Searches on the Siem Symphony**

Throughout the time that the Siem Symphony was in transit to, from, and on the Ephesus wellsite from May 06, 2023, at 0800z, until July 01, 2023, at 0800z, there were 57 stranded seabird searches completed. No stranded seabirds were found on the vessel.

Figure 4-36 identifies the total time the observer took to complete the systematic seabird searches. All stranded seabird searches that were conducted lasted 30 minutes.

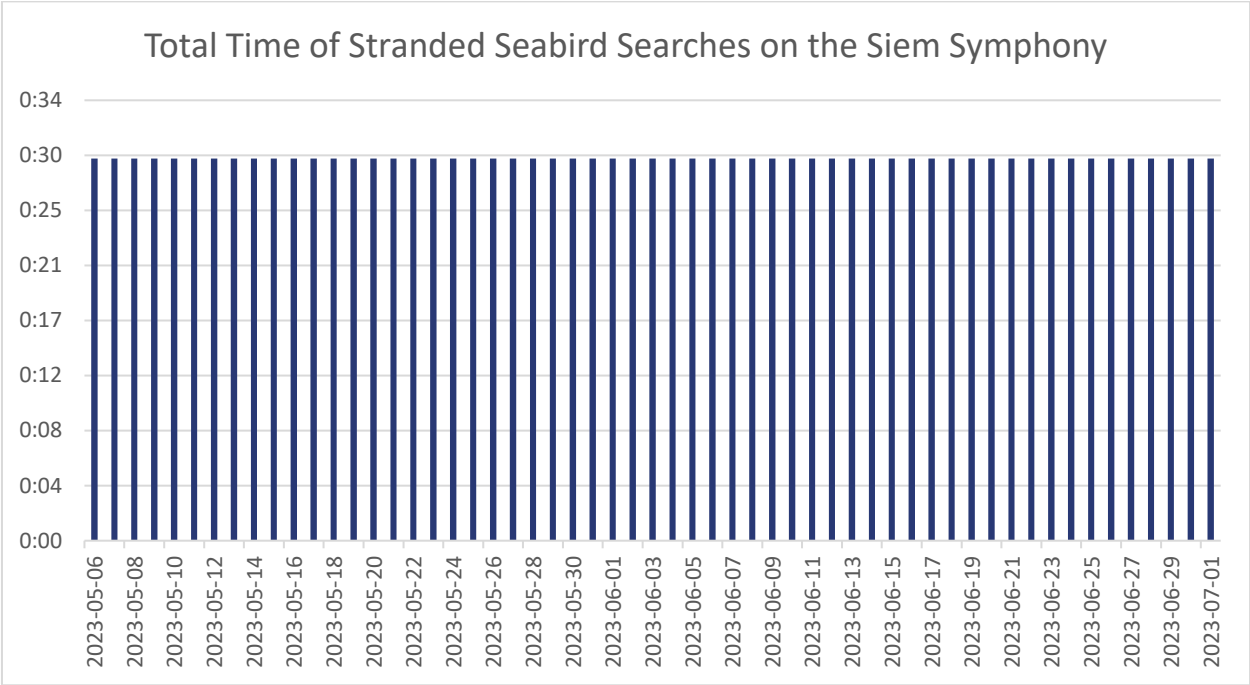


Figure 4-36: Total Time of Stranded Seabird Searches on the Siem Symphony

The stationary stranded seabird searches on the Siem Symphony are shown in Figure 3-32, Figure 3-33, and Figure 3-34. Of the 57 moving stranded bird surveys, 57 (100.0%) covered a 210m path.

4.2.9. Leach's Storm-Petrel Standings

A summary of Leach’s Storm-Petrel strandings over the course of the project can be found in Table 4-8. In total, there were 15 Leach’s Storm-Petrels stranded during the project. 9 Leach’s Storm-Petrels were found dead, with 5 (33%) being sent ashore and 4 (27%) disposed of at sea. The remaining 6 (40%) Leach’s Storm-Petrels were released alive.

Table 4-8: Leach's Storm-Petrel Stranding Summary

Found Dead		Found Alive					
		Not Oiled			Oiled		
Sent ashore	Disposed at Sea	Died in Care	Sent ashore	Released	Died in Care	Sent ashore	Released
5	4	0	0	6	0	0	0
33%	27%	0%	0%	40%	0%	0%	0%

4.3. Marine Mammal and Sea Turtle Monitoring

4.3.1. Marine Mammal and Sea Turtle Monitoring from Stena IceMax

Table 4-9 and

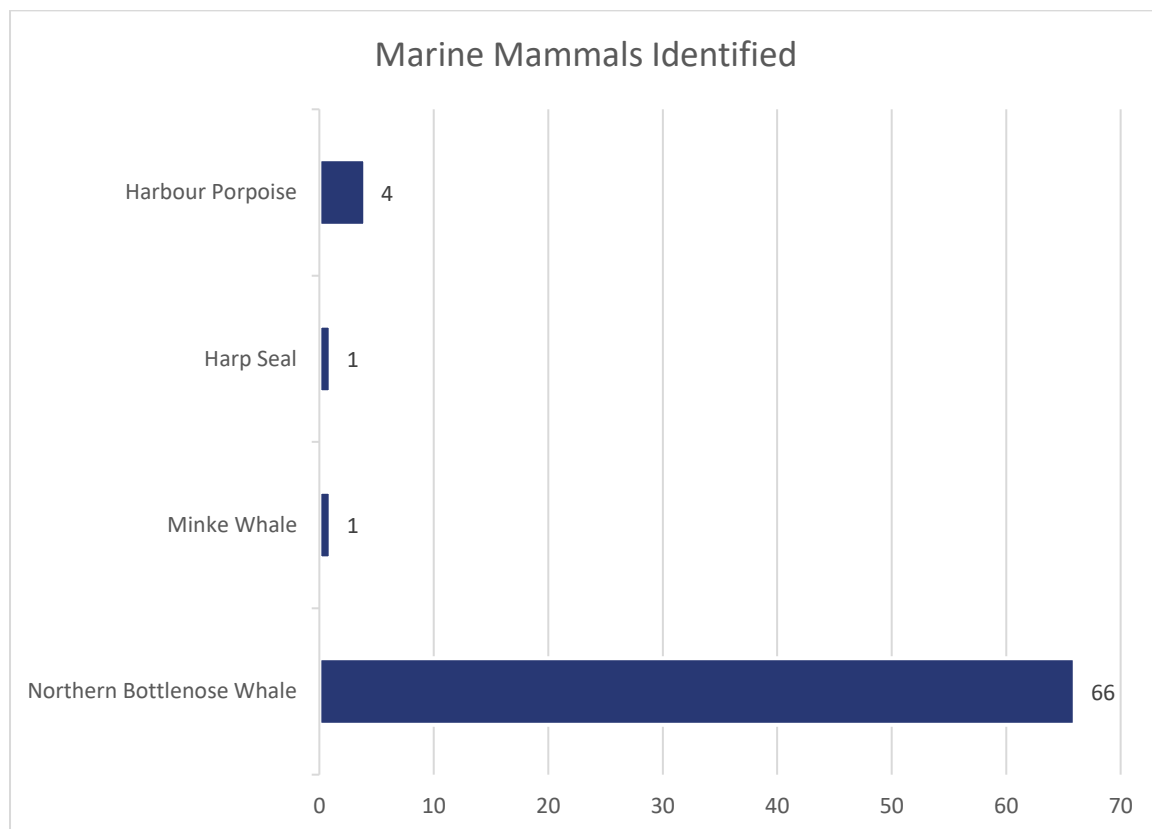
Figure 4-37 outline all marine mammals identified, their activity, and their distance to the facility, from May 07, 2023, to July 01, 2023, in transit and at the Ephesus F-94 wellsite.

**Table 4-9: Marine Mammal Sightings from the Stena IceMax**

Month	Day	Year	Time (UTC)	Species	Number	Activity	Distance (m)
05	12	2023	2011	Northern Bottlenose Whale	3	Travelling northwest	200
05	22	2023	1700	Northern Bottlenose Whale	3	Travelling SW. Observed from Port lifeboats during induction tour.	100
05	25	2023	1335	Minke Whale	1	Travelling NE. Transiting. Observed during seabird release.	800
05	26	2023	1000	Harp Seal	1	Travelling SW. Observed during seabird survey. Approaching the vessel.	100
05	25	2023	1256	Northern Bottlenose Whale	3	Travelling NW. Crossed bow and approached the vessel, then dived.	30
05	26	2023	1640	Northern Bottlenose Whale	2	Travelling SW (possible duplication of earlier sighting)	1000
05	26	2023	1732	Northern Bottlenose Whale	3	Travelling southeast	100
05	26	2023	1801	Harbour Porpoise	4	Travelling north. Variable direction of travel	400
05	28	2023	2130	Northern Bottlenose Whale	1	Travelling NW. Observed transiting parallel to the vessel's starboard side in the same direction as the ship.	150
05	30	2023	1150	Northern Bottlenose Whale	2	Variable directions of travel. Frequent surfacing.	50
05	30	2023	1340	Northern Bottlenose Whale	4	Variable directions of travel. Frequent surfacing. A different group from the previous sighting.	150
05	31	2023	1707	Northern Bottlenose Whale	3	Travelling NW. Visually detected by the marine crew and then verified by the observer.	50
06	01	2023	1141	Northern Bottlenose Whale	4	Travelling northwest.	50
06	01	2023	1400	Northern Bottlenose Whale	3	Travelling SE. Sighted during stationary platform survey.	100
06	02	2023	0941	Northern Bottlenose Whale	3	Travelling southeast.	100
06	03	2023	1339	Northern Bottlenose Whale	1	Variable directions of travel.	150

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Month	Day	Year	Time (UTC)	Species	Number	Activity	Distance (m)
06	04	2023	1158	Northern Whale Bottlenose	6	Variable directions of travel. Tail-slapping near the stern of the vessel.	50
06	04	2023	1400	Northern Whale Bottlenose	4	Travelling south. Heading away from the vessel (possible duplicate from 1158 observation).	250
06	05	2023	1948	Northern Whale Bottlenose	1	Travelling southwest.	1500
06	14	2023	1226	Northern Whale Bottlenose	2	Variable directions of travel. Frequent direction change. Two possible juveniles.	800
06	14	2023	1322	Northern Whale Bottlenose	4	Travelling SE. Pod of four sighted off standby quarter, swimming away.	300
06	14	2023	1640	Northern Whale Bottlenose	1	Travelling west. Observed crossing astern.	100
06	14	2023	1703	Northern Whale Bottlenose	3	Variable directions of travel.	250
06	14	2023	1753	Northern Whale Bottlenose	2	Travelling north.	1500
06	14	2023	1933	Northern Whale Bottlenose	4	Variable directions of travel.	50
06	16	2023	1300	Northern Whale Bottlenose	2	Variable directions of travel. Crossed astern.	10
06	22	2023	1157	Northern Whale Bottlenose	2	Variable directions of travel. Transiting back and forth in front of the ship, just off the bow.	200



**Figure 4-37: Marine Mammals Identified from the Stena IceMax**

As described in the bp Seabird Monitoring Plan CN002-EV-PLN-600-00019, Gjerdrum et al. (2021) have identified that lighting is the leading cause of seabird strandings offshore, with the Leach's Storm-Petrel being the most commonly stranded species in Atlantic Canada. The highest percentage of these strandings occur when fledgling petrels leave the nest in September and October. Data indicates that strandings of storm petrels are more common during dark phases of the moon, and ECCC-CWS now issues an annual forecast for when to expect most Leach's Storm-Petrel strandings during the Fall months. ECCC-CWS releases seasonal strandings awareness predictions identifying expected stranding based on time of year and lunar phases. bp utilized this tool through their seabird program to reinforce awareness of personnel on the mitigations in place to minimize risks to Storm petrels.

#### **4.4. Lighting Control Measures**

Throughout the bp drilling project, the light control measures included the closure of curtains at night (rooms, galley, common areas), helideck lighting reduced, and bridge lighting reduced. Reduction of other lighting was implemented if deemed necessary, such as the deck of supply boats when not in use. Measures were implemented daily for a total of 59 days during the project. The same measures were implemented on all supply vessels. No particular area on any vessel was identified to be prone to strandings requiring an assessment of lighting reduction opportunities in the area.

## **5. Mitigations and Effects Summary**

The seabird follow-up program was implemented as described in the bp Seabird Monitoring Plan CN002-EV-PLN-600-00019. The mitigations identified in the Plan were applied, and based on the observations and data collected, no modifications to existing or new mitigation measures were deemed necessary.

### **5.1. Lighting Control Measures**

As described in the bp Seabird Monitoring Plan CN002-EV-PLN-600-00019, Gjerdrum et al. (2021) have identified that lighting is the leading cause of seabird strandings offshore, with the Leach's Storm-Petrel being the most commonly stranded species in Atlantic Canada. The highest percentage of these strandings occur when fledgling petrels leave the nest in September and October. Data indicates that strandings of storm petrels are more common during dark phases of the moon, and ECCC-CWS now issues an annual forecast for when to expect most Leach's Storm-Petrel strandings during the Fall months. ECCC-CWS releases seasonal strandings awareness predictions identifying expected stranding based on time of year and lunar phases. bp utilized this tool through their seabird program to reinforce awareness of personnel on the mitigations in place to minimize risks to Storm petrels

Throughout the drilling program, lighting control measures included the closure of curtains at night (rooms, galley, common areas), helideck lighting was reduced as well as bridge lighting. The main cargo operations deck on all supply vessels was also reduced when not in use. No particular area on any vessel was identified to be prone to strandings requiring an assessment of lighting reduction opportunities in the area.

The effectiveness of lighting control measures in reducing seabird attraction and strandings cannot be ascertained but can reasonably be assumed to have been effective to some unknown degree

### **5.2. Systematic Searches**

Systematic stranded seabird searches were conducted daily on the Stena IceMax and all supply vessels. Leach's Storm-Petrel was the most commonly occurring seabird stranded throughout the project, with the Northern Fulmar being the most observed.

During drilling no seabirds were sighted or stranded to the extent that the EIS prediction of no significant adverse effects could be stated to be invalid. Stranded seabirds which appeared healthy were held to rest and released on site. Stranded dead Leach's Storm-Petrels were sent to shore and delivered to the ECCC-CWS for further study.

Systematic searches resulted in the identification and release of healthy storm petrels. As described above in Section 4.2.9, this mitigation can be said to have been effective in that mortality of stranded Leach's Storm-Petrels was reduced by 40%.

### **5.3. Helicopters and Vessel Separation Distance**

EIS conditions 4.27 and 4.28 established minimum separation distances between the Cape St. Francis and Witless Bay Islands Important Bird and Biodiversity Areas and the drilling program vessels and helicopters. These requirements were effectively communicated to the vessel and



the helicopter contractor prior to commencement of operations. During the drilling program, no vessels occurred within 300m of these areas and no helicopters flew within 300 meters vertically and 1000 metres laterally hence logistics related disturbances were minimized.

#### **5.4. ECSAS Observation Data**

As reflected in this report, Competent ECSAS observers were position on the Stena IceMAX for the duration of the drilling program to monitor daily for the presence of marine birds. All data was entered into Excel a workbook and into the ECCC-CWS provided MS Access database. The data will serve to increase general knowledge of seabirds in the area and improve future impact assessments.

## **6. EIS Decision Statement Condition Compliance**

This section is intended to provide a brief overview of the steps taken by bp to ensure compliance with requirements for a seabird monitoring follow-up program as described in the February 2020 Decision Statement issued for the drilling program environmental assessment.

The Decision Statement conditions are listed in Table 1-1. Conditions 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.6, were addressed via submission of the bp Seabird Monitoring Plan CN002-EV-PLN-600-00019 which the C-NLOPB accepted on March 29, 2023. Conditions 4.2.1 to 4.2.5 are not presented in Table 1-1 because flaring did not occur and the conditions were not applicable to the drilling program. The information provided in this report demonstrates that bp has addressed Decision Statement conditions 2.7.1, 2.7.2, 2.7.3, 2.7.4, 4.1, 4.2.6, 4.2.7, 4.2.8, 4.3.1, and 4.3.2.

## **7. Supplementary Digital Data**

The following data has also been provided for this report:

- ECSAS Wildlife Survey Access Database (Stena IceMAX 2023): Database outlining all data recorded (May 06, 2023 – July 01, 2023);
- Daily Seabird Observation Report: Forms identifying the number of seabirds recorded daily on the Ephesus F-94 wellsite;
- Weekly Seabird Observation Report: Forms identifying the number of seabirds recorded for the week during the Ephesus F-94 project;
- Recording Effort Forms: Forms identifying observers' weekly effort for seabird watches;
- Stranded Bird Search and Encounter Datasheets (Environment and Climate Change Canada): Datasheets identifying numbers for seabird searches performed and the seabirds identified on these searches;
- Stranded Bird Data Entry Forms (Environment and Climate Change Canada): Forms identifying numbers for seabird searches performed and the seabirds identified on these searches.

## **8. References**

bp. (2022). bp Seabird Monitoring Plan CN-EV-PLN-00019

Environment and Climate Change Canada's (ECCC-CWS) Procedures for Handling and Documenting Stranded Birds Encountered on Infrastructure Offshore Atlantic Canada. (2016).

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

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IAAC (2020). Impact Assessment Agency of Canada. Decision Statement: Issued under Section 54 of the Canadian Environmental Assessment Act, 2012 to BP Canada Energy Group ULC for the bp Orphan Basin Exploration Drilling Program.