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Environmental Impact Assessment Report
Volume 3, Appendix 12.1: Offshore and Intertidal
Ornithology Baseline Report

MarramWind Offshore Wind Farm

December 2025

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Appendix A	Scientific Names and Taxonomy
Appendix B	Abundance and Behaviour Information for All Birds (Excluding Apportionment and Correction for Availability Bias)
Appendix C	Abundance and Behaviour Information for All Birds (Including Apportionment and Correction for Availability Bias)
Appendix D	Flight Directions and Rose Diagrams

1. Introduction

1.1 Overview

1.1.1.1 This Appendix outlines the offshore and intertidal ornithological receptors that are found within the offshore and intertidal study area of MarramWind Offshore Wind Farm (hereafter, referred to as ‘the Project’) and the wider region. The outcomes of these findings aid in the understanding of the bird species that characterise the baseline environment and are relevant to the assessments that may be required for potential impacts as a result of the Project, to inform **Volume 1, Chapter 12: Offshore and Intertidal Ornithology**. This Appendix should be read in conjunction with **Chapter 4: Project Description**.

1.1.1.2 **Figure 1** illustrates the offshore and intertidal ornithology study area comprising of the Project’s OAA, offshore export cable corridor, potential landfall sites and the associated 2km and 4km buffers.

1.1.2 Offshore ornithology

1.1.2.1 For offshore ornithology, the receptor species are primarily those that are referred to as ‘seabirds’ but can also include species that have seasonal associations with the offshore waters such as divers and migratory species. The baseline characterisation is based on data collected from high-resolution still images collected during site-specific digital aerial surveys (DAS) as well as any existing literature.

1.1.2.2 The main content of the offshore ornithology sections of this baseline Appendix surrounds information on seabirds derived from the 24 consecutive months of DAS, undertaken between April 2021 and March 2023 (inclusive). The data obtained from DAS were used to determine the following:

- bird abundance and density estimates (per month and per season) (see individual species accounts within **Section 4**);
- bird behaviours (numbers of flying and sitting on the water) (see individual species accounts within **Section 4**);
- age classification of the key receptor species (see individual species accounts within **Section 4**); and
- the spatial distribution of the key receptor species (see individual species accounts within **Section 4**).

1.1.3 Intertidal ornithology

1.1.3.1 For intertidal ornithology, the receptor species are primarily waterfowl, divers, seabirds and waders. The baseline characterisation is primarily based on vantage point (VP) surveys of the landfall site.

1.1.3.2 The main content of the intertidal ornithology sections of this baseline Appendix surrounds information on receptor species derived from the 12 consecutive months of VP surveys, undertaken between September 2022 and August 2023 (inclusive). The data obtained from VP surveys were used to determine the following:

- bird abundance and density estimates (per month) (**Section 5**); and
- the spatial distribution of the receptor species (**Section 5**).

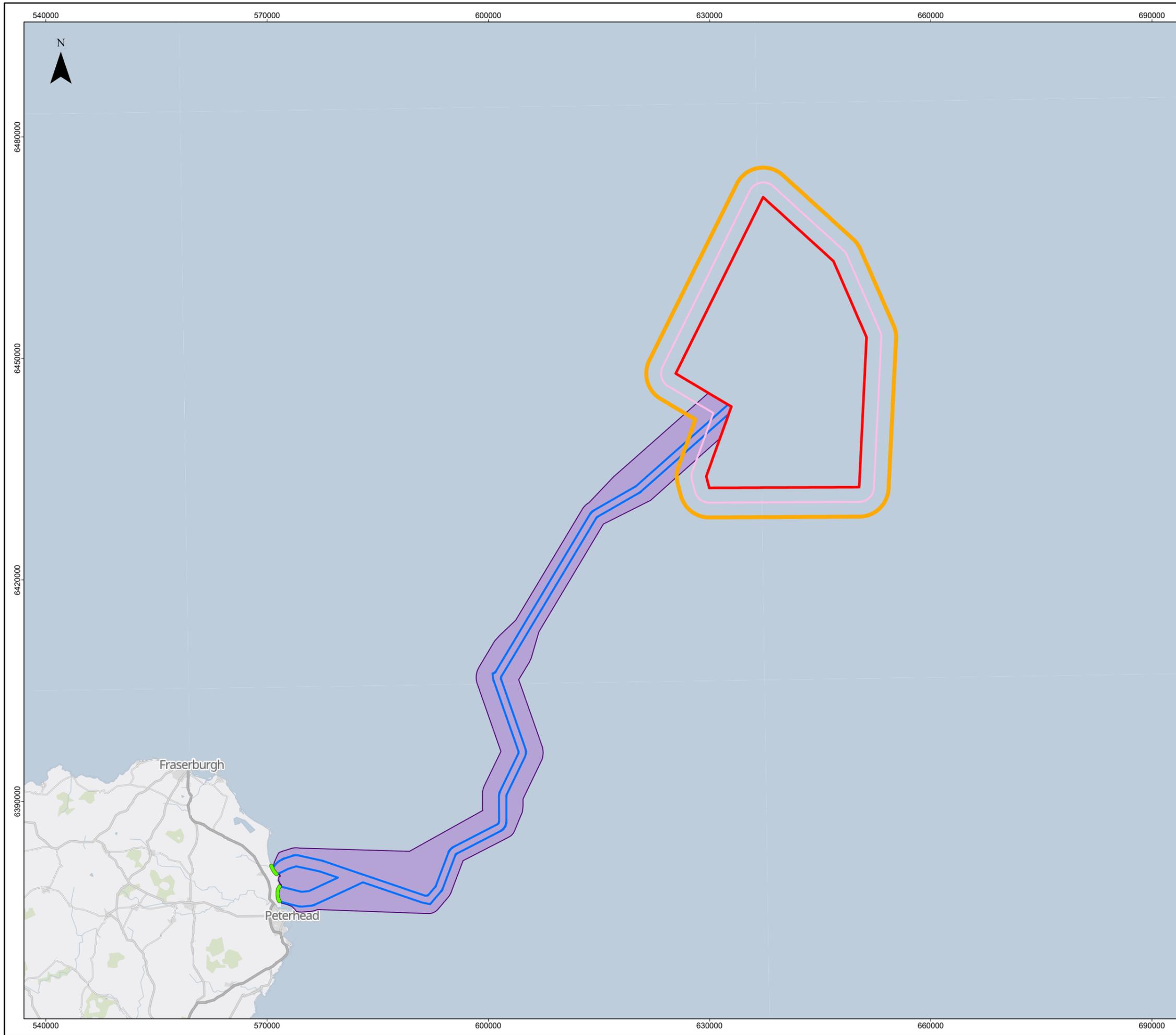
- 1.1.3.3 Supplementary literature and desk-based studies that are relevant to the ornithology study areas have also been collated to inform the baseline characterisation.

1.2 Offshore and intertidal ornithology study area

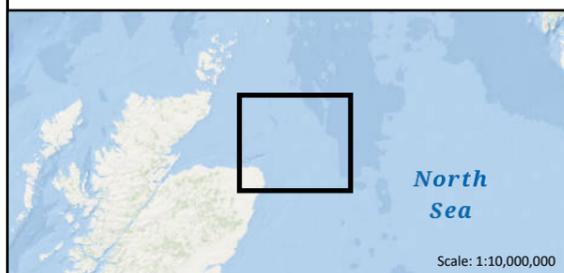
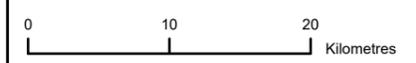
- 1.2.1.1 The offshore ornithology study area comprises the proposed OAA, a surrounding 4km buffer, the area of sea within the export cable corridor and landfall site boundary, and the nearshore environment seaward of Mean High-water Springs (MHWS).
- 1.2.1.2 The intertidal study area covers the initial study area for the two landfall options (Scotstown Beach and Lunderton Bay) along the coastline, with areas extending between 1,380.3 metres (m) and 2,183.3m in length respectively, with 500m survey buffers (inclusive of habitat seaward from MHWS) (**Figure 2**).

1.3 Nomenclature

- 1.3.1.1 Species names that are used throughout this Appendix are those that are in common use among British ornithologists, corresponding to the 'British (English) vernacular name 2022' column of the list of vernacular and scientific names prepared by the British Ornithologists' Union (BOU, 2022). The bird species within this Appendix, and the corresponding scientific names from the BOU (2022) publication are provided in **Appendix A**.



- Option Agreement Area
- Option Agreement Area 2km buffer
- Option Agreement Area 4km buffer
- Export cable corridor
- Export cable corridor and landfall site boundary
- Potential landfall sites



3	19/11/2025	BB	GB	MB	LG
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1	18/08/2025	BB	GB	MB	LG
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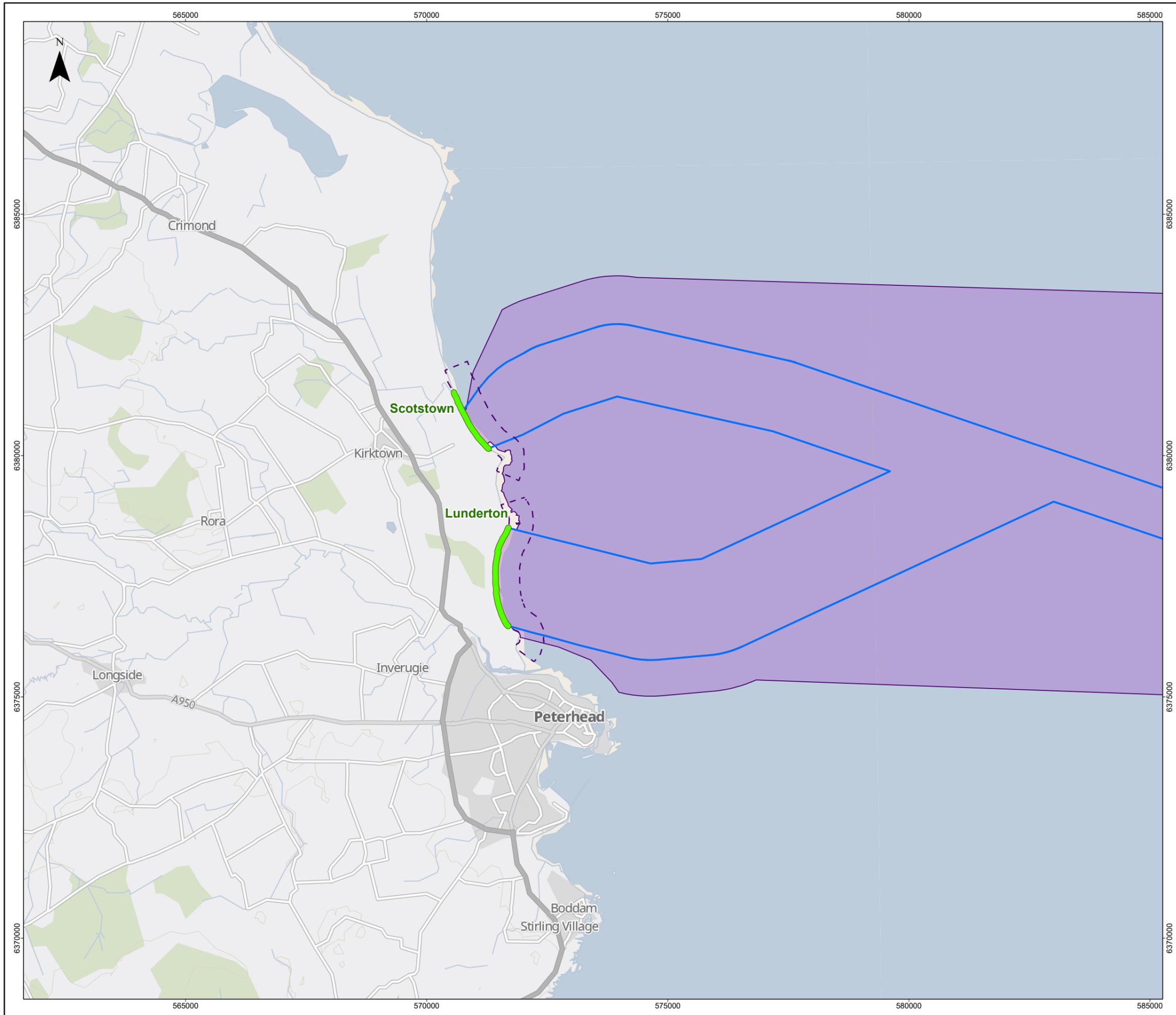
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Figure 1 Offshore and intertidal ornithology study area
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Appendix 12.1

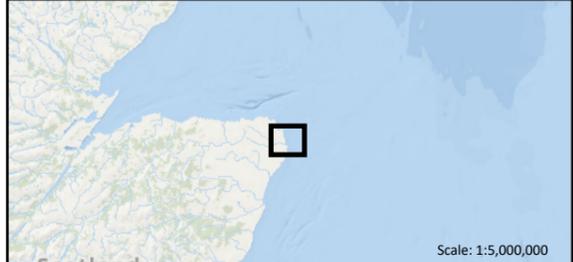
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-  Export cable corridor
-  Export cable corridor and landfall site boundary
-  Potential landfall sites
-  Potential landfall sites 500m buffer



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 Figure 2 The Project's potential landfall sites
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2. Methods

2.1 Offshore ornithology

2.1.1.1 This Section describes the approach that was taken in order to characterise the baseline of the receptor species within the offshore environment (habitat seaward of MHWS).

2.1.2 Key data sources

2.1.2.1 An initial desk-based review of relevant literature and other data sources was conducted for the MarramWind Scoping Report (MarramWind Limited, 2023). The data sources that were identified in the Scoping Report are listed in **Table 2.1**, providing coverage of the offshore study area. Post-Scoping, further literature sources have also been identified as applicable for characterising the Project baseline and subsequent potential effects of the developments, these are also included within **Table 2.1**.

Table 2.1 Key sources of offshore ornithology data and guidance

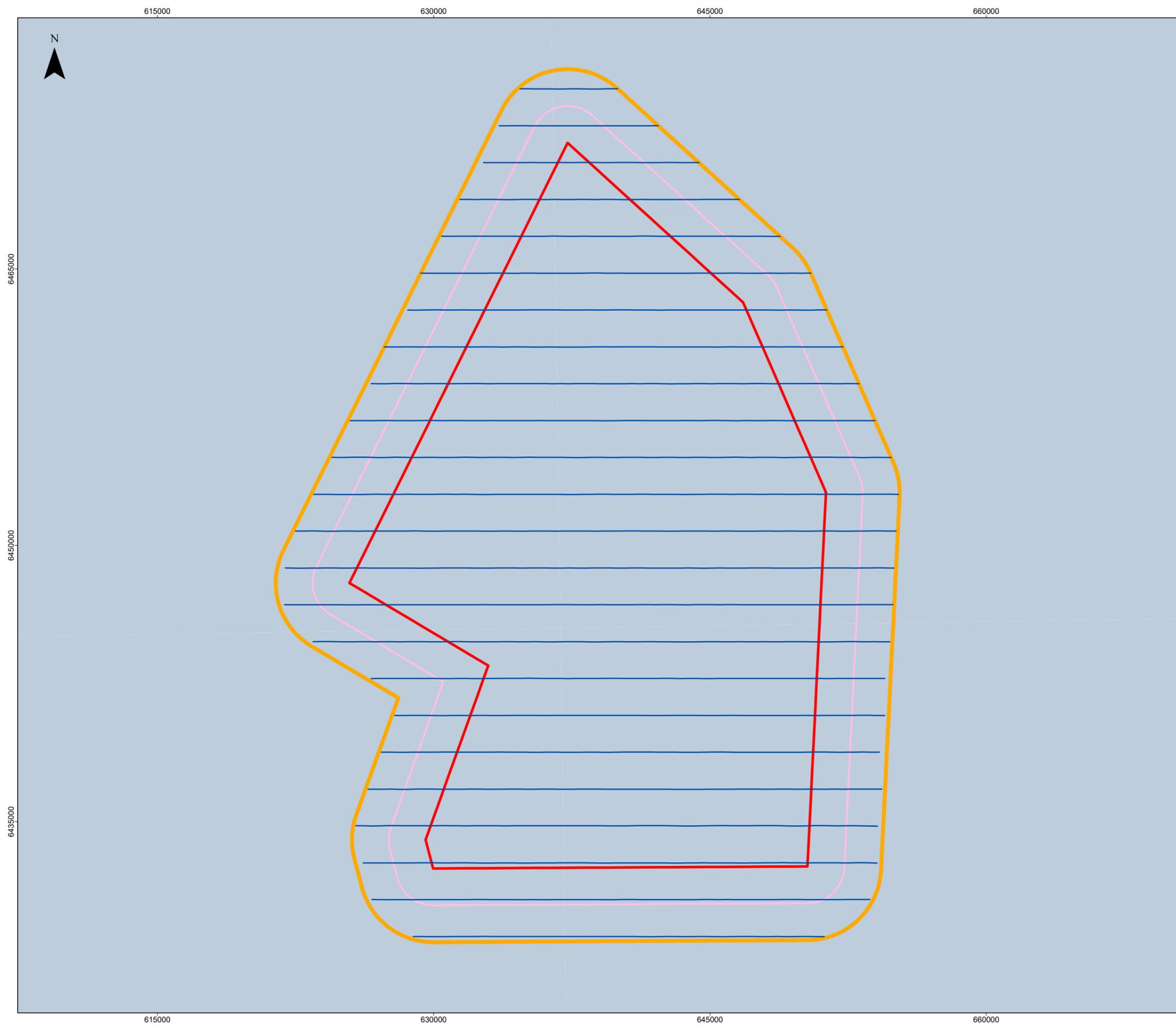
Source	Summary
Wade <i>et al.</i> , 2016; Furness <i>et al.</i> , 2013; Furness and Wade, 2012; Langston, 2010; Stienen <i>et al.</i> , 2007; Drewitt and Langston, 2006; Garthe and Hüppop, 2004	Guidance and research – sensitivity of birds to offshore wind farms (OWF).
Buckingham <i>et al.</i> , 2022; NatureScot, 2023b; SNCBs, 2017, updated 2022; Dierschke <i>et al.</i> , 2016; Masden <i>et al.</i> , 2012, 2010; Speakman <i>et al.</i> , 2009	Guidance, research and methodology – OWF displacement / barrier effects on birds.
SNCBs, 2024; Woodward <i>et al.</i> , 2023; NatureScot, 2025; Bowgen and Cook, 2018; McGregor <i>et al.</i> , 2018; Skov <i>et al.</i> , 2018; Cook <i>et al.</i> , 2014; Johnston <i>et al.</i> , 2014a and b; Band, 2012; Wright <i>et al.</i> , 2012; Cook <i>et al.</i> , 2012	Guidance, research and methodology – collision risk modelling, flight heights and avoidance rates for birds and OWFs, including the Band deterministic model, the stochastic model and the migratory species model.
NatureScot, 2023c	Population viability analysis modelling tool for seabirds.
Cleasby <i>et al.</i> , 2020, 2018; Waggitt <i>et al.</i> , 2019; Woodward <i>et al.</i> , 2019; Wakefield <i>et al.</i> , 2017, 2013; Kober <i>et al.</i> , 2010; Stone <i>et al.</i> , 1995, specific tracking studies for north east Scotland seabird breeding colonies e.g. Waggitt <i>et al.</i> , 2020	Seabird foraging ranges and distribution at sea.
NatureScot, 2023a; NatureScot, 2020; Furness, 2015; Mitchell <i>et al.</i> , 2004; JNCC seabird monitoring programme database; designated site citations / departmental briefs / conservation advice from the websites of SNCBs	Bird population estimates.
Relevant documents from marine licence applications for other OWFs in UK offshore waters (in particular Scottish and English East Coast Waters), and Transboundary OWFs	Information and data for cumulative and in-combination Habitats Regulations Appraisal (HRA).

Source	Summary
<p>Relevant ecological studies for species included in EIA (peer reviewed scientific papers and ‘grey’ literature), including postconstruction monitoring studies (e.g. Moray Firth Regional Advisory Group https://marine.gov.scot/ml/moray-firthregional-advisory-group-mfrag), Kincardine OWF bird collision study (KOWL, 2019), ORJIP collision avoidance study (Skov <i>et al.</i>, 2018)</p>	<p>Other empirical evidence and studies relevant to assessment.</p>

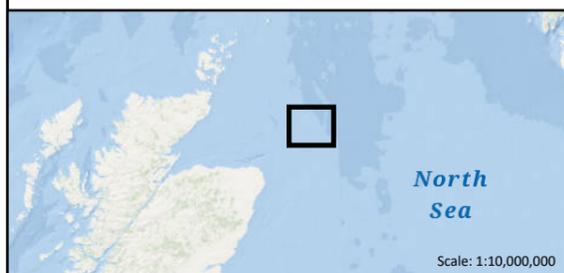
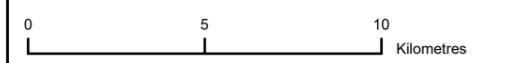
2.1.3 Contemporary digital aerial surveys

The Project’s digital aerial surveys

- 2.1.3.1 The most recent and relevant ornithological data for the offshore study area (OAA plus 4km buffer) were collected and analysed by APEM through a programme of 24 monthly DAS undertaken between April 2021 and March 2023, inclusive. Surveys were carried out using high-resolution camera systems to capture digital still imagery in order to assess the abundance, density, behaviour and distribution of birds within the offshore study area. The survey method was designed using a transect-based survey design at 1.5cm Ground Sampling Distance (GSD) to achieve a minimum of 12.17% coverage of the OAA and buffer. The survey dates, start and finish times and percentage coverage are provided in **Table 2.2**.
- 2.1.3.2 The poor weather conditions off the north-east coast of Scotland, particularly during the winter months interrupted the scheduled, consecutive monthly DAS programme. Due to forecasted weather, on five occasions (Survey 8, 9, 10, 12 and 19) the monthly DAS had to be flown in different months than those forecast, with some flown earlier in the previous scheduled month or the following month. Three surveys (Survey 2, 8 and 9) were collected over multiple days due to unsuitable weather conditions partway through the survey. Prolonged periods of sustained poor weather meant no DAS was flown in November 2021, February, June and December 2022 and January 2023. Despite the poor weather conditions, a DAS was conducted in each of the different 12 calendar months across the entire 24-month survey period, and 24 DAS were flown within 24 successive months (two DAS flown in July and November 2022, and March 2023, three DAS flown in February 2023). The approach to DAS and solution to missed survey months was discussed and agreed with NatureScot. The DAS data is considered appropriate and fit for purpose for characterising the offshore ornithology baseline and subsequent potential effects from the project.
- 2.1.3.3 The transect lines flown during the DAS are presented in **Figure 3**. A total of 24 transect lines were flown in an east / west orientation.
- 2.1.3.4 Site-specific surveys were not required to characterise the offshore export cable corridor. This is due to the offshore export cable corridor not intersecting areas of known significant concentrations of sensitive seabirds, such as common scoter or red-throated diver, or important birds areas such as Special Protection Areas (SPAs), specific baseline data for this area were not collected and are, therefore, not included.



- Option Agreement Area
- Option Agreement Area 2km Buffer
- Option Agreement Area 4km Buffer
- Flight lines



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1	18/07/2025	GB	BB	MB	LG
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PROJECT TITLE MarramWind Offshore Wind Farm

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Table 2.2 Dates, times and coverage of the 24 months of DASs for the Project offshore study area

Survey	Survey Date	Survey Flight Times (UTC)	Coverage (%)	Assigned month and year	Year assigned to each month for bootstrap densities
1	15/04/2021	10:47 to 13:16	12.59	April 2021	1
		15:51 to 17:23			
2	15/05/2021	17:45 to 18:24	12.63	May 2021	1
	16/05/2021	10:10 to 13:09			
3	06/06/2021	13:28 to 17:10	12.50	June 2021	1
4	24/07/2021	13:16 to 16:42	12.92	July 2021	1
5	13/08/2021	14:00 to 17:02	12.28	August 2021	1
6	20/09/2021	12:50 to 16:23	12.97	September 2021	1
7	04/10/2021	09:49 to 12:17	12.36	October 2021	1
8	13/12/2021	12:18 to 14:38	12.33	December 2021	1
	15/12/2021	09:43 to 11:33			
9	15/01/2022	11:40 to 13:37	12.39	January 2022	1
	18/01/2022	12:45 to 14:45			
10	01/03/2022	09:40 to 13:12	12.58	March 2022	1
11	14/04/2022	07:45 to 11:37	12.55	April 2022	2
12	02/05/2022	13:26 to 16:49	12.47	May 2022	2
13	05/07/2022	15:35 to 20:25	12.44	June 2022	2
14	18/07/2022	09:10 to 14:00	12.45	July 2022	2
15	11/08/2022	14:34 to 18:00	12.80	August 2022	2
16	24/09/2022	12:47 to 16:23	12.19	September 2022	2
17	13/10/2022	10:23 to 13:43	12.63	October 2022	2
18	09/11/2022	10:13 to 14:04	12.62	November 2021 and November 2022	1, 2
19	21/11/2022	10:04 to 15:24	12.29	December 2022	2
20	05/02/2023	09:45 to 14:46	12.46	January 2023	2

Survey	Survey Date	Survey Flight Times (UTC)	Coverage (%)	Assigned month and year	Year assigned to each month for bootstrap densities
21	16/02/2023	10:11 to 15:11	12.40	February 2022	1
22	18/02/2023	10:30 to 16:16	12.64	February 2023	2
23	09/03/2023	11:41 to 16:50	12.52	March 2023	2
24	19/03/2023	11:32 to 16:40	12.57	March 2023	2

Data analysis

Image analysis

2.1.3.5 The digital aerial still imagery was analysed to identify, locate and record all birds in the image. Internal quality assurance (QA) was carried out on the data that was collected for each survey. The images were assessed in batches with a different member of staff responsible for each. All images containing birds were reviewed and checked by APEM's dedicated QA team, ensuring that 100% of birds that were found in the imagery were subject to internal QA to ensure that the species identification was correct. Any images that did not contain birds were removed and kept separately for further internal QA. Of these 'blank' images, 10% were randomly selected for internal QA. If there was less than 90% agreement, the entire batch was reanalysed independently by a staff member other than the one who initially analysed the imagery.

Design-based bird abundance and density estimates

2.1.3.6 For each monthly DAS, geo-referenced locations of all birds were recorded within each individual digital still image. Bird locations contained within the study area were then extracted to generate raw count data.

2.1.3.7 The raw counts were then divided by the number of images collected to give the mean number of animals per replicate (i). Population estimates (N) for each survey month were then generated by multiplying the mean number of animals per replicate by the total number of images required to cover the entire survey area (A):

$$N = iA$$

2.1.3.8 Non-parametric bootstrap methods were used for variance estimation. A variability statistic was generated by re-sampling 1,000 times with replacement from the raw count data. The statistic was evaluated from each of these 1,000 bootstrap samples, and upper and lower 95% confidence intervals of these 1,000 values were taken as the variability of the statistic over the population (Efron and Tibshirani, 1993).

2.1.3.9 A measure of precision was calculated using a Poisson estimator, suitable for a pseudo-Poisson over-dispersed distribution. This produced a coefficient of variation (CV) based on the relationship of the standard error to the mean.

2.1.3.10 All data analyses and simulations carried out by APEM were conducted in the R programming language (R Development Core Team, 2025) and non-parametric 95% confidence intervals were generated using the R library 'boot' (Canty and Ripley, 2010). This results in species-specific monthly abundance estimates being calculated from the raw

count data, with upper and lower confidence limits. Where appropriate, a level of precision is also presented for each monthly abundance estimate. Dividing the monthly abundance estimates by the area covered provides an estimate of the associated density (birds per km²) for any given species. Outputs for the OAA, OAA plus 2km buffer and OAA plus 4km buffer have been provided for all recorded species in **Appendix B** and **Appendix C**.

- 2.1.3.11 Alongside design-based abundance estimation, in accordance with NatureScot’s Guidance Note 2 (NatureScot, 2023d) model-based abundance estimation has also been completed for the Project using the MRSea statistical package, the details of which are presented within **Appendix 12.5: Offshore Ornithology MRSea Modelling**. Conclusions regarding which dataset is most appropriate to inform subsequent ornithological assessments is captured within **Appendix 12.5**.

Species identification

- 2.1.3.12 All birds recorded within the DAS were first assigned to a species group, and where possible, to species level. If birds could not be positively identified to species level, they remained assigned to the broader species group level. For example, a bird first assigned to the species group ‘auk species’ if not identified as a guillemot/puffin/razorbill/little auk, would remain as an ‘auk species’ if no species level identification was determined. The species which make up each unidentified grouping relevant to the Project are summarised within **Table 2.3**.

Table 2.3 Grouping levels for birds with no species level identification

Species	Species grouping level 1	Species grouping level 2	Species grouping level 3	Species grouping level 4
Kittiwake	Small gull species	Gull species	Fulmar / gull species	Bird species
Common gull				
Great black-backed gull				
Herring gull				
Lesser black-backed gull				
Fulmar	N/A	N/A		
Arctic tern	‘Commic tern’	N/A	N/A	
Great skua	Skua species	N/A	N/A	
Arctic skua				
Guillemot	Guillemot / razorbill	Auk species	Auk / shearwater species	
Razorbill				
Puffin	N/A			
Little auk				

Species	Species grouping level 1	Species grouping level 2	Species grouping level 3	Species grouping level 4
Manx shearwater	Shearwater species	N/A		
European storm-petrel	Storm petrel species	N/A	N/A	
Red-throated diver	Diver species	N/A	N/A	
Whimbrel	Curlew / whimbrel species	Wader species	N/A	
Woodcock	N/A		N/A	
Ruff				

- 2.1.3.13 The majority of birds recorded within the DAS were identified to species level, however, a number remained identified to species group level only. In order to account for these individuals, the abundance estimates have been updated, where appropriate, to include the attribution of unidentified individuals into the monthly abundance and density estimates. This is completed through apportionment of group level individuals to the species that are part of that particular species group, proportional to the abundance of each species within that group. The apportionment process is conducted separately for the different behaviours, where possible, to allow for the possibility that patterns of occurrence differ depending on behaviour.
- 2.1.3.14 During this apportionment process, non-parametric bootstrap samples generated as part of abundance estimate calculations are apportioned individually. This allows for variation between bootstrap samples in the number of individuals identified to group level as well as in the species proportions to be considered and ensures that uncertainty in species-level abundances as well as group-level abundances is fully accounted for within the final apportioned abundance estimates. The final apportioned abundance estimate is then obtained as the mean of the apportioned (and corrected where availability bias applies) bootstrap samples. The upper and lower 95% confidence intervals are also calculated from these bootstrap samples. The CV is similarly calculated from the bootstrap samples and is based on the relationship of the standard deviation to the mean. It is important to note that while this approach is the most suitable method for accounting for uncertainty in the apportioned abundance estimates, the reliance on the randomly sampled bootstraps can result in slight discrepancies between the pre- and post-apportioning abundance estimates (e.g., it is possible for pre-apportioning estimates to be slightly lower than post-apportioning estimates). Where this is the case, preference has been given to the apportioned abundances as they account for all possible sources of uncertainty. The apportioning process is carried out within the R environment (R Development Core Team, 2025).
- 2.1.3.15 For each bootstrap, the number of unidentified individuals in a group was allocated in proportion to the relative numbers of the specific species contained within that group based on those records with positive species identification. Note that some high-level groups, such as 'unidentified bird species', do not undergo apportionment due to the breadth of taxa they encompass. To apportion individuals identified at group level down to species level for assessment purposes, a hierarchical approach was used whereby a higher hierarchy level was only utilised where no data were available for any of the lower levels. Note that level 1 of the hierarchy is the standard apportioning level considering each bootstrap separately,

while subsequent hierarchy levels define species proportions using the mean abundance estimates. The following hierarchy levels were applied, in order of preference:

- 1) Use the proportion of individuals identified to species level within the species group for the same month, year, area and behaviour.
- 2) Use the proportion of individuals identified to species level within the species group for the same month, year, and behaviour, but from the wider survey area (if available).
- 3) Use the proportion of individuals identified to species level within the species group for the same year, area, and behaviour, but from all surveys in the season.
- 4) Use the proportion of individuals identified to species level within the species group for the same year and behaviour, but from the wider survey area (if available) and all surveys in the season.
- 5) Use the proportion of individuals identified to species level within the species group for the same year, but from the wider buffer (if available), and all surveys in the season.
- 6) Use the proportion of individuals identified to species level within the species group for the same year, but for a different behaviour, from the wider survey area (if available), and all surveys in the season. Note that this level is for use in sitting / diving birds only.
- 7) Use the proportion of individuals identified to species level within the species group for the same area and behaviour, but from a different year (if available) and all surveys in the season.
- 8) Use the proportion of individuals identified to species level within the species group for the same behaviour, but from a different year (if available), the wider survey area (if available), and all surveys in the season.
- 9) Use the proportion of individuals identified to species level within the species group for a different year (if available), from the wider buffer (if available), and all surveys in the season.
- 10) Use the proportion of individuals identified to species level within the species group for a different year (if available), for a different behaviour, from the wider survey area (if available), and all surveys in the season. Note that this level is for use in sitting / diving birds only.

2.1.3.16 Some high-level groups do not undergo apportionment due to the breadth of taxa they encompass. This includes individuals assigned to 'unidentified bird species', 'passerine species', etc. Instances can also occur when there are no positively identified species at any hierarchy level, in which case the group-level individuals are unable to be apportioned.

2.1.3.17 It is important to highlight that birds that are apportioned from a species group to species level, only use species recorded within the surveys. This method is taken to get the most accurate ratio of the species recorded during survey effort. Although other species may fit in the general species group (i.e. little gull would fit into 'small gull species'), if they were not recorded within the surveys they have not been considered in the apportionment process. Where information from across a season are required in the above hierarchy, seasonal definitions were taken from NatureScot (2020).

2.1.3.18 Abundance and density estimates in **Section 4** are inclusive of apportionment of unidentified individuals. Additional tables in **Appendix B** provide abundance estimates for each species and species group prior to apportionment, as well as predicted abundance corresponding to individual behavioural categories recorded (i.e. flying and sitting).

Correction for availability bias

- 2.1.3.19 For auk species such as guillemot, razorbill and puffin that make foraging dives underwater, a proportion of individuals will not be detectable at the surface during the analysis of the survey images due to being underwater. Density and abundance estimates therefore need to be adjusted to allow for this 'availability bias'. Although diver species and Manx shearwater display similar foraging activity, there is no robust data on availability bias for these species that are currently recommended for use by SNCBs which could be applied, with the exception of red-throated diver, whereby availability bias data provided in Dunn *et al.* (2024) was used.
- 2.1.3.20 Following an expert topic group (ETG) meeting held on 23 June 2025, it was agreed that Dunn *et al.* (2024) availability bias correction factors could be used for abundance estimate calculations where available. The correction factors provided in Dunn *et al.* (2024) focus on the non-breeding season of July to March which they define as starting after the mean population fledging dates. For the three auk species, the non-breeding season is defined as Mid-August to March (NatureScot, 2020), which differs slightly to those identified in Dunn *et al.* (2024). For months outside of the Dunn *et al.* (2024) non-breeding season (April to June), Thaxter *et al.* (2010) fixed availability bias values were used for guillemot (1.311) and razorbill (1.211), with Spencer (2010) values being applied for puffin (1.165). Red-throated diver were only recorded in May 2022 and so no availability bias correction factors were applied due to no appropriate correction factor being available.
- 2.1.3.21 The availability bias correction values provided in Dunn *et al.* (2024) are expressed as the probability of being available at the surface or in flight. These are presented in **Table 2.4**.
- 2.1.3.22 When applying the Thaxter *et al.* (2010) and Spencer (2012) availability bias correction factors, these are multiplied with the abundance estimates of the relevant species in order to provide a corrected abundance value. In order for the Dunn *et al.* (2024) values to be applied in the manner as the Thaxter *et al.* (2010) and Spencer (2012) factors, the values provided in the paper were converted to analogous corrections factors from the provided proportional values. This was conducted by dividing 1 by the Dunn *et al.* (2024) value. The final correction factors used in for the abundance estimates are outlined in **Table 2.5**.

Table 2.4 Dunn *et al.* (2024) auk availability bias correction values expressed as the probability of being available at the surface or in flight (Pr)

Species	Marine Area	Probability of being available at surface or in flight (Pr)								
		July	August	September	October	November	December	January	February	March
Guillemot	North Sea	0.8629	0.8753	0.8672	0.8202	0.764	0.7121	0.7129	0.6926	0.6663
Razorbill	North Sea	0.9177	0.9265	0.8909	0.8801	0.8501	0.8769	0.8146	/	/
Puffin	North Sea	/	0.8856	0.8361	0.8	0.7812	/	/	/	/

Table note: Cells with / represent months where no data is available within Dunn *et al.* (2024)

Table 2.5 Correction factors for availability bias (1 divided by the Pr value in Table 2.4 for Dunn *et al.* (2024)) for use in abundance estimate calculations

Species	Marine Area	Monthly correction factor applied											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Guillemot	North Sea	1.403	1.444	1.501	1.311 [#]	1.311 [#]	1.311 [#]	1.159	1.143	1.153	1.219	1.309	1.404
Razorbill	North Sea	1.228	1.228 ^{**}	1.228 ^{**}	1.211 [#]	1.211 [#]	1.211 [#]	1.090	1.079	1.123	1.136	1.176	1.140
Puffin	North Sea	1.280 [~]	1.280 [~]	1.280 [~]	1.165 [*]	1.165 [*]	1.165 [*]	1.165 [*]	1.129	1.196	1.250	1.280	1.280 [~]

Table note: ^{*}Uses Spencer (2012) value as value is not provided in Dunn *et al.* (2024). ^{**}Last available value provided by Dunn *et al.* (2024) for razorbill (using January value). [~] Last available value provided by Dunn *et al.* (2024) for puffin (using November value). Colour coding of bio-seasons as per NatureScot (2020) is as follows: yellow = breeding and blue = non-breeding. [#]Uses Thaxter *et al.* (2010) value as value is not provided in Dunn *et al.* (2024).

- 2.1.3.23 The correction values provided in Dunn *et al.* (2024) are provided for July to March for guillemot only. Razorbill is not assigned any values in February and March with puffin only assigned values for August to November. Due to these missing non-breeding season values for razorbill and puffin, values were assigned based on available evidence. Using the full dataset of guillemot as an example, the probability of birds being at the sea surface, and so captured in DAS, decreases when moving further into winter. Reasons for this are likely due to increased energy requirements due to declines in sea surface temperature requiring increased foraging efforts (Dunn *et al.*, 2020). Razorbill are exposed to this same trend in sea surface temperatures and likely increased energy requirements. Therefore, it has been assumed that the probability of razorbill being at the surface will be at its lowest in late winter. Therefore, the January availability bias value provided in Dunn *et al.* (2024) for razorbill has also been assigned to February and March to reflect the heightened energy requirements. This is considered more appropriate than using the Thaxter *et al.* (2010) value as the value is lower and so would not align with the higher energy requirements in late winter as sea surface temperatures will not have risen significantly from January through to March.
- 2.1.3.24 The missing values for puffin were also assigned in a similar manner to those missing values for razorbill, using the Dunn *et al.* (2024) values in the remaining non-breeding season months rather than those provided in Spencer (2012). This again reflects the ecological trends and energy requirements during such months.
- 2.1.3.25 To gain the final and corrected abundance and density estimates for all three auk species, values were multiplied by the correction factor for the relevant months presented in **Table 2.5**. For example, a guillemot abundance estimate in November 2022 would be multiplied by 1.308901 in order to obtain the corrected and final abundance estimate. When applying the Dunn *et al.* (2024) correction factors, all behaviours (sitting and flying) were corrected, whereas only sitting birds had the correction factor applied when using Thaxter *et al.* (2010) and Spencer (2012) values. This is because Dunn *et al.* (2024) correction factors are based on the proportions of time that birds spend engaged in their key behaviours being equivalent to the proportion of individual birds counted engaging in these behaviours during surveys. Therefore, the correction factor should be applied to the total count of birds (on the surface and flying) recorded during aerial surveys as stipulated by the authors of the paper.
- 2.1.3.26 As discussed in the previous sub-section, apportionment of unidentified birds has also been conducted during the calculation of abundance estimates. It must be noted that the availability bias correction factors were applied to the apportioned values.
- 2.1.3.27 Abundance and density estimates in **Section 4** are the corrected monthly abundance and density estimates, having been subjected to this process. Additional tables in **Appendix B** provide abundance and density estimates of each species and species group prior to correction for availability bias.

Consideration of biological seasons

- 2.1.3.28 The behaviour and abundance of bird species varies across a calendar year depending on the biological season (referred to by NatureScot more simply as seasons (NatureScot, 2020)). Within this Appendix, abundance and distribution within the study area are considered separately for each season in order to establish how usage of the study area changes seasonally. The proposed species-specific seasons are presented below in **Table 2.6**, which have been collated based on seasonal definitions from the NatureScot (2020) guidance note. The seasons are as follows:
- breeding season: when birds are strongly associated with the nest site; and
 - non-breeding season: the non-breeding (or winter) period.

Table 2.6 Species specific seasons used as the basis for the detailed species accounts in Section 4, based on NatureScot (2020) guidance note.

Species	Breeding	Non-breeding
Kittiwake	Mid-April to August.	September to mid-April.
Great black-backed gull	April to August.	September to March.
Herring gull	April to August.	September to March.
Guillemot	April to mid-August.	Mid-August to March.
Razorbill	April to mid-August.	Mid-August to March.
Puffin	April to mid-August.	Mid-August to March.
Fulmar	April to mid-September.	Mid-September to March.
Gannet	Mid-March to September.	October to mid-March.

2.1.3.29 It is important to note that these are generic seasonal definitions, therefore context is provided within **Section 4** on the appropriateness of such seasons to characterise the Project baseline.

2.1.4 Spatial distribution

2.1.4.1 Heatmaps have been created for the offshore survey area in order to present the spatial distribution of seabirds recorded within the DAS. These heatmaps are presented in the individual species accounts within **Section 4**. Heatmaps are split into the different species-specific seasons, pooling observations from all months included within these. This allows for the better understanding of the spatial and temporal distributions when defining the ornithology baseline for the offshore environment.

2.1.4.2 In order to create the heatmaps, shapefiles of the raw point observations were loaded into QGIS with the heatmap plugin installed. Using the heatmap plugin, a kernel density radius of 4km was used, as this was determined to provide the most appropriate smoothing between each data point, leaving no gaps in the model outputs. The output master pixel size was set to 10 m, with all other default settings within the heatmap plugin being accepted. For each species, a GeoTIFF heatmap file was created for the entire survey area. The entire survey area includes all areas in which the plane was flown, which includes areas outside of the OAA plus 4km buffer as the plane had to turn at the end of each transect line, which occurred outside of the buffer zone. The heatmaps were then clipped to the extent of the OAA plus 4km buffer, the colour ramp was set and the gradient was changed from continuous to discrete. As there was a marked difference in peak density between seasons for most species, the intervals for each heatmap were adjusted to improve the presentation of the data. These heatmaps were then imported into ArcGIS, in order to generate the figures.

2.1.4.3 For species or seasons that had limited records, point data rather than heatmaps, are presented in order to provide clarity on the distribution of the species in the survey area.

2.1.5 Flight direction

2.1.5.1 Information around the flight directions of individuals was recorded within the DAS and is subsequently presented as rose diagrams in **Appendix D**. Directional bearings of individuals recorded within the DAS were plotted using the R statistical package to provide a summary of the overall direction of movement. The mean angle and mean vector were used to describe directional preferences and extent of 'agreement'. A Rayleigh test that assumes a null hypothesis of uniformity (i.e., scattered orientation in all directions) was applied where a significant test indicates directionality of movement. The blue triangles show the frequency of birds captured flying with the same vector (heading). The red circle represents the critical value of the Rayleigh test of uniformity. The red arrow placement represents the mean vector, and the length of the arrow denotes how the vectors are clustered around the mean vector (longer arrows indicate the data are clustered more closely around the mean). Directionality of movement is significant if the red arrow extends beyond the circle. For each rose diagram, the 'number of observations' only accounts for birds with a recorded heading direction; birds with no heading recorded are omitted from these counts and so may not match up with the behaviour counts presented in **Section 4** or Appendices. For any species with less than three individuals recorded as flying, rose diagrams are not presented due to the sample size being too low to draw significant results. In addition, any species for which the results are not significant (p -value >0.05), rose diagrams are not presented. The frequency of flight directions is summarised for each monthly DAS.

2.1.6 Age ratios

2.1.6.1 Information around age classes was provided through the DAS data for the bird species recorded. These are presented in **Section 4** within the individual species accounts. Age classification was carried out based on plumage characteristics (Svensson *et al.*, 2023; Harrison *et al.*, 2021; Howell and Zufelt, 2019), for the species for which it is possible to assign age classes identified from DAS imagery. Age classes of the different species and further justification of plumage identifiers are provided in **Section 4**.

2.1.7 Seasonality

2.1.7.1 For the different seasons considered for each species, a mean peak abundance has been calculated. The calculations of the mean peak abundances follow the Joint SNCBs Interim Displacement Note guidance (Updated) (SNCBs, 2017, updated 2022). Across the 24 months of surveys each season will occur twice, which allows for the calculation of a mean peak. In order to derive the mean peak abundances for each season, the peak count in each separate season is established, including birds on the water and in flight (SNCBs, Updated 2022). The peak counts for the same seasons (Year 1 and Year 2) are then averaged to provide a mean peak abundance. The component months which make up Year 1 and Year 2 are provided in **Table 2.7**. An example of mean peak abundance calculations for guillemot in the breeding season is as follows using the example data in **Table 2.7**:

$$\text{Breeding Season Mean Peak Abundance} = (\text{Peak breeding season monthly count for year 1} + \text{Peak breeding season monthly count for year 2}) / 2$$

$$\text{Breeding season Mean Peak Abundance} = (15,898 + 9,225) / 2 = 12,562$$

$$\text{Mean Peak Density} = \text{Mean Peak Abundance} / \text{OAA or relevant area (km}^2\text{)}$$

$$\text{Breeding season mean peak density} = 12,562 / 683.99 = 18.37 \text{ birds/km}^2$$

Table 2.7 Example of mean peak abundance calculation for guillemot

Survey	Abundance	Peak abundance	Mean peak abundance
April 2021	15,898	15,898	12,562
May 2021	336		
June 2021	333		
July 2021	4,047		
August 2021	4,454		
April 2022	928	9,225	
May 2022	120		
June number 1 2022	1,664		
June number 2 2022	3,892		
August 2022	9,225		

2.1.7.2 For each species and the specific seasons, mean peak abundance has been calculated. In order to obtain the annual total, the mean peak abundance values for each season are summed.

2.1.8 Consideration of avian flu within the baseline environment

2.1.8.1 In 2021 an outbreak of the H5N1 strain of Highly Pathogenic Avian Influenza (HPAI) occurred in European waters and continued on into subsequent years (Tremlett *et al.*, 2024). The virus spread through various species and to numerous colonies around the UK coast via contact with contaminated feathers, faeces, surface and environments (RSPB, 2023). The virus was first reported in captive birds within the UK, with early records from wild bird species affecting great skua and barnacle goose (DEFRA, 2022a; RSPB, 2023). Since the outbreak there have been shifts in the species being infected with the virus, with gannet, guillemot, razorbill, puffin and kittiwake becoming infected through the summer of 2022 (DEFRA, 2022b). The number of mortalities due to the HPAI outbreak demonstrated a conservation threat to numerous seabird colonies (Tremlett *et al.*, 2024).

2.1.8.2 The collection of DAS data for the Project coincided with the outbreak of HPAI and so a review of colony trends of key seabird colonies with connectivity to the OAA is required to further understand the potential impact the virus has had and what this might mean for the baseline data that was collected.

2.1.8.3 A HPAI review for kittiwake, guillemot, razorbill, puffin and gannet can be found in the respective species accounts in **Section 4**.

2.2 Intertidal ornithology

2.2.1.1 This section describes the approach that was taken in order to characterise the baseline of the receptor species within the intertidal environment (habitat between Mean High Water Springs (MHWS) and Mean Low Water Springs (MLWS)).

2.2.2 Key data sources

2.2.2.1 An initial desk-based review of relevant literature and other data sources was conducted for the MarramWind Scoping Report (MarramWind Limited, 2023). The data sources that were identified in the Scoping Report are listed in **Table 2.8**, providing coverage of the intertidal study area.

Table 2.8 Key sources of intertidal ornithology data and guidance

Source	Summary	Coverage of intertidal study area
Bird records from the North East Scotland Biodiversity Record Centre (NESBReC) and the North East Scotland Scottish Ornithologists' Club (SOC) Bird Recorder, BTO Wetland Bird Survey (WeBS) Data	Intertidal and nearshore bird records to inform on abundance and distribution of species within the intertidal study area.	Full coverage of study area.
The BTO Bird Atlas (Balmer <i>et al.</i>, 2013), Birds of Scotland (Forrester <i>et al.</i>, 2007), the Aberdeenshire County Bird Report (Scottish Ornithologists Club, multiple years), The Breeding Birds of North-East Scotland (Francis <i>et al.</i>, 2011), and any other relevant publications identified	Intertidal and nearshore bird records, ecology and site use to inform on abundance and distribution of species within the intertidal zone of influence.	Full coverage of study area.

2.2.3 Site-specific surveys of the Project landfall sites

Vantage point surveys of landfall sites

2.2.3.1 The most up-to-date and relevant data for the intertidal study area (landfall sites and offshore export cable corridor) were collected and analysed through a programme of 12 monthly VP surveys. Initially seven landfall sites were being considered for the Project and so VP surveys were conducted for these from September 2022 to March 2023. After March 2023, following refinement to the OAA red line boundary three potential landfall sites were short-listed and surveyed further from March 2023 through to August 2023, inclusive, allowing a full 12 months of survey for these three sites. Surveys were undertaken at each of the landfall sites, with surveyors recording bird activity from either one or two viewpoints which covered the landfall site and a 500 metre (m) seaward buffer (the survey area). Target species were recorded hourly, both in flight and using intertidal habitats within the survey area using an adapted 'Through the Tide Cycle Count' methodology (Burton *et al.*, 2004; Lewis and Tierney, 2016). The proposed survey method was discussed and agreed with NatureScot as evidenced within Table 12.1 in **Volume 1, Chapter 12: Offshore and Intertidal Ornithology**. The landfall sites still being considered are:

- Scotstown Beach; and
- Lunderton Bay.

2.2.3.2 The target species included all 'waterbirds' as defined by the BTO Wetland Bird Surveys with the addition of seabirds. Additional species included were:

- any species listed on Annex I of the Birds Directive (European Commission, 2015);

- any species listed on Schedule 1 of the Wildlife and Countryside Act (1981);
- Amber and Red listed Birds of Conservation Concern (Stanbury *et al.*, 2021); and
- Site of Special Scientific Interest (SSSI), SPA and Ramsar qualifying features and assemblages with potential connectivity to the landfall sites.

Potential landfall sites habitat types

- 2.2.3.3 Scotstown Beach consists of a section of sandy beach with a marram grass dune system behind. Further inland are areas of farmland including improved grassland with cattle. At the north end of the beach a small outflow runs through the dunes and into the sea. The headland to the south has a section of rock reef exposed at low tide.
- 2.2.3.4 Lunderton Bay is made up of a sandy beach backed by marram grass dune system at the northern end and a golf course with interspersed scrubby patches at the southern end. Behind the sand dunes at the north there is farmland/improved grassland. Inland of dunes at approximately the middle of the beach is a section of conifer plantation.

Data analysis

- 2.2.3.5 Target species were separated into three species groups to aid in the presentation of the results: 'wildfowl and grebes', 'waders', and 'other target species'.
- 2.2.3.6 All data collected during surveys were digitised using a Geographic Information System (GIS). All records of more than ten birds were plotted as point data on the results figures within the Intertidal Survey Report (APEM, 2024). Results tables were compiled for each survey area showing the number of records of each species recorded during surveys (the number of registrations, either of an individual or flock of birds), along with the peak abundance count for each month. Peaks were calculated by taking the maximum number of birds of a species recorded in a single hourly count and was undertaken for each monthly survey visit and at each landfall site. Species recorded in 'important' numbers (>1% of an SPA, Ramsar or SSSI population that may have connectivity with the proposed landfall sites and associated buffers, or >1% of the UK or international population) were identified and, where applicable, other target species recorded in high ('notable') numbers (but <1% of a population) were also highlighted.

Survey limitations

- 2.2.3.7 Due to logistical constraints, the April survey was not able to be completed within the intended month. To compensate, two visits were undertaken in May, named herein as 'early May' and 'late May'. The early May visit was completed within the first two weeks of the month (all three landfall site visits undertaken by 12 May 2023), while the late May visit was completed over 14 days later (landfall zone visits 29, 30, and 31 May 2023).
- 2.2.3.8 Some gulls and terns recorded during the surveys were unable to be identified to species level due to the distance from the surveyors and physical similarities between species. These records have been recorded either as unidentified gulls or 'commic terns', whereby differentiation between common and Arctic terns was not possible.

3. Results

3.1 Species recorded

- 3.1.1.1 During the 24 aerial surveys undertaken across the OAA plus 4km buffer between April 2021 and March 2023, a total of 20,494 individual birds were recorded, of which 10.8% could not be assigned to species level (**Table 3.2**). Therefore, 89.2% (18,287 individuals) of the bird assemblage within OAA plus 4km buffer was accounted for by a total of 20 species (including non-seabird species: ruff, woodcock and whimbrel). Of the 18,274 seabirds identified to species level, results comprise a total of 17 seabird species, with guillemot, fulmar, gannet, kittiwake and razorbill as the most frequently encountered species (**Table 3.1**). These five species accounted for 95.3% of all birds recorded; guillemot (53.4%), fulmar (28.5%), gannet (6.5%), kittiwake (4.1%), and razorbill (2.8%).
- 3.1.1.2 A number of the species recorded within the offshore study area were in numbers too low as to warrant a detailed species account (these species are italicised in **Table 3.3**). This is based on expert opinion, as any predicted impacts on these species are expected to be negligible based on their limited recorded connectivity with the Project. Instead of detailed species accounts, data for these species are presented in the form of raw counts, abundance estimates, density estimates and any recorded behaviour within **Appendix C**, with a brief overview in **Section 4.10**. The species that form the detailed species accounts are emboldened within **Table 3.3**.

Table 3.1 Total counts of birds recorded during aerial surveys of the OAA plus 4km buffer for all surveys, species occurrence during entire survey period, maximum density, maximum population estimate (individuals), 95% confidence limits and coefficient of variation (CV)

Species	Number of raw counts	Occurrence over 24 surveys	Maximum density estimate (birds/km ²)	Maximum predicted abundance estimate in a single month (OAA plus 4km buffer)	95% CL	CV	Month of maximum density
Guillemot	9,768	24	20.73	24,448	22,158 to 26,964	0.052	April 2021
Fulmar*	5,215	24	3.19	3,765	1,328 to 7,353	0.417	September 2022
Gannet*	1,180	24	0.69	813	620 to 1,024	0.129	April 2021
Kittiwake	749	24	1.54	1,818	1,261 to 2,473	0.169	July 2022
Razorbill	515	21	1.99	2,343	1,917 to 2,781	0.091	November 2022
Puffin	462	16	0.90	1,064	826 to 1,321	0.121	May 2022
Great black-backed gull	227	16	0.59	691	131 to 1,669	0.621	February 2023
Herring gull	92	11	0.27	315	107 to 598	0.404	November 2022
Great skua*	25	4	0.05	54	15 to 93	0.370	July 2021
Arctic tern	16	4	0.11	124	54 to 201	0.302	July 2021
Storm petrel	12	2	0.25	298	116 to 573	0.399	July 2021
Ruff	10	1	0.07	80	10 to 241	<1	July 2022
Common gull	3	1	0.02	23	3 to 54	0.582	July 2021
Little auk	3	1	0.02	25	3 to 58	0.566	November 2022

Species	Number of raw counts	Occurrence over 24 surveys	Maximum density estimate (birds/km ²)	Maximum predicted abundance estimate in a single month (OAA plus 4km buffer)	95% CL	CV	Month of maximum density
Manx shearwater	3	2	0.01	17	2 to 64	<1	July 2022
Arctic skua	2	2	0.01	8	1 to 23	0.98	April 2022, August 2022
Lesser black-backed gull	2	2	0.01	8	1 to 32	<1	April 2021, November 2022
Woodcock	2	1	0.01	16	2 to 40	0.68	November 2022
Red-throated diver	1	1	0.01	8	1 to 24	<1	May 2022
Whimbrel	1	1	0.01	8	1 to 32	<1	May 2022

Table Note: *Peak abundance estimates in August 2021 are excluded for these species as the presence of a fishing vessel within the OAA is likely to have inflated their numbers.

Table 3.2 Counts of birds not identified to species level within the OAA plus 4km buffer

Unidentified species	Number of records
Unidentified auk species	152
Unidentified guillemot/razorbill	1,944
Unidentified small gull species	2
Unidentified large gull species	8
Unidentified black-backed gull species	3
Unidentified auk/shearwater species	4
Unidentified fulmar/ gull species	7
Unidentified common/Arctic tern	8
Unidentified skua species	2
Unidentified small shearwater species	1
Unidentified wader species	5
Unidentified bird species	22

Table 3.3 Bird species recorded in site-specific DAS of the Project offshore study area

Receptor group	Divers and pelagics	Gulls	Terns	Auks	Other
Species	<i>Great skua</i> <i>Arctic skua</i> <i>Red-throated diver</i> <i>European storm petrel</i> Fulmar <i>Manx shearwater</i> Gannet	<i>Common gull</i> Great black-backed gull Herring gull <i>Lesser black-backed gull</i>	<i>Arctic tern</i>	<i>Little auk</i> Guillemot Razorbill Puffin	<i>Whimbrel</i> <i>Ruff</i> <i>Woodcock</i>

Table Note: Species accounts are provided for the species in bold font. Species in italic font were recorded in numbers that would likely incur a negligible effect and so detailed species accounts are not provided.

4. Offshore Ornithology Species Accounts

4.1.1.1 Species accounts for birds recorded within the OAA and corresponding buffers are presented below, including apportioned and corrected (where applicable) abundance and density estimates. For those species considered at risk of disturbance and displacement, abundance and density estimates are presented within relevant species-specific buffers which follow those advised within the Joint SNCB Interim Displacement Advice Notes (UK SNCBs, 2017, updated 2022). For species of importance which are not sensitive to disturbance and displacement, abundance and density estimates are presented for the OAA only (**Table 4.1**). Kernel density distribution maps by season are also presented for each species of importance. Information on abundance and density for recorded species within different buffers is presented in **Appendix B**.

Table 4.1 Areas of consideration for recorded species

Species	Area considered
Kittiwake	OAA and OAA plus 2km buffer.
Great black-backed gull	OAA
Herring gull	OAA
Guillemot	OAA plus 2km buffer.
Razorbill	OAA plus 2km buffer.
Puffin	OAA plus 2km buffer.
Fulmar	OAA plus 2km buffer.
Gannet	OAA and OAA plus 2km buffer.

4.2 Kittiwake

4.2.1 The Project survey data (aerial survey data 2021 to 2023)

4.2.1.1 Out of the 24 DAS, kittiwake were recorded in 22 surveys within the OAA and all 24 surveys within the OAA plus 2km buffer (**Appendix C**). For the OAA, kittiwake peak abundance occurred in April 2021 (abundance estimate of 1,137 individuals) and July 2022 (abundance estimate of 1,230 individuals) in the first and second year of DAS, respectively (**Table 4.2**). For the OAA plus 2km buffer, kittiwake peak abundance occurred in April 2021 (abundance estimate of 1,351 individuals) and July 2022 (abundance estimate of 1,479 individuals) in the first and second year of DAS, respectively (**Table 4.3**). Within the OAA the average kittiwake density was 0.23 individuals/ km² with densities ranging between zero and 1.80 individuals per km². Within the OAA plus 2km buffer the average density was 0.22 individuals per km², ranging between 0.01 and 1.61 individuals per km².

Table 4.2 Kittiwake raw counts, total estimated abundance and total estimated density (individuals per km²) within the OAA

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
April 2021	146	1,137	1.66	47	370	0.54	99	767	1.12
May 2021	34	266	0.39	27	212	0.31	7	54	0.08
June 2021	3	25	0.04	1	8	0.01	2	17	0.02
July 2021	2	14	0.02	0	0	0.00	2	14	0.02
August 2021	24	193	0.28	22	177	0.26	2	16	0.02
September 2021	1	8	0.01	1	8	0.01	0	0	0.00

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
October 2021	6	48	0.07	6	48	0.07	0	0	0.00
December 2021	0	0	0.00	0	0	0.00	0	0	0.00
January 2022	8	62	0.09	5	39	0.06	3	23	0.03
March 2022	11	87	0.13	7	56	0.08	4	31	0.05
April 2022	1	8	0.01	0	0	0.00	1	8	0.01
May 2022	12	95	0.14	10	79	0.12	2	16	0.02
July number 1 2022	1	8	0.01	0	0	0.00	1	8	0.01

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
July number 2 2022	156	1,230	1.80	35	278	0.41	121	952	1.39
August 2022	11	86	0.13	8	63	0.09	3	22	0.03
September 2022	0	0	0.00	0	0	0.00	0	0	0.00
October 2022	8	64	0.09	5	40	0.06	3	24	0.04
November number 1 2022	7	55	0.08	7	55	0.08	0	0	0.00
November number 2 2022	13	105	0.15	12	97	0.14	1	8	0.01
February number 1 2023	3	24	0.04	2	16	0.02	1	8	0.01

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
February number 2 2023	20	161	0.24	17	137	0.20	3	24	0.04
February number 3 2023	4	32	0.05	4	32	0.05	0	0	0.00
March number 1 2023	7	56	0.08	7	56	0.08	0	0	0.00
March number 2 2023	9	70	0.10	8	62	0.09	1	8	0.01

Table note: Seasons are colour coded as follows: yellow = breeding season, blue = non-breeding season

Table 4.3 Kittiwake raw counts, total estimated abundance and total estimated density (individuals per km²) within the OAA plus 2km buffer

Within the OAA plus 2km buffer									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
April 2021	171	1,351	1.47	66	517	0.56	105	833	0.91
May 2021	40	315	0.34	33	260	0.28	7	55	0.06
June 2021	3	24	0.03	1	8	0.01	2	16	0.02
July 2021	2	15	0.02	0	0	0.00	2	15	0.02
August 2021	31	252	0.27	27	220	0.24	4	32	0.03
September 2021	1	8	0.01	1	8	0.01	0	0	0.00

Within the OAA plus 2km buffer									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
October 2021	7	66	0.07	7	66	0.07	0	0	0.00
December 2021	3	24	0.03	2	16	0.02	1	8	0.01
January 2022	12	98	0.11	8	66	0.07	4	32	0.03
March 2022	14	111	0.12	8	64	0.07	6	47	0.05
April 2022	16	124	0.13	3	23	0.03	13	100	0.11
May2022	14	112	0.12	12	96	0.1	2	16	0.02
July number 1 2022	1	8	0.01	0	0	0.00	1	8	0.01

Within the OAA plus 2km buffer									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
July number 2 2022	185	1,479	1.61	47	377	0.41	138	1102	1.2
August 2022	16	124	0.13	11	86	0.09	5	39	0.04
September 2022	1	8	0.01	1	8	0.01	0	0	0.00
October 2022	9	72	0.08	6	48	0.05	3	24	0.03
November number 1 2022	11	87	0.09	11	87	0.09	0	0	0.00
November number 2 2022	19	154	0.17	18	145	0.16	1	9	0.01
February number 1 2023	5	40	0.04	4	32	0.03	1	8	0.01

Within the OAA plus 2km buffer									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
February number 2 2023	22	177	0.19	19	152	0.17	3	25	0.03
February number 3 2023	14	111	0.12	13	103	0.11	1	8	0.01
March number 1 2023	10	81	0.09	10	81	0.09	0	0	0.00
March number 2 2023	11	88	0.10	10	80	0.09	1	8	0.01

Table note: Seasons are colour coded as follows: yellow = breeding season, blue = non-breeding season

4.2.2 Age ratios

- 4.2.2.1 Only juvenile and immature kittiwakes up to their first summer are distinguishable from other age categories due to the distinct 'W' pattern across the wings and black bands on the neck and tail (Svensson *et al.*, 2023). This pattern is lost during the second winter moult, whereby the birds become indistinguishable from adults. As the modal age of first breeding for kittiwakes is four years (Coulson, 2011), applying the assumption that all adult plumage birds are breeding adults, as is the case when using site-specific survey data, is highly likely to overestimate the proportion of adults. Also, the wing pattern of immature kittiwakes is only visible on flying individuals in DAS imagery, therefore most sitting birds cannot be aged.
- 4.2.2.2 Age classes for kittiwakes were determined through identification of individuals from DAS imagery across the entire offshore study area (OAA plus 4km buffer). Following initial identification, the proportions of the different age classes identified could be calculated for each season. The age classes identification categorised individuals into 'adult' (second year or older) plumage, 'juvenile' (first winter / summer) plumage or 'unknown'. For the breeding and non-breeding season considered for kittiwake, the percentage of 'unknown' birds was 56.1% and 17.3%, respectively. Of the kittiwakes with an identified age class, the majority were 'adult' plumage, with 38.4% in the breeding season and 76.0% in the non-breeding season. Kittiwakes identified as 'immature' were 5.6% in the breeding season and 6.6% in the non-breeding season (**Table 4.4**)

Table 4.4 Kittiwake plumage proportions from raw counts

Season	Plumage proportions (%)		
	Adult	Immature	Unknown
Breeding	38.4% (n = 228)	5.6% (n = 33)	56.1% (n = 333)
Non-breeding	76.0% (n = 149)	6.6% (n = 13)	17.3% (n = 34)

4.2.3 Seasonal mean peak abundance estimates

- 4.2.3.1 Within the OAA plus 2km buffer kittiwakes were present in the greatest abundance during the breeding season, with an estimated mean peak abundance of 1,415 individuals and a mean peak density of 1.54 individuals/km² (**Table 4.5**, **Table 4.6** and **Plate 4.1**). In Year 1, kittiwake abundance peaked in the breeding season in early April 2021 before decreasing sharply within the core breeding season months of May and June. The peak in April likely reflects migratory movement of kittiwakes through the study area returning to breeding colonies. Abundance was low through the breeding season with a small increase in August 2021, which likely corresponds with post-breeding dispersal and migration. Abundance then remained low throughout the rest of the survey programme, with the exception of a large peak in July 2022 which may be explained by dispersal or migratory movements from non-breeders or early breeders.

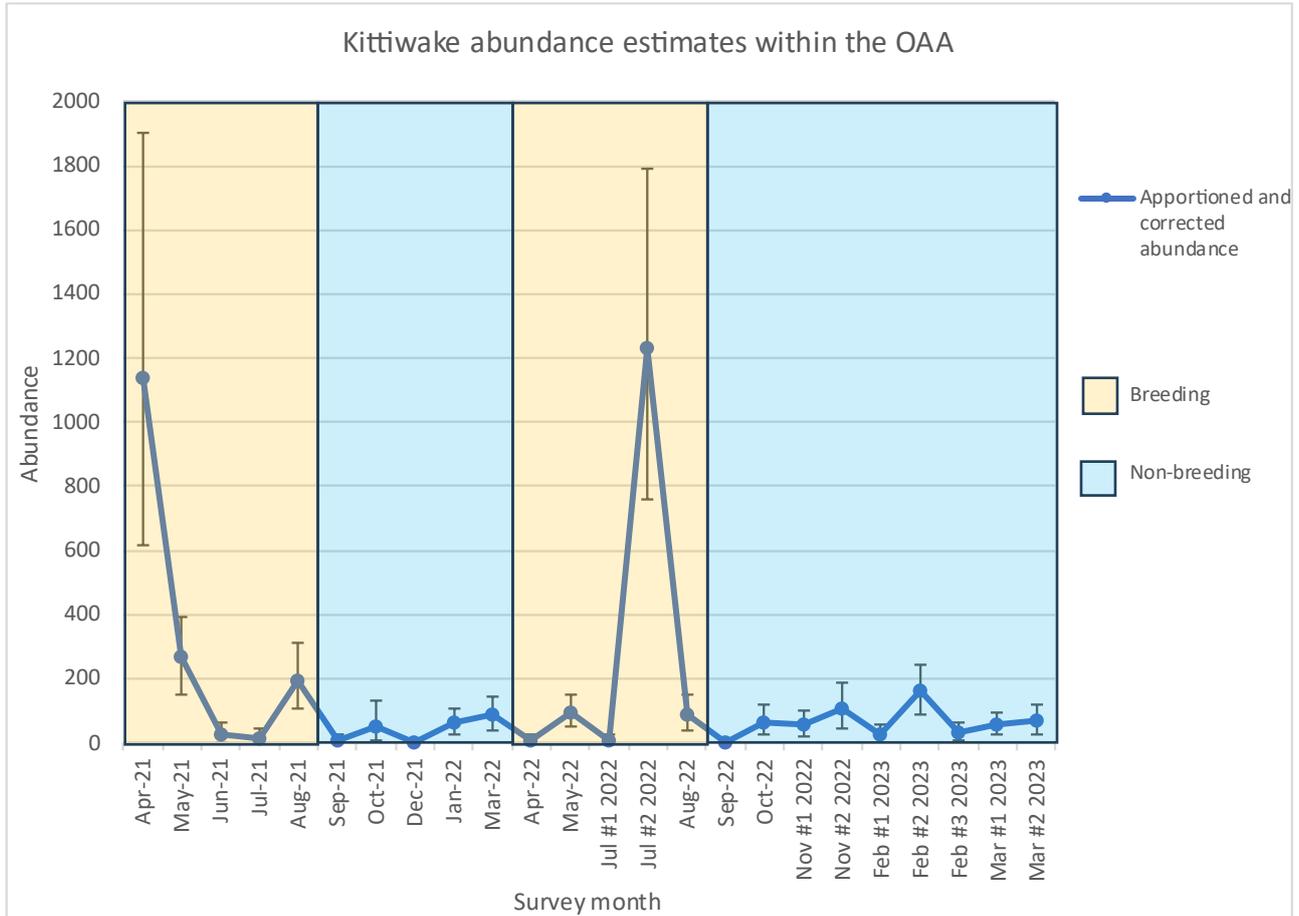
Table 4.5 Kittiwake seasonal mean peak abundance and density (individuals per km²) within the OAA

Within the OAA						
Season	All behaviours		Flying		Sitting	
	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density
Breeding (mid-April – August)	1,184	1.73	324	0.47	860	1.26
Non-breeding (September – mid-April)	124	0.18	97	0.14	28	0.04

Table 4.6 Kittiwake seasonal mean peak abundance and density (individuals per km²) within the OAA plus 2km buffer

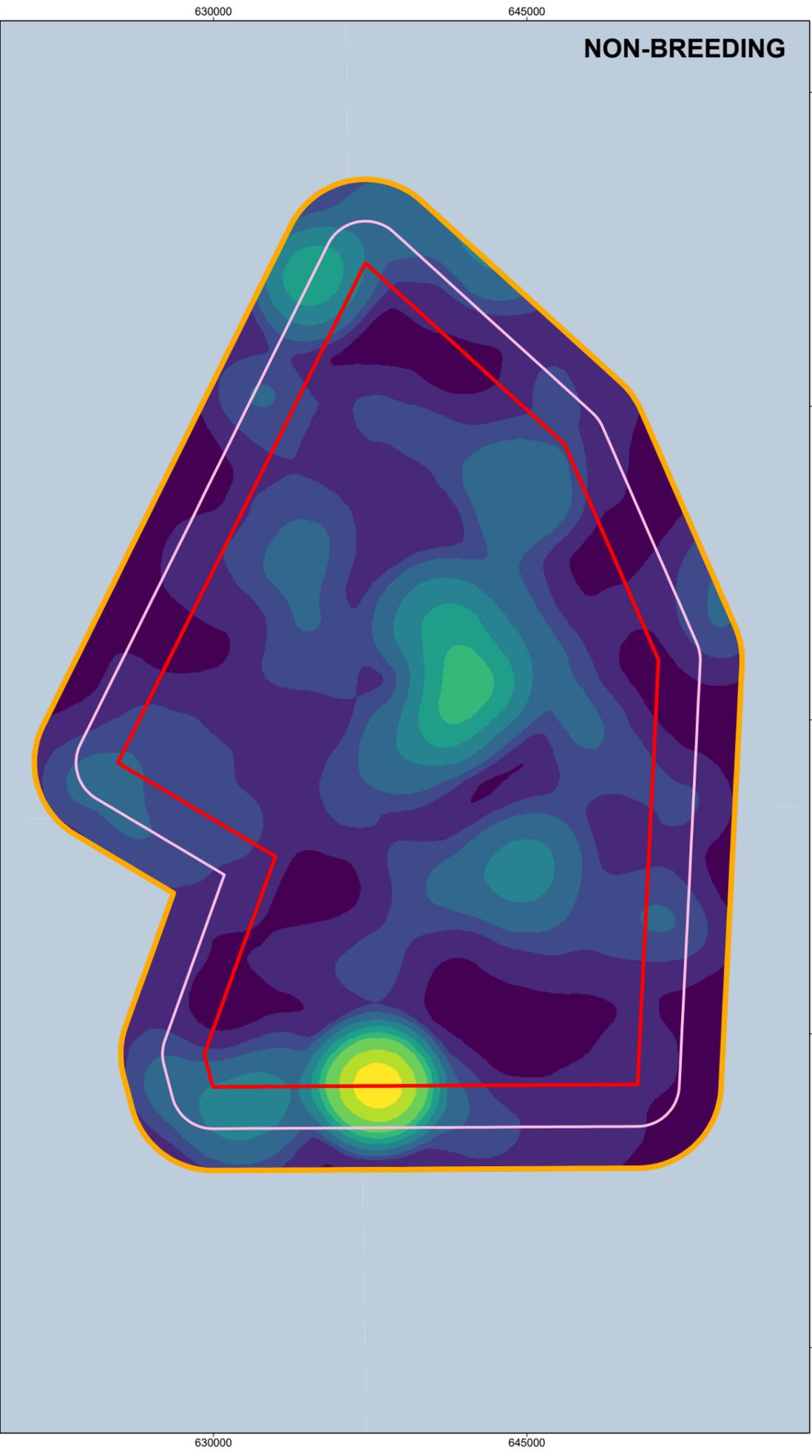
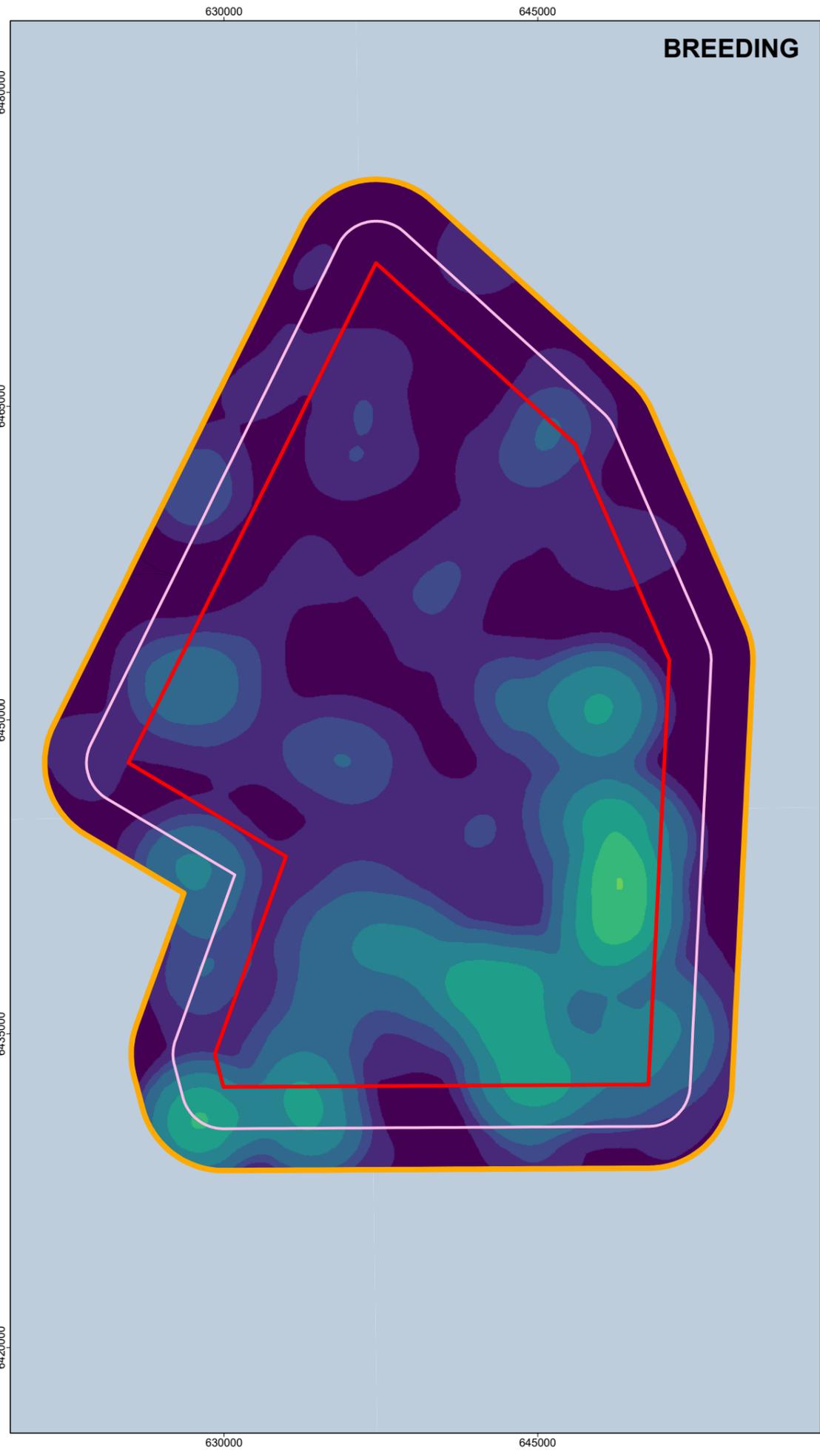
Within the OAA plus 2km buffer						
Season	All behaviours		Flying		Sitting	
	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density
Breeding (mid-April - August)	1,415	1.54	447	0.49	968	1.05
Non-breeding (September – mid-April)	144	0.16	109	0.12	36	0.04

Plate 4.1 Kittiwake abundance estimates for the 24-month survey period within the OAA, by season



4.2.4 Spatial density distribution and flight direction

- 4.2.4.1 During the breeding season, kittiwake density was higher in the south and east of the study area, with the highest density recorded in the east. Although abundance was slightly lower overall in the non-breeding season, there was a clear hotspot with the highest recorded density throughout the survey programme in the south of the study area (**Figure 4**).
- 4.2.4.2 Monthly flight directions were variable, without clear trends in each season. Most flights during October 2021 and October and November 2022 were in a southerly direction, which may indicate migratory flights. However, given the small sample size of observed flights in most months, conclusions that can be drawn are limited.



Option Agreement Area

- Option Agreement Area 2km Buffer
- Option Agreement Area 4km Buffer

Kittiwake relative density

- ≤2
- 2 - 4
- 4 - 6
- 6 - 10
- 10 - 15
- 15 - 20
- 20 - 25
- 25 - 35
- 35 - 45
- 45 - 52

0 5 10 Kilometres

North Sea
Scale: 1:10,000,000

ddmm/yyyy	--	--	--	--
2	29/10/2025	BB	GB	MB LG
1	18/07/2025	GB	BB	MB LG
REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER APPROVER

WSP DRAWING NUMBER 808368-WEIS-IA-ES-FG-O6-32205

MarramWind DRAWING NUMBER MAR-GEN-ENV-MAP-WSP-000242

DATUM	ETRS 89	PROJECTION	UTM Zone 30N
SCALE	1:250,000	PAGE SIZE	A3

PROJECT TITLE
MarramWind Offshore Wind Farm

DRAWING TITLE
Figure 4 Kittiwake kernel density heatmap by season

Environmental Impact Assessment Report
Appendix 12.1

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Service Layer Credits: OS from Zoomstack (2025), Esri, Garmin, FAO, NOAA, USGS, and other contributors

NOT TO BE USED FOR NAVIGATION

4.2.5 Highly pathogenic avian influenza (HPAI) review

- 4.2.5.1 Kittiwakes in the UK were first recorded as contracting HPAI in February 2022 (DEFRA, 2022c) with cases of the virus in this species increasing in number and location over the summer of 2022. A review of pre and post HPAI outbreak colony trends was conducted by Tremlett *et al.* (2024) for various seabird species. Kittiwake Apparently Occupied Nests (AON) were shown to have increased by 8% when comparing pre-HPAI records to counts conducted in 2023 post the outbreak. It must be noted that colony specific trends do differ in terms of colony count change. A further, less significant outbreak of HPAI occurred at seabird colonies in 2023, although the virus was not noted to affect kittiwakes until June, July and August, after colony counts were completed, suggesting impacts may be worse than reported in Tremlett *et al.* (2024). Subsequent years have experienced minor isolated HPAI outbreaks at kittiwake colonies without any significant mortality events recorded (DEFRA, 2024). Details of known colony trends for key designated kittiwake colonies with connectivity screened in for Appropriate Assessment are provided within the **Report to Inform Appropriate Assessment (RIAA)**.

4.3 Great black-backed gull

4.3.1 The Project survey data (aerial survey data 2021 to 2023)

- 4.3.1.1 Out of the 24 DAS, great black-backed gull were recorded in 15 surveys within the OAA (**Appendix C**). Great black-backed gull had a peak abundance in January 2022 (abundance estimate of 245 individuals) and February 2023 (abundance estimate of 57 individuals) in the first and second year of DAS, respectively (**Table 4.7**). Within the OAA the average great black-backed gull density was 0.04 individuals/ km² with densities ranging between 0.00 and 0.36 individuals per km².

Table 4.7 Great black-backed gull raw counts, total estimated abundance and total estimated density (individuals per km²) within the OAA

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
April 2021	4	39	0.06	4	31	0.05	0	8	0.01
May 2021	0	0	0.00	0	0	0.00	0	0	0.00
Jun 2021	0	0	0.00	0	0	0.00	0	0	0.00
July 2021	0	0	0.00	0	0	0.00	0	0	0.00
August 2021	0	0	0.00	0	0	0.00	0	0	0.00

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
September 2021	1	8	0.01	1	8	0.01	0	0	0.00
October 2021	2	16	0.02	1	8	0.01	1	8	0.01
December 2021	3	23	0.03	2	16	0.02	1	8	0.01
January 2022	29	245	0.36	16	127	0.19	13	118	0.17
March 2022	6	47	0.07	3	23	0.03	3	24	0.04
April 2022	1	8	0.01	1	8	0.01	0	0	0.00
May 2022	0	0	0.00	0	0	0.00	0	0	0.00

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
July number 1 2022	0	0	0.00	0	0	0.00	0	0	0.00
July number 2 2022	0	0	0.00	0	0	0.00	0	0	0.00
August 2022	0	0	0.00	0	0	0.00	0	0	0.00
September 2022	1	8	0.01	1	8	0.01	0	0	0.00
October 2022	3	23	0.03	2	16	0.02	1	8	0.01
November number 1 2022	6	47	0.07	2	15	0.02	4	31	0.05
November number 2 2022	6	54	0.08	4	33	0.05	2	20	0.03

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
February number 1 2023	7	57	0.08	3	24	0.04	4	33	0.05
February number 2 2023	5	39	0.06	2	16	0.02	3	24	0.04
February number 3 2023	5	39	0.06	1	8	0.01	4	31	0.05
March number 1 2023	3	24	0.04	2	16	0.02	1	8	0.01
March number 2 2023	0	0	0.00	0	0	0.00	0	0	0.00

Table note: Seasons are colour coded as follows: yellow = breeding season, blue = non-breeding season

4.3.2 Age ratios

4.3.2.1 Age classes for great black-backed gulls were determined through identification of individuals from DAS imagery across the entire offshore study area (OAA plus 4km buffer). Following initial identification, the proportions of the different age classes identified could be calculated for each season. The age classes identification categorised individuals into 'adult' (fourth year or older) plumage, third calendar year, second calendar year and 'juvenile' (first winter/ summer) plumage or 'unknown'. For the breeding and non-breeding season considered for great black-backed gull, the percentage of 'unknown' birds was 50.0% and 22.4%, respectively. Of the great black-backed gulls with an identified age class, the majority were 'adult' plumage in the non-breeding season (63.5%), while only two of the 16 records in the breeding season were assigned to this age group (12.5%). A small number of individuals were categorised as second year (2.7% to 12.5%), third year (0.0% to 0.9%) and juvenile (10.5% to 25.0%) (Table 4.8).

Table 4.8 Great black-backed gull plumage proportions from raw counts

Season	Plumage proportions (%)				
	Adult	Third calendar year	Second calendar year	Juvenile	Unknown
Breeding	12.5% (n = 2)	0.0% (n = 0)	12.5% (n = 2)	25.0% (n = 4)	50.0% (n = 8)
Non-breeding	63.5% (n = 139)	0.9% (n = 2)	2.7% (n = 6)	10.5% (n = 23)	22.4% (n = 49)

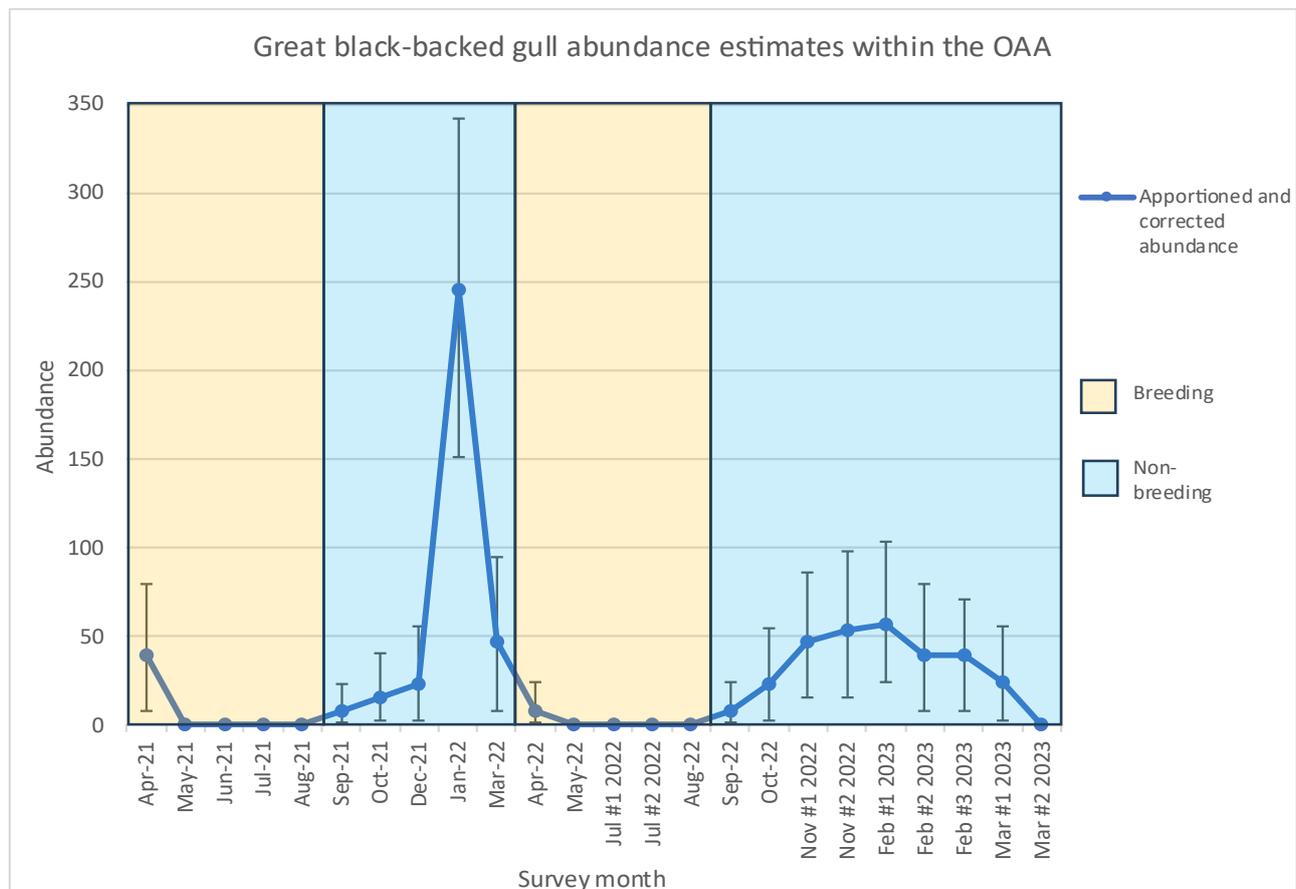
4.3.3 Seasonal mean peak abundance estimates

4.3.3.1 Within the OAA, great black-backed gulls were present in the greatest abundance during the non-breeding season, with an estimated mean peak abundance of 151 individuals and a mean peak density of 0.22 individuals/km² (Table 4.9 and Plate 4.2). Great black-backed gull abundance was low throughout both breeding seasons, with no records during most months and small numbers recorded in April 2021 and April 2022. These are likely to have been late migrants moving through the study area, rather than breeding birds undertaking foraging flights due to their being no other records in the breeding season. These low numbers are expected, as the study area lies outside the species' mean maximum foraging range (MMFR) plus one Standard Deviation (SD) from any colony. Abundance increased in the non-breeding season in Year 1 with the peak count recorded in January 2022, before decreasing sharply in March. Abundance during the non-breeding season in Year 2 peaked in February 2023 but at a much lower abundance than the previous year.

Table 4.9 Great black-backed gulls seasonal mean peak abundance and density (individuals per km²) within the OAA

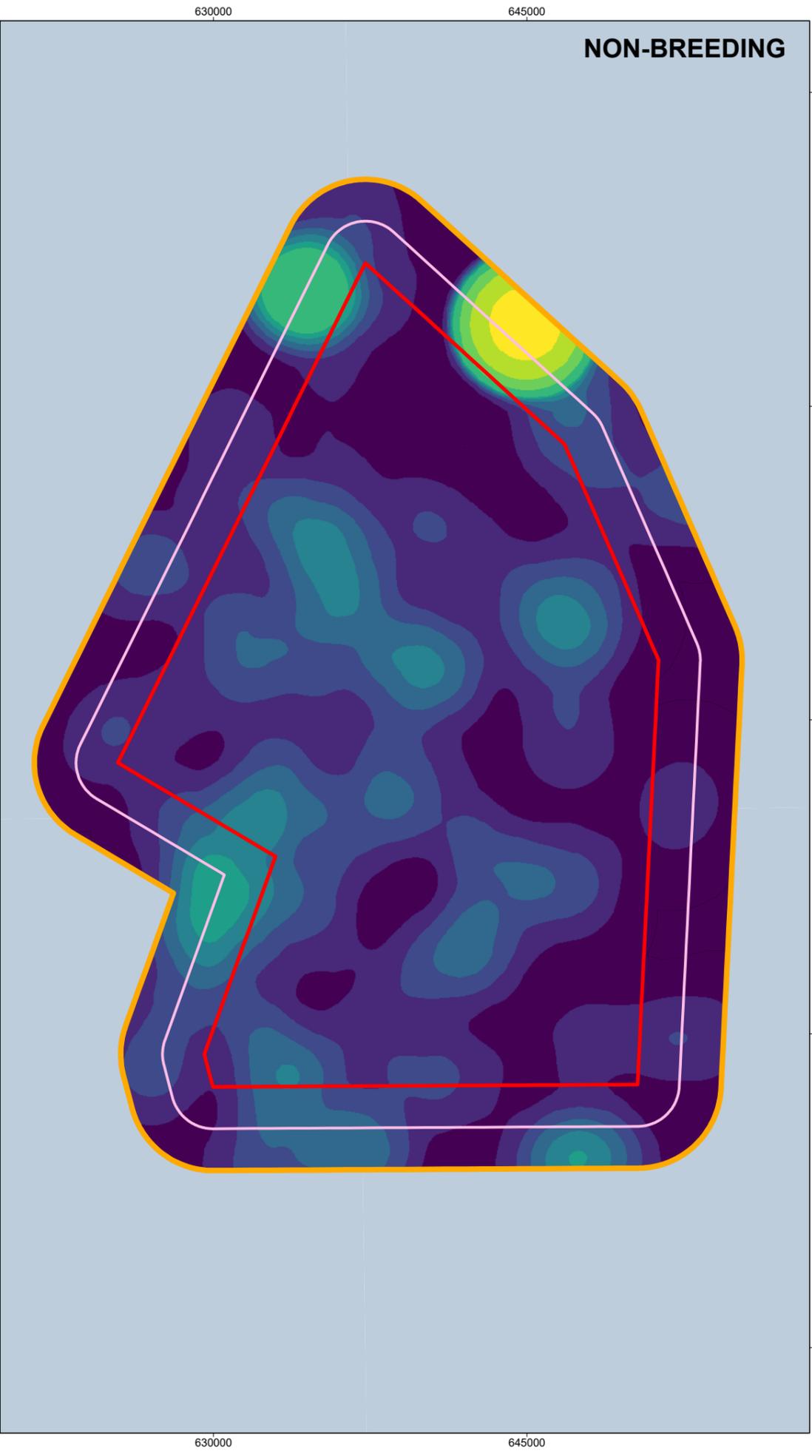
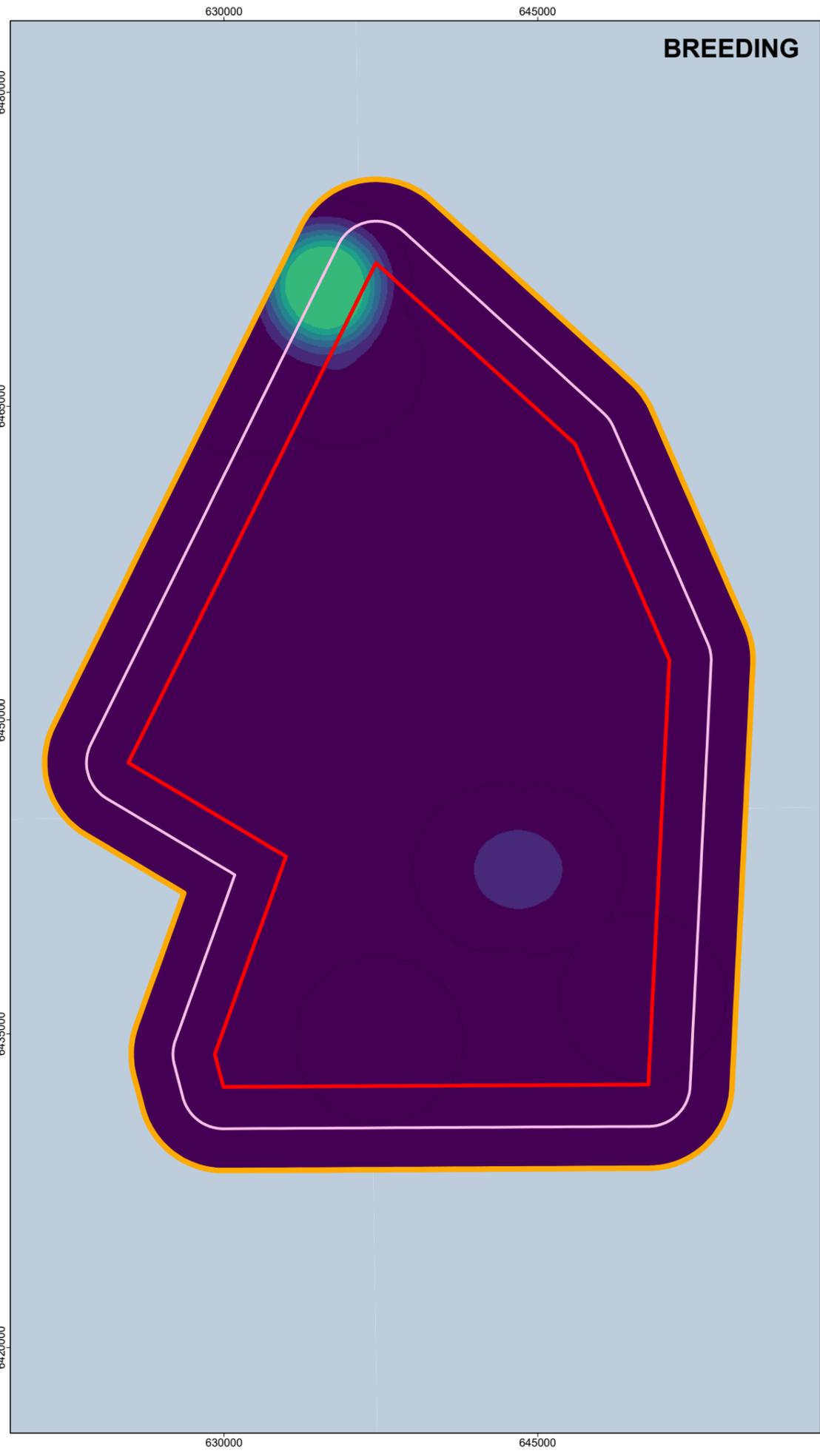
Within the OAA						
Season	All behaviours		Flying		Sitting	
	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density
Breeding (April to August)	24	0.03	20	0.03	4	0.01
Non-breeding (September to March)	151	0.22	80	0.12	76	0.11

Plate 4.2 Great black-backed gull abundance estimates for the 24-month survey period within the OAA, by season

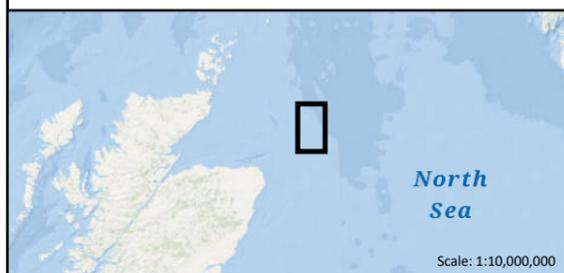
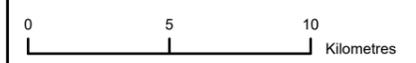


4.3.4 Spatial density distribution and flight direction

- 4.3.4.1 Great black-backed gull density was much lower in the breeding season than in the non-breeding season, with a cluster of records near the northern edge of the study area, and one record in the south-east. In the non-breeding season, great black-backed gulls were spread relatively evenly throughout most of the survey area. There was a similar hotspot in the same location as in the breeding season. The highest density was recorded in the north-east during the non-breeding season, where there was also a high density of herring gulls (**Figure 5**). In the corresponding DAS image, most birds were observed loafing on the surface of the sea.
- 4.3.4.2 Monthly flight directions within the study area varied. Also, the sample size of observed flights was very small, as there were only three surveys with at least five observations within the OAA plus 4km buffer. Therefore, conclusions that can be drawn about flight direction are limited.



- Option Agreement Area
 - Option Agreement Area 2km Buffer
 - Option Agreement Area 4km Buffer
- Great black-backed gull relative density



REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER
2	29/10/2025	BB	GB	MB	LG
1	21/07/2025	GB	BB	MB	LG

WSP DRAWING NUMBER 808368-WEIS-IA-ES-FG-O6-55503

MarramWind DRAWING NUMBER MAR-GEN-ENV-MAP-WSP-000244

DATUM ETRS 89 PROJECTION UTM Zone 30N

SCALE 1:250,000 PAGE SIZE A3

PROJECT TITLE MarramWind Offshore Wind Farm

DRAWING TITLE
Figure 5 Great black-backed gull kernel density heatmap by season
Environmental Impact Assessment Report
Appendix 12.1

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4.3.5 Highly pathogenic avian influenza (HPAI) review

- 4.3.5.1 Great black-backed gulls in the UK were first recorded as contracting HPAI in May 2022 (DEFRA, 2022c); overall the species was moderately affected by HPAI mortality in 2022. A review of pre and post HPAI outbreak colony trends by Tremlett *et al.* (2024) found great black-backed gull AON counts remained similar between pre-HPAI and during counts conducted in 2023 post the outbreak. It must be noted that colony specific trends do differ in terms of colony count change. A further, less significant outbreak of HPAI occurred at seabird colonies in 2023, although limited impacts to great black-backed gulls were reported (Tremlett *et al.*, 2024). Subsequent years have experienced minor isolated HPAI outbreaks without any significant mortality events recorded (DEFRA, 2024). Details of known colony trends for key designated great black-backed gull colonies with connectivity screened in for Appropriate Assessment are provided within the **RIAA**.

4.4 Herring gull

4.4.1 The Project survey data (aerial survey data 2021 to 2023)

- 4.4.1.1 Out of the 24 DAS, herring gull were recorded in nine surveys within the OAA (**Appendix C**). Herring gull had a peak abundance in January 2022 (abundance estimate of 74 individuals) and November 2022 (abundance estimate of 77 individuals) in the first and second year of DAS, respectively (**Table 4.10**). Within the OAA the average herring gull density was 0.02 individuals/ km² with densities ranging between 0.00 and 0.11 individuals per km².

Table 4.10 Herring gull raw counts, total estimated abundance and total estimated density (individuals per km²) within the OAA

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
April 2021	1	7	0.01	1	7	0.01	0	0	0.00
May 2021	1	8	0.01	1	8	0.01	0	0	0.00
Jun 2021	0	0	0.00	0	0	0.00	0	0	0.00
July 2021	0	0	0.00	0	0	0.00	0	0	0.00
August 2021	0	0	0.00	0	0	0.00	0	0	0.00
September 2021	0	0	0.00	0	0	0.00	0	0	0.00

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
October 2021	0	0	0.00	0	0	0.00	0	0	0.00
December 2021	2	16	0.02	0	0	0.00	2	16	0.02
January 2022	9	74	0.11	6	49	0.07	3	25	0.04
March 2022	0	0	0.00	0	0	0.00	0	0	0.00
April 2022	0	0	0.00	0	0	0.00	0	0	0.00
May 2022	1	8	0.01	0	0	0.00	1	8	0.01
July number 1 2022	0	0	0.00	0	0	0.00	0	0	0.00

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
July number 2 2022	0	0	0.00	0	0	0.00	0	0	0.00
August 2022	0	0	0.00	0	0	0.00	0	0	0.00
September 2022	0	0	0.00	0	0	0.00	0	0	0.00
October 2022	0	0	0.00	0	0	0.00	0	0	0.00
November number 1 2022	8	62	0.09	4	31	0.05	4	31	0.05
November number 2 2022	9	77	0.11	5	40	0.06	4	37	0.05
February number 1 2023	0	0	0.00	0	0	0.00	0	0	0.00

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
February number 2 2023	0	0	0.00	0	0	0.00	0	0	0.00
February number 3 2023	1	8	0.01	0	0	0.00	1	8	0.01
March number 1 2023	0	0	0.00	0	0	0.00	0	0	0.00
March number 2 2023	1	8	0.01	1	8	0.01	0	0	0.00

Table note: Seasons are colour coded as follows: yellow = breeding season, blue = non-breeding season

4.4.2 Age ratios

4.4.2.1 Age classes for herring gulls were determined through identification of individuals from DAS imagery across the entire offshore study area (OAA plus 4km buffer). Following initial identification, the proportions of the different age classes identified could be calculated for each season. The age classes identification categorised individuals into ‘adult’ (fourth year or older) plumage, third calendar year, second calendar year and ‘juvenile’ (first winter/summer) plumage or ‘unknown’. For the breeding and non-breeding season considered for herring gull, the percentage of ‘unknown’ birds was 25.0% and 58.3%, respectively. Of the herring gulls with an identified age class, the majority were ‘adult’ plumage (26.0% to 75.0%), with few individuals categorised as second year (0.0% to 1.0%), third year (0.0% to 4.2%) and juvenile (0.0% to 10.4%) (**Table 4.11**).

Table 4.11 Herring gull plumage proportions from raw counts

Season	Plumage proportions (%)				
	Adult	Third calendar year	Second calendar year	Juvenile	Unknown
Breeding	75.0% (n = 3)	0.0% (n = 0)	0.0% (n = 0)	0.0% (n = 0)	25.0% (n = 1)
Non-breeding	26.0% (n = 25)	1.0% (n = 1)	4.2% (n = 4)	10.4% (n = 10)	58.3% (n = 56)

4.4.3 Seasonal mean peak abundance estimates

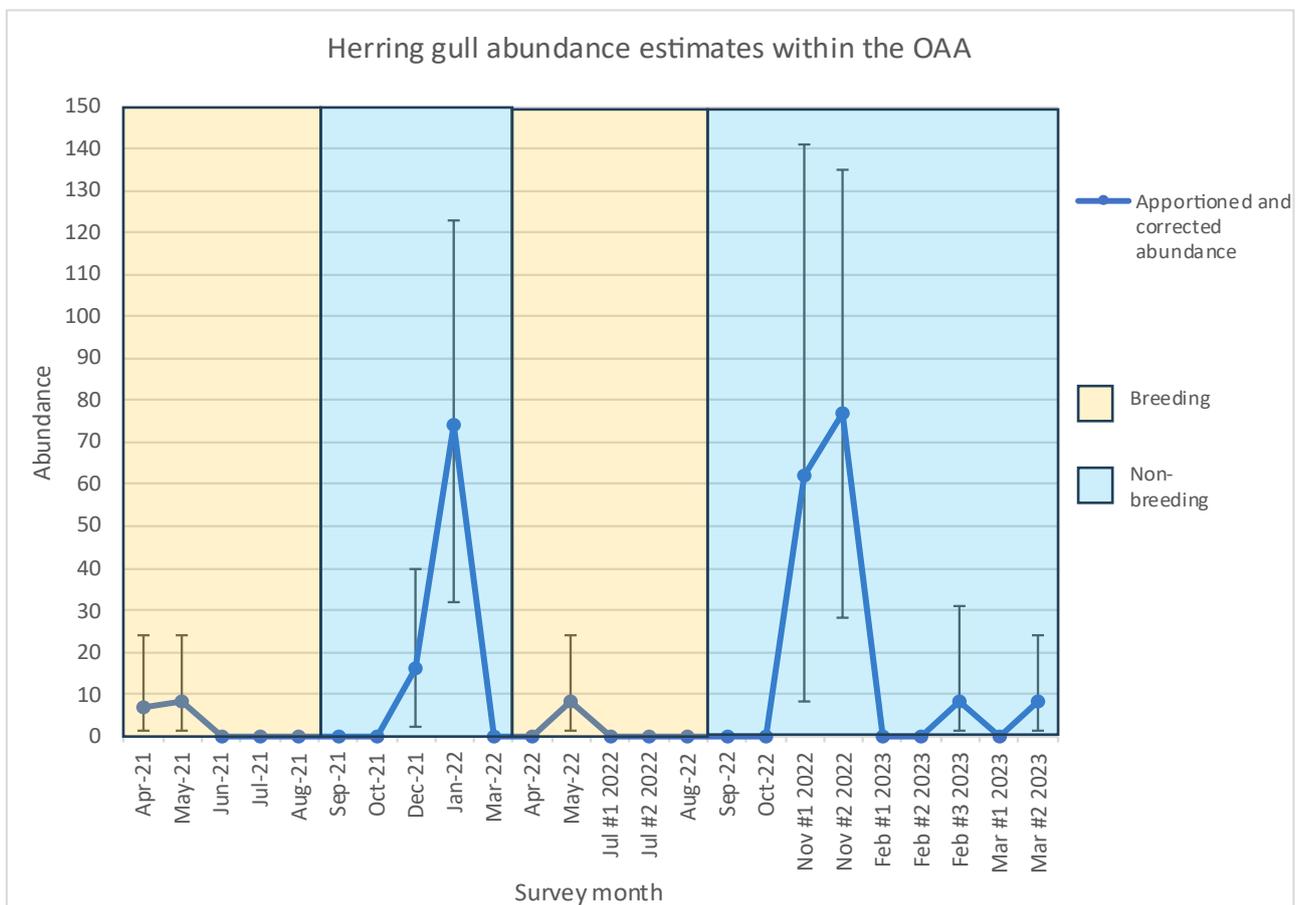
4.4.3.1 Within the OAA, herring gulls were present in the greatest abundance during the non-breeding season, with an estimated mean peak abundance of 76 individuals and a mean peak density of 0.11 individuals/km² (**Table 4.12** and **Plate 4.3**). Herring gull abundance was low throughout both breeding seasons, with no records during most months and small numbers recorded in April 2021, May 2021 and May 2022. These low numbers are expected, as the study area lies outside the species’ MMFR plus one SD from all but two colonies, which are near the edge of this range. Abundance increased in the non-breeding season in Year 1 to a high peak in January 2022, before decreasing to zero in March. Abundance during the non-breeding season in Year 2 peaked in November 2022 at a similar level to the previous peak.

Table 4.12 Herring gulls seasonal mean peak abundance and density (individuals per km²) within the OAA

Within the OAA						
Season	All behaviours		Flying		Sitting	
	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density
Breeding (April to August)	8	0.01	8	0.01	0	0.00

Within the OAA						
Season	All behaviours		Flying		Sitting	
	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density
Non-breeding (September to March)	76	0.11	45	0.07	31	0.05

Plate 4.3 Herring gull abundance estimates for the 24-month survey period within the OAA, by season

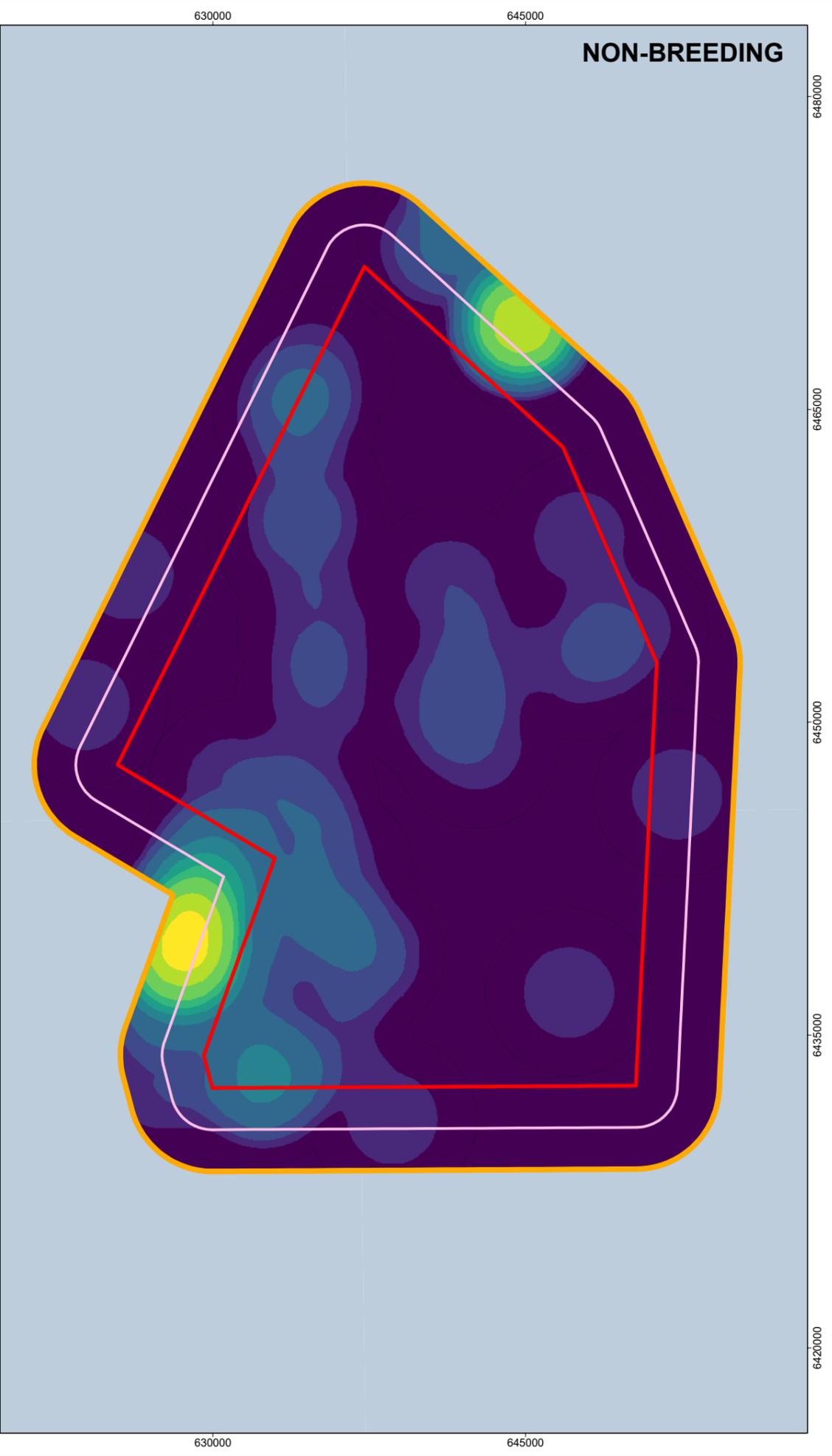
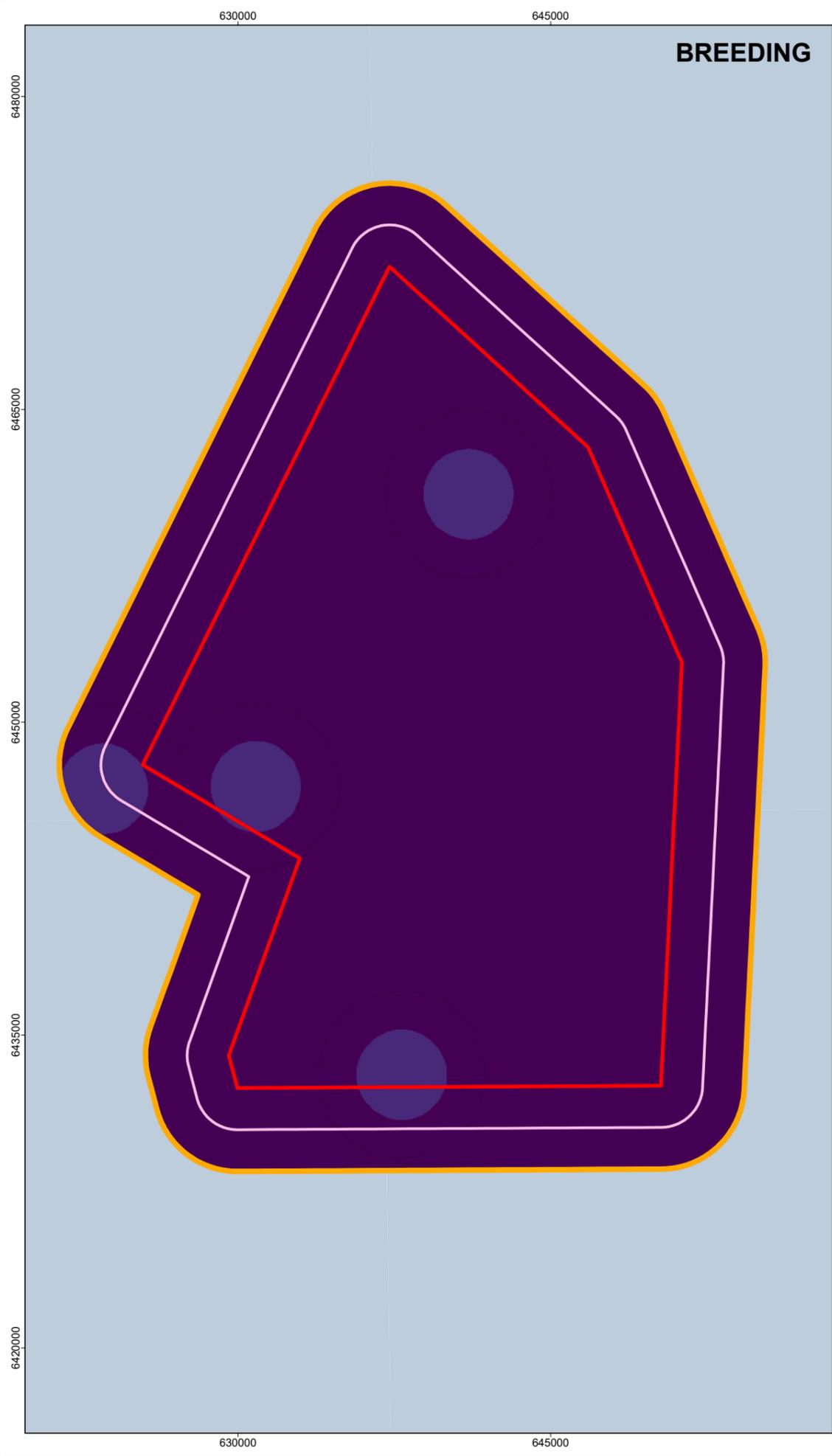


4.4.4 Spatial density distribution and flight direction

4.4.4.1 Herring gull density was much lower in the breeding season than in the non-breeding season, with only four records in the study area. In the non-breeding season, there was a high density of herring gulls in the north-east, in the same location as the great black-backed gull hotspot. Most birds at this hotspot were observed loafing on the surface of the sea. The

highest density of herring gulls was recorded in the south-west, with most records during the non-breeding season occurring in the western half of the study area (**Figure 6**).

- 4.4.4.2 Monthly flight directions within the study area varied. Also, the sample size of observed flights was very small, as there were only three surveys with at least five observations within the OAA plus 4km buffer. Therefore, conclusions that can be drawn about flight direction are limited.



Option Agreement Area

Option Agreement Area 2km Buffer

Option Agreement Area 4km Buffer

Herring gull relative density

- ≤ 0.5
- 0.5 - 1
- 1 - 2
- 2 - 4
- 4 - 6
- 6 - 8
- 8 - 10
- 10 - 14
- 14 - 18
- 18 - 21

0 5 10
Kilometres

North Sea

Scale: 1:10,000,000

REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER
2	29/10/2025	BB	GB	MB	LG
1	21/07/2025	GB	BB	MB	LG

WSP DRAWING NUMBER 808368-WEIS-IA-ES-FG-06-14313

MarramWind DRAWING NUMBER MAR-GEN-ENV-MAP-WSP-000246

DATUM	ETRS 89	PROJECTION	UTM Zone 30N
SCALE	1:250,000	PAGE SIZE	A3

PROJECT TITLE MarramWind Offshore Wind Farm

DRAWING TITLE

Figure 6 Herring gull kernel density heatmap by season

Environmental Impact Assessment Report

Appendix 12.1

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APEM Group

4.4.5 Highly pathogenic avian influenza (HPAI) review

- 4.4.5.1 Herring gulls in the UK were first recorded as contracting HPAI in January 2022 (DEFRA, 2022c), although overall the species was moderately affected by HPAI mortality in 2022. A review of pre and post HPAI outbreak colony trends by Tremlett *et al.* (2024) found herring gull AON counts remained similar between pre-HPAI and during counts conducted in 2023 post the outbreak. It must be noted that colony specific trends do differ in terms of colony count change. A further, less significant outbreak of HPAI occurred at seabird colonies in 2023, although limited impacts to herring gulls were reported (Tremlett *et al.*, 2024). Subsequent years have experienced minor isolated HPAI outbreaks without any significant mortality events recorded (DEFRA, 2024). Details of known colony trends for key designated herring gull colonies with connectivity screened in for Appropriate Assessment are provided within the **RIAA**.

4.5 Guillemot

4.5.1 The Project survey data (aerial survey data 2021 to 2023)

- 4.5.1.1 Out of the 24 DAS, guillemot were recorded in all surveys within the OAA and the OAA plus 2km buffer (**Appendix C**). For the OAA, guillemot had a peak abundance in April 2021 (abundance estimate of 15,898 individuals) and August 2022 (abundance estimate of 9,225 individuals) in the first and second year of DAS, respectively (**Table 4.13**). For the OAA plus 2km buffer, guillemot had a peak abundance in April 2021 (abundance estimate of 19,891 individuals) and August 2022 (abundance estimate of 14,087 individuals) in the first and second year of DAS, respectively (**Table 4.14**). Within the OAA the average guillemot density was 4.11 individuals/ km² with densities ranging between 0.18 and 23.25 individuals per km². Within the OAA plus 2km buffer the average density was 4.14 individuals per km², ranging between 0.31 and 21.63 individuals per km².

Table 4.13 Guillemot raw counts, total estimated abundance and total estimated density (individuals per km²) within the OAA

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
April 2021	1,464	15,898	23.25	37	290	0.42	1,427	15,608	22.83
May 2021	31	366	0.54	4	40	0.06	27	326	0.48
Jun 2021	32	333	0.49	1	8	0.01	31	325	0.48
July 2021	372	3,588	5.25	5	44	0.06	367	3,543	5.18
August 2021	410	3,883	5.68	1	9	0.01	409	3,874	5.67
September 2021	40	1,865	2.73	1	9	0.01	39	1,857	2.72

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
October 2021	232	2,802	4.10	1	20	0.03	231	2,783	4.07
December 2021	14	1,668	2.44	1	22	0.03	13	1,646	2.41
January 2022	16	1,641	2.40	0	11	0.02	16	1,630	2.38
March 2022	189	2,724	3.98	4	70	0.10	185	2,654	3.88
April 2022	81	928	1.36	2	15	0.02	79	913	1.34
May 2022	7	120	0.18	1	8	0.01	6	112	0.16
July number 1 2022	154	1,664	2.43	1	9	0.01	153	1,655	2.42

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
July number 2 2022	380	3,892	5.69	9	83	0.12	371	3,809	5.57
August 2022	1,016	9,225	13.49	0	0	0.00	1,016	9,225	13.49
September 2022	199	2,290	3.35	1	10	0.01	198	2,280	3.33
October 2022	134	1,576	2.30	0	0	0.00	134	1,576	2.30
November number 1 2022	153	2,247	3.29	7	70	0.10	146	2,177	3.18
November number 2 2022	373	5,065	7.41	1	10	0.01	372	5,055	7.39
February number 1 2023	76	1,021	1.49	1	11	0.02	75	1,010	1.48

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
February number 2 2023	132	1,759	2.57	12	165	0.24	120	1,594	2.33
February number 3 2023	99	1,147	1.68	6	68	0.10	93	1,079	1.58
March number 1 2023	89	1,152	1.68	10	118	0.17	79	1,035	1.51
March number 2 2023	51	622	0.91	12	150	0.22	39	472	0.69

Table note: Seasons are colour coded as follows: yellow = breeding season, blue = non-breeding season

Table 4.14 Guillemot raw counts, total estimated abundance and total estimated density (individuals per km²) within the OAA plus 2km buffer

Within the OAA plus 2km buffer									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
April 2021	1,827	19,891	21.63	46	368	0.40	1,781	19,523	21.23
May 2021	47	551	0.60	5	62	0.07	42	489	0.53
Jun 2021	42	454	0.49	1	8	0.01	41	446	0.49
July 2021	456	4,382	4.77	6	52	0.06	450	4,331	4.71
August 2021	525	5,018	5.46	1	10	0.01	524	5,009	5.45
September 2021	53	2,413	2.62	1	8	0.01	52	2,405	2.62

Within the OAA plus 2km buffer									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
October 2021	374	4,442	4.83	2	28	0.03	372	4,414	4.80
December 2021	21	2,285	2.49	1	23	0.03	20	2,262	2.46
January 2022	23	2,145	2.33	0	10	0.01	23	2,135	2.32
March 2022	244	3,658	3.98	4	74	0.08	240	3,585	3.90
April 2022	95	1,107	1.20	3	23	0.03	92	1,084	1.18
May 2022	18	288	0.31	1	8	0.01	17	280	0.30
July number 1 2022	201	2,156	2.34	1	9	0.01	200	2,147	2.33

Within the OAA plus 2km buffer									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
July number 2 2022	493	5,067	5.51	19	173	0.19	474	4,894	5.32
August 2022	1,525	14,087	15.32	0	0	0.00	1,525	14,087	15.32
September 2022	288	3,428	3.73	1	10	0.01	287	3,418	3.72
October 2022	240	3,055	3.32	1	9	0.01	239	3,046	3.31
November number 1 2022	210	3,033	3.30	7	81	0.09	203	2,952	3.21
November number 2 2022	433	6,031	6.56	2	21	0.02	431	6,010	6.54
February number 1 2023	95	1,299	1.41	3	34	0.04	92	1,265	1.38

Within the OAA plus 2km buffer									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
February number 2 2023	174	2,335	2.54	17	231	0.25	157	2,104	2.29
February number 3 2023	129	1,510	1.64	6	68	0.07	123	1,442	1.57
March number 1 2023	120	1,568	1.71	10	120	0.13	110	1,448	1.57
March number 2 2023	86	1,059	1.15	29	358	0.39	57	701	0.76

Table note: Seasons are colour coded as follows: yellow = breeding season, blue = non-breeding season

4.5.2 Age ratios

4.5.2.1 Out of the raw count of 10,282 guillemots throughout the survey programme, only 531 individuals were assigned to a specific age class (174 adults and 357 juveniles). All others were assigned to the 'unknown' age class. It is only possible to age guillemots from DAS imagery when recently fledged chicks are being tended to by the male parent, with the distinguishing feature being the significant difference in size. Therefore, the identification of accurate age ratios for guillemot is not possible from the DAS data, nor any other conventional survey method beyond post fledging stage.

4.5.3 Seasonal mean peak abundance estimates

4.5.3.1 Within the OAA plus 2km buffer, guillemots were present in the greatest abundance during the breeding season, with an estimated mean peak abundance of 16,989 individuals and a mean peak density of 18.47 individuals/km² (**Table 4.15**, **Table 4.16** and **Plate 4.4**). The trend in abundance estimates differed between both breeding seasons. In Year 1, there was a high peak in abundance in April 2021, which likely reflected a large migratory movement of guillemots, as numbers then decreased sharply in the core breeding months of May and June. Abundance then increased in July and August, reflecting the fledging and post-breeding dispersal period. During both non-breeding seasons, abundance fluctuated but remained relatively low, with a decreasing trend. In the breeding season in Year 2, abundance was low in April and May 2022 before rising to a high peak in August, likely correlating with post-breeding dispersal.

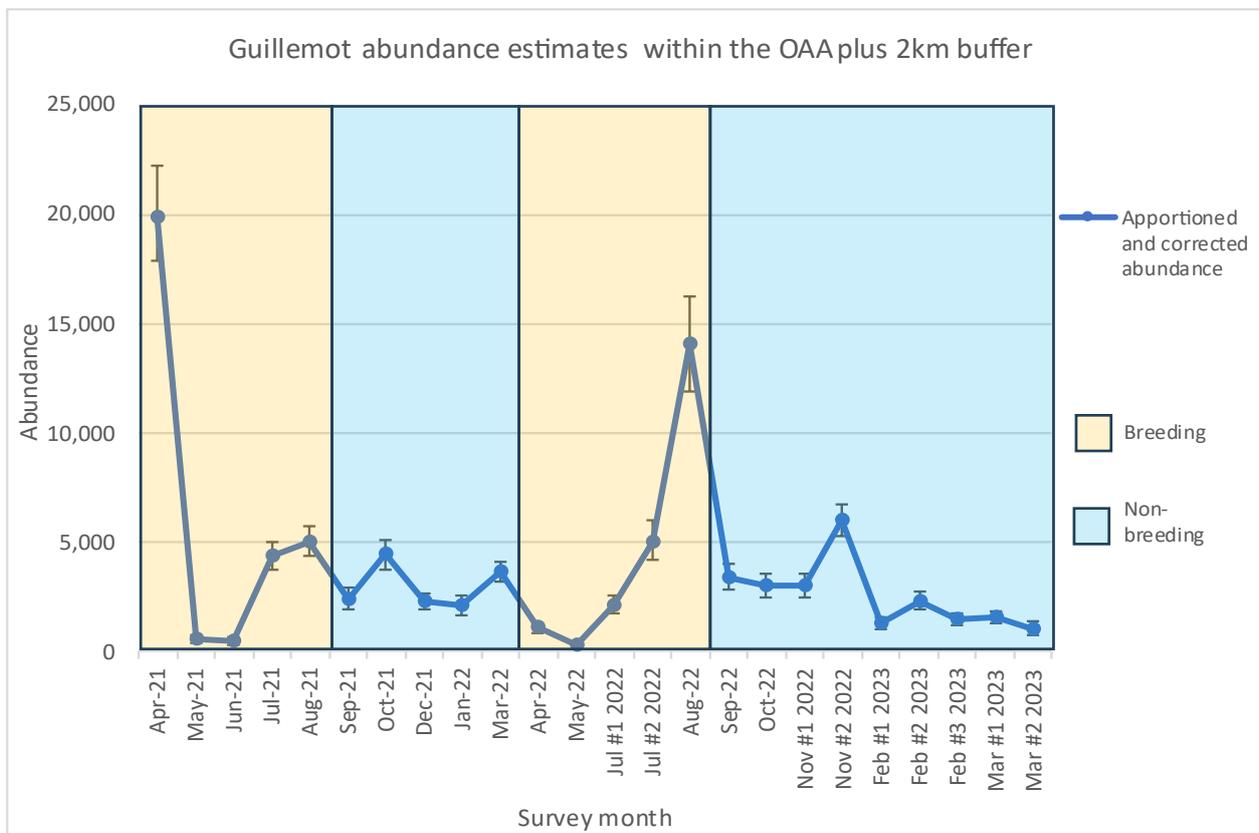
Table 4.15 Guillemot seasonal mean peak abundance and density (individuals per km²) within the OAA

Within the OAA						
Season	All behaviours		Flying		Sitting	
	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density
Breeding (April to mid-August)	12,562	18.37	181	0.27	13,097	18.15
Non-breeding (mid-August to March)	3,934	5.75	81	0.17	4,028	5.73

Table 4.16 Guillemot seasonal mean peak abundance and density (individuals per km²) within the OAA plus 2km buffer

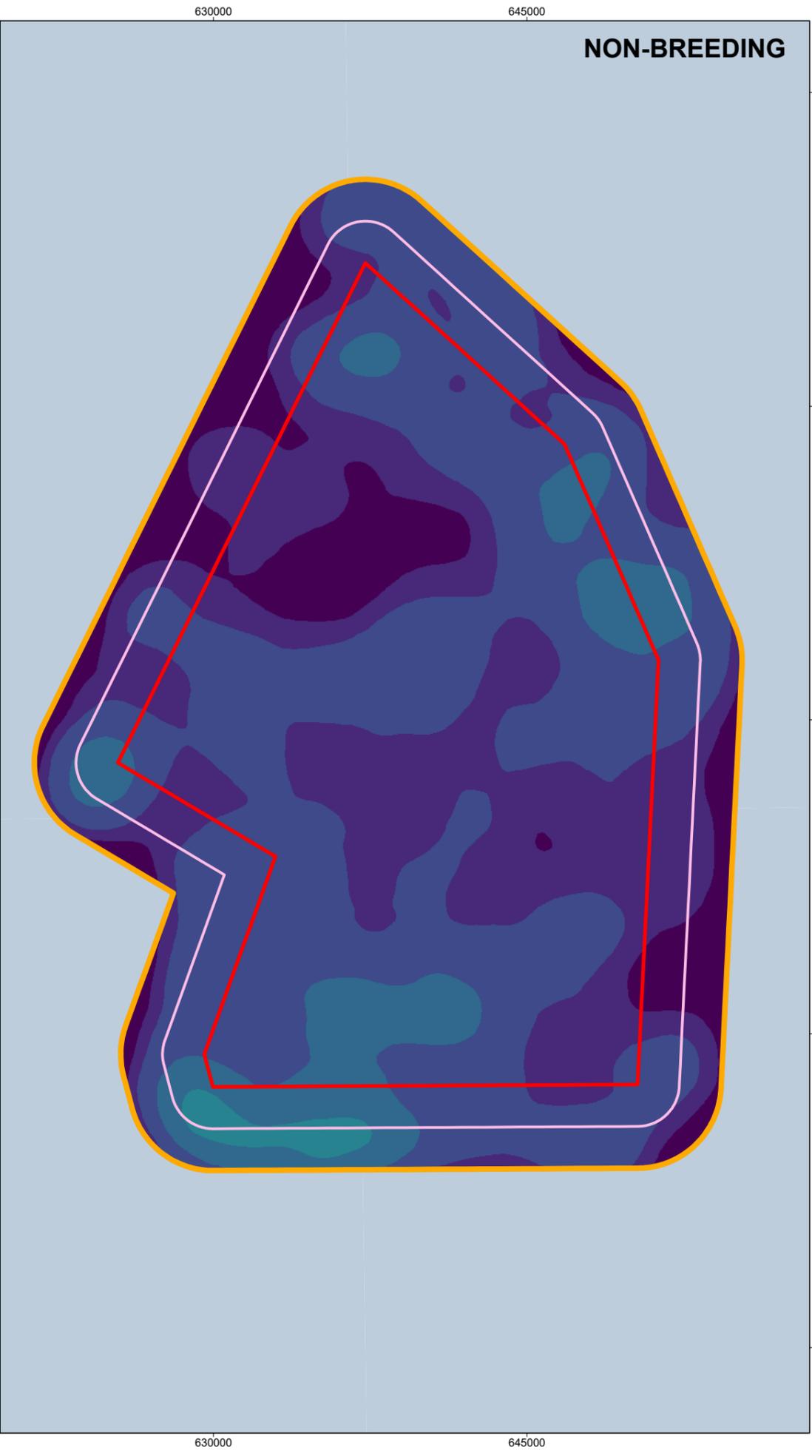
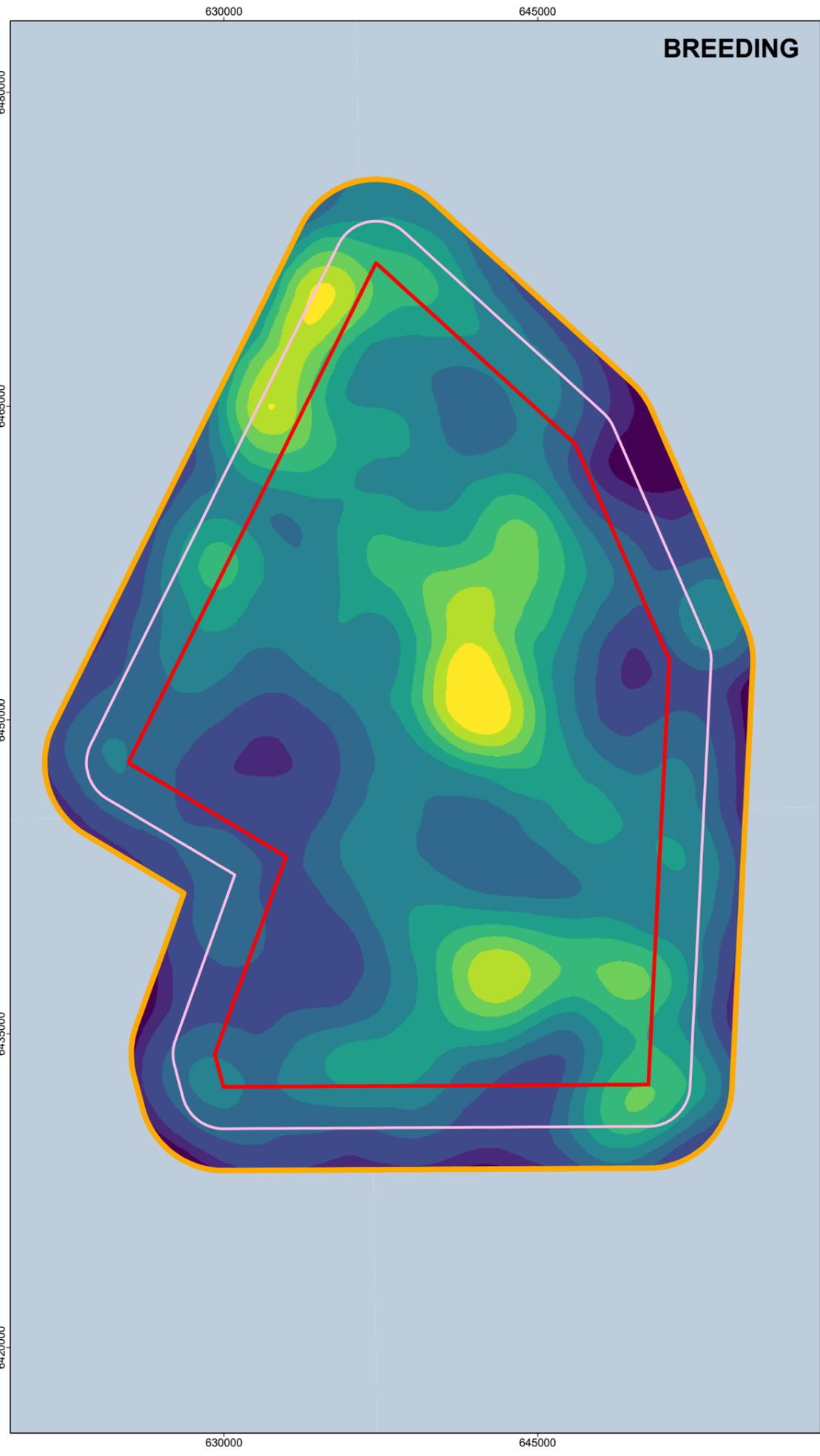
Within the OAA plus 2km buffer						
Season	All behaviours		Flying		Sitting	
	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density
Breeding (April to mid-August)	16,989	18.47	271	0.29	16,805	18.27
Non-breeding (mid-August to March)	5,237	5.69	216	0.23	5,212	5.67

Plate 4.4 Guillemot abundance estimates for the 24-month survey period within the OAA plus 2km buffer, by season



4.5.4 Spatial density distribution and flight direction

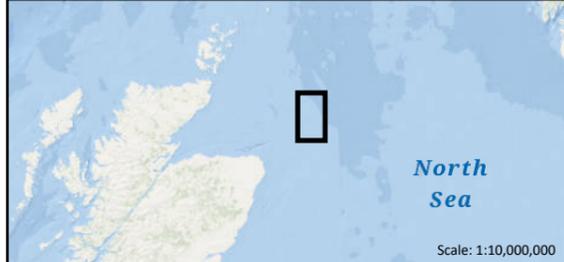
- 4.5.4.1 Guillemot density was higher in the breeding season than in the non-breeding season, with the highest densities recorded in the centre of the study area and in the north-west. There were also hotspots in the south-east. During the non-breeding season, the distribution of guillemots was more uniform overall, with areas of higher density in the north-east and the south-western corner of the study area (**Figure 7**).
- 4.5.4.2 The sample sizes of observed flights in most months were small, however flights observed in July 2022 and July 2023 had a clear south-easterly orientation, possibly reflecting post-breeding migration. Also, in February and March 2023, most flights were in a westerly direction, possibly indicating return migration.



- Option Agreement Area
- Option Agreement Area 2km Buffer
- Option Agreement Area 4km Buffer

Guillemot relative density

- ≤ 30
- 30 - 40
- 40 - 60
- 60 - 80
- 80 - 100
- 100 - 120
- 120 - 140
- 140 - 160
- 160 - 180
- > 180



REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER
2	29/10/2025	BB	GB	MB	LG
1	21/07/2025	GB	BB	MB	LG

WSP DRAWING NUMBER 808368-WEIS-IA-ES-FG-O6-99034

MarramWind DRAWING NUMBER MAR-GEN-ENV-MAP-WSP-000248

DATUM ETRS 89 PROJECTION UTM Zone 30N

SCALE 1:250,000 PAGE SIZE A3

PROJECT TITLE MarramWind Offshore Wind Farm

DRAWING TITLE
Figure 7 Guillemot kernel density heatmap by season
Environmental Impact Assessment Report
Appendix 12.1

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4.5.5 Highly pathogenic avian influenza (HPAI) review

- 4.5.5.1 Guillemots in the UK were first recorded as having HPAI in January 2022 (DEFRA, 2022d) with cases of the virus in this species increasing in number and location since. A review of pre and post HPAI outbreak colony trends was conducted by Tremlett *et al.* (2024) for various seabird species. Guillemot individuals were shown to have decreased by 6% when comparing pre-HPAI records to counts conducted in 2023 post the outbreak. It must be noted that colony specific trends do differ in terms of colony count change. A further, less significant outbreak of HPAI occurred at seabird colonies in 2023, although the virus was not noted to affect guillemots until June, July and August, after colony counts were completed, suggesting impacts may be worse than reported in Tremlett *et al.* (2024). Subsequent years have experienced minor isolated HPAI outbreaks at guillemot colonies without any significant mortality events recorded (DEFRA, 2024). Details of known colony trends for key designated guillemot colonies with connectivity screened in for Appropriate Assessment are provided within the **RIAA**.

4.6 Razorbill

4.6.1 The Project survey data (aerial survey data 2021 to 2023)

- 4.6.1.1 Out of the 24 DAS, razorbills were recorded in 19 surveys within the OAA and 20 surveys within the OAA plus 2km buffer (**Appendix C**). Razorbills had a peak abundance within the OAA plus 2km buffer in September 2021 (abundance estimate of 466 individuals) and November 2022 (abundance estimate of 1,384 individuals) in the first and second year of DAS, respectively **Table 4.17** and **Table 4.18**). Within the OAA the average razorbill density was 0.23 individuals/km² with densities ranging between zero and 2.02 individuals per km². Within the OAA plus 2km buffer the average density was 0.24 individuals per km², ranging between zero and 2.05 individuals per km².

Table 4.17 Razorbill raw counts, total estimated abundance and total estimated density (individuals per km²) within the OAA

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
April 2021	18	180	0.26	1	8	0.01	17	173	0.25
May 2021	0	0	0.00	0	0	0.00	0	0	0.00
Jun 2021	0	0	0.00	0	0	0.00	0	0	0.00
July 2021	5	44	0.06	0	0	0.00	5	44	0.06
August 2021	0	0	0.00	0	0	0.00	0	0	0.00
September 2021	10	466	0.68	0	0	0.00	10	466	0.68

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
October 2021	4	45	0.07	0	0	0.00	4	45	0.07
December 2021	0	0	0.00	0	0	0.00	0	0	0.00
January 2022	1	88	0.13	0	0	0.00	1	88	0.13
March 2022	5	59	0.09	0	0	0.00	5	59	0.09
April 2022	5	48	0.07	2	16	0.02	3	31	0.05
May 2022	5	86	0.13	0	0	0.00	5	86	0.13
July number 1 2022	7	70	0.10	0	0	0.00	7	70	0.10

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
July number 2 2022	38	370	0.54	0	0	0.00	38	370	0.54
August 2022	2	18	0.03	0	0	0.00	2	18	0.03
September 2022	15	167	0.24	0	0	0.00	15	167	0.24
October 2022	9	99	0.14	0	0	0.00	9	99	0.14
November number 1 2022	37	475	0.69	2	19	0.03	35	456	0.67
November number 2 2022	113	1,384	2.02	0	0	0.00	113	1,384	2.02
February number 1 2023	1	12	0.02	0	0	0.00	1	12	0.02

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
February number 2 2023	17	193	0.28	0	0	0.00	17	193	0.28
February number 3 2023	1	10	0.01	0	0	0.00	1	10	0.01
March number 1 2023	0	0	0.00	0	0	0.00	0	0	0.00
March number 2 2023	3	30	0.04	0	0	0.00	3	30	0.04

Table note: Seasons are colour coded as follows: yellow = breeding season, blue = non-breeding season

Table 4.18 Razorbill raw counts, total estimated abundance and total estimated density (individuals per km²) within the OAA plus 2km buffer

Within the OAA plus 2km buffer									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
April 2021	21	210	0.23	1	8	0.01	20	202	0.22
May 2021	0	0	0.00	0	0	0.00	0	0	0.00
Jun 2021	0	0	0.00	0	0	0.00	0	0	0.00
July 2021	7	63	0.07	0	0	0.00	7	63	0.07
August 2021	5	45	0.05	0	0	0.00	5	45	0.05
September 2021	12	546	0.59	0	0	0.00	12	546	0.59

Within the OAA plus 2km buffer									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
October 2021	5	57	0.06	0	0	0.00	5	57	0.06
December 2021	0	0	0.00	0	0	0.00	0	0	0.00
January 2022	3	242	0.26	0	0	0.00	3	242	0.26
March 2022	7	86	0.09	0	0	0.00	7	86	0.09
April 2022	5	46	0.05	2	15	0.02	3	31	0.03
May-22	8	122	0.13	0	0	0.00	8	122	0.13
July number 1 2022	11	111	0.12	0	0	0.00	11	111	0.12

Within the OAA plus 2km buffer									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
July number 2 2022	52	501	0.54	5	42	0.05	47	459	0.50
August 2022	9	78	0.08	0	0	0.00	9	78	0.08
September 2022	20	234	0.25	0	0	0.00	20	234	0.25
October 2022	17	201	0.22	0	0	0.00	17	201	0.22
November number 1 2022	47	612	0.67	2	21	0.02	45	591	0.64
November number 2 2022	149	1,881	2.05	0	0	0.00	149	1,881	2.05
February number 1 2023	1	12	0.01	0	0	0.00	1	12	0.01

Within the OAA plus 2km buffer									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
February number 2 2023	22	248	0.27	0	0	0.00	22	248	0.27
February number 3 2023	4	40	0.04	0	0	0.00	4	40	0.04
March number 1 2023	0	0	0.00	0	0	0.00	0	0	0.00
March number 2 2023	3	30	0.03	0	0	0.00	3	30	0.03

Table note: Seasons are colour coded as follows: yellow = breeding season, blue = non-breeding season

4.6.2 Age ratios

4.6.2.1 Out of the raw count of 544 razorbills throughout the survey programme, only 35 individuals were assigned to a specific age class (12 adults and 23 juveniles). All others were assigned to the 'unknown' age class. It is only possible to age razorbills from DAS imagery when recently fledged chicks are being tended to by the male parent, with the distinguishing feature being the significant difference in size. Therefore, the identification of accurate age ratios for razorbill is not possible from the DAS data, nor any other conventional survey method beyond post fledging stage.

4.6.3 Seasonal mean peak abundance estimates

4.6.3.1 Within the OAA plus 2km buffer razorbill were present in the greatest abundance during the non-breeding season, with an estimated mean peak abundance of 1,214 individuals and a mean peak density of 1.32 individuals/km² (**Table 4.19**, **Table 4.20** and **Plate 4.5**). Razorbill abundance was low throughout the breeding season in Year 1, before increasing to a peak at the start of the non-breeding season in September 2022, likely due to migratory movements through the study area. In the following months, abundance remained low before increasing again in July 2022, possibly due to early post-breeding dispersal and fledging. Abundance then decreased before increasing to a high peak in November 2022. This peak may indicate late post breeding dispersal, as for the remainder of the non-breeding season abundance remained low.

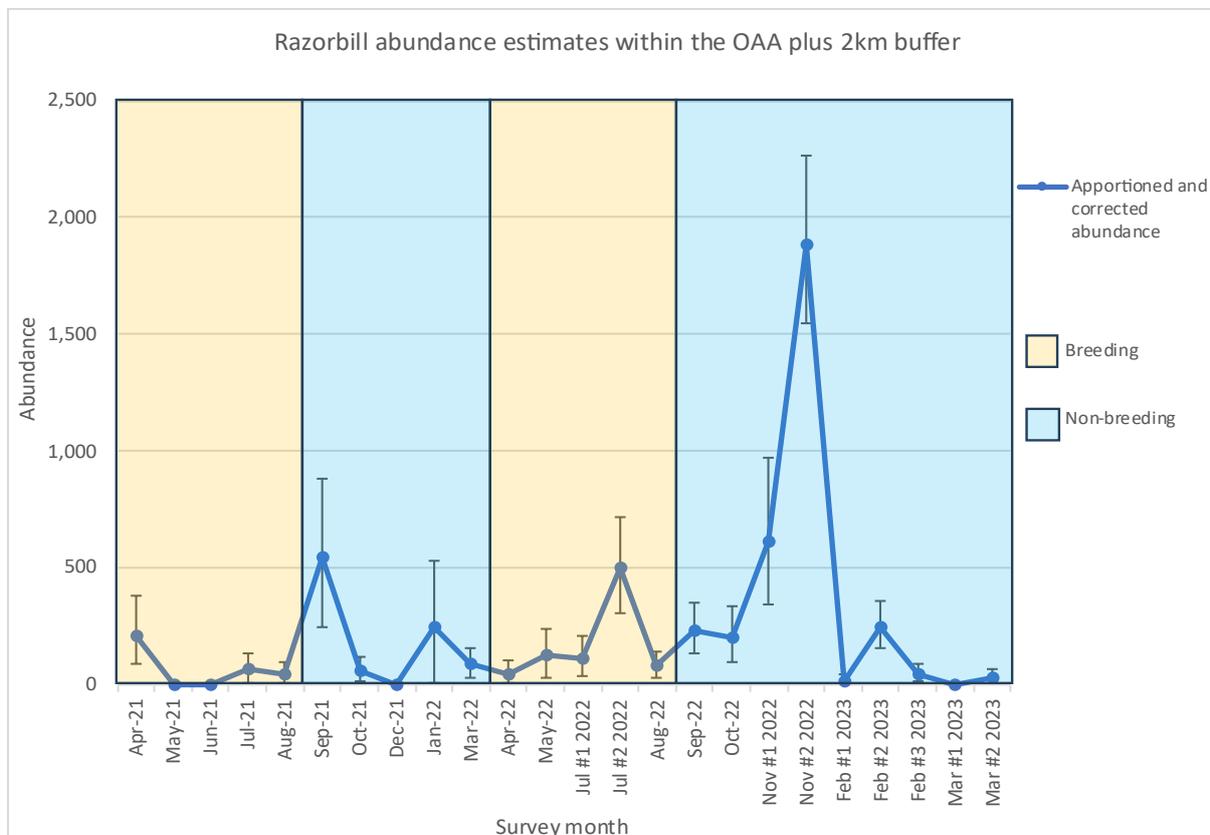
Table 4.19 Razorbill seasonal mean peak abundance and density (individuals per km²) within the OAA

Within the OAA						
Season	All behaviours		Flying		Sitting	
	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density
Breeding (April to mid-August)	275	0.40	12	0.02	272	0.40
Non-breeding (mid-August to March)	925	1.35	10	0.01	925	1.35

Table 4.20 Razorbill seasonal mean peak abundance and density (individuals per km²) within the OAA plus 2km buffer

Within the OAA plus 2km buffer						
Season	All behaviours		Flying		Sitting	
	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density
Breeding (April to mid-August)	356	0.39	25	0.03	331	0.36
Non-breeding (mid-August to March)	1,214	1.32	11	0.01	1,214	1.32

Plate 4.5 Razorbill abundance estimates for the 24-month survey period within the OAA plus 2km buffer, by season



4.6.4 Spatial density distribution and flight direction

- 4.6.4.1 Razorbill density was low during the breeding season, with scattered clusters of records in the north and south of the study area. During the non-breeding season, three clear hotspots were recorded: one in the west, one just north of the centre and one, with the highest density, in the north-west (**Figure 8**). These hotspots may represent winter feeding or post breeding dispersal aggregations, given the timing of the peak in abundance for this species.
- 4.6.4.2 In July 2022, all observed razorbill flights were in a south-easterly direction. However, the sample size was five flights, and this was the only month in which at least five flights were observed in the study area. Therefore, conclusions that can be drawn are limited.

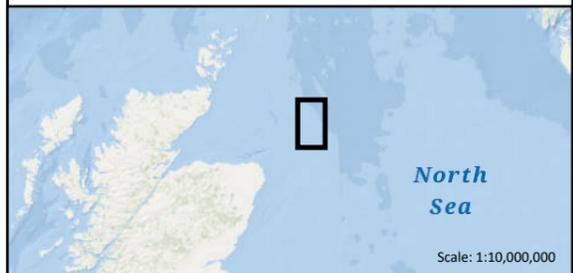
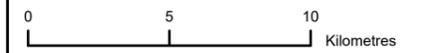
BREEDING

NON-BREEDING

-  Option Agreement Area
-  Option Agreement Area 2km Buffer
-  Option Agreement Area 4km Buffer

Razorbill relative density

-  ≤ 2
-  2 - 4
-  4 - 6
-  6 - 8
-  8 - 10
-  10 - 12
-  12 - 14
-  14 - 16
-  16 - 18
-  18 - 22



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2	29/10/2025	BB	GB	MB LG
1	21/07/2025	GB	BB	MB LG
REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER APPROVER

WSP DRAWING NUMBER 808368-WEIS-IA-ES-FG-O6-99166

MarramWind DRAWING NUMBER MAR-GEN-ENV-MAP-WSP-000250

DATUM ETRS 89 PROJECTION UTM Zone 30N

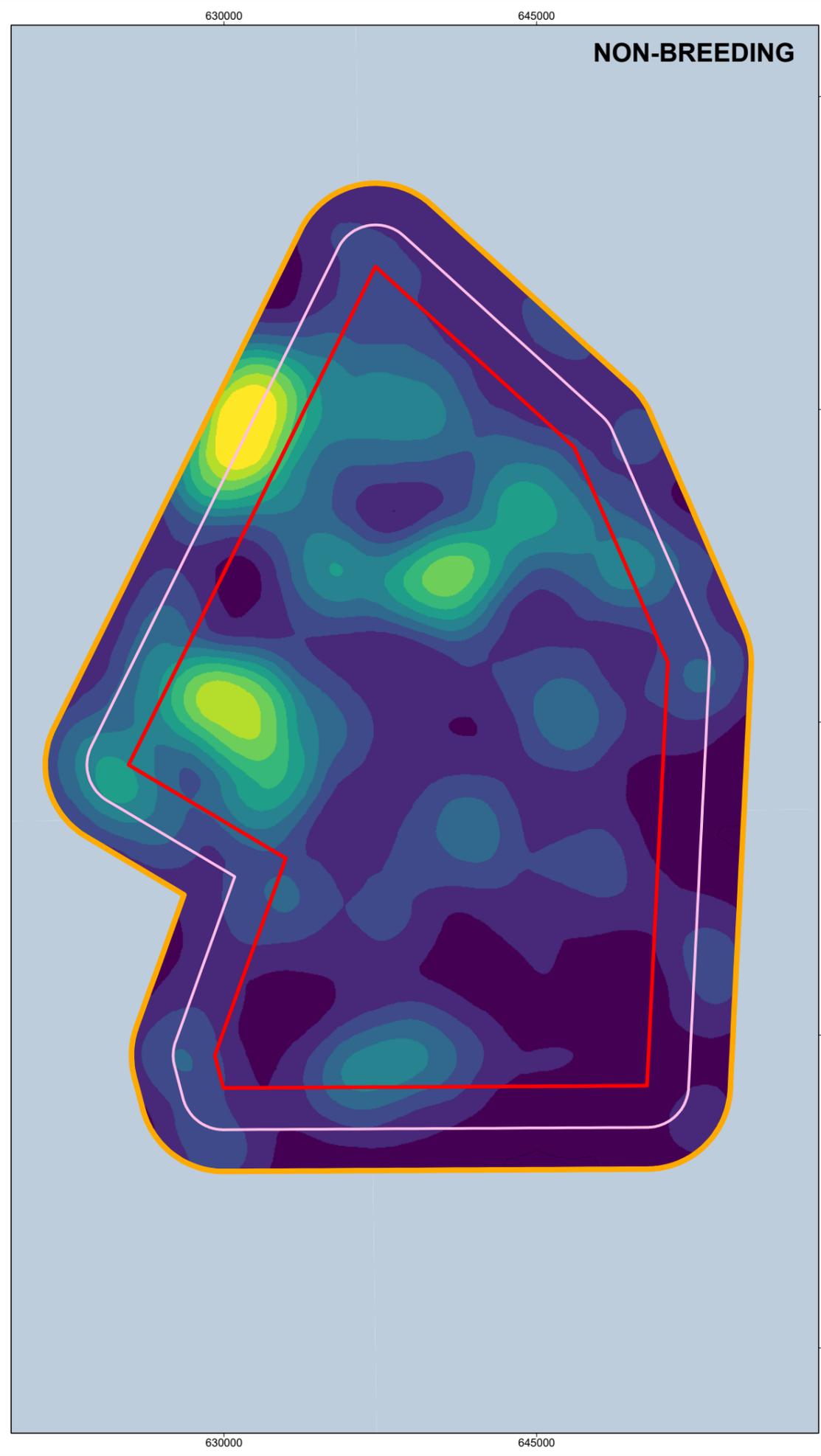
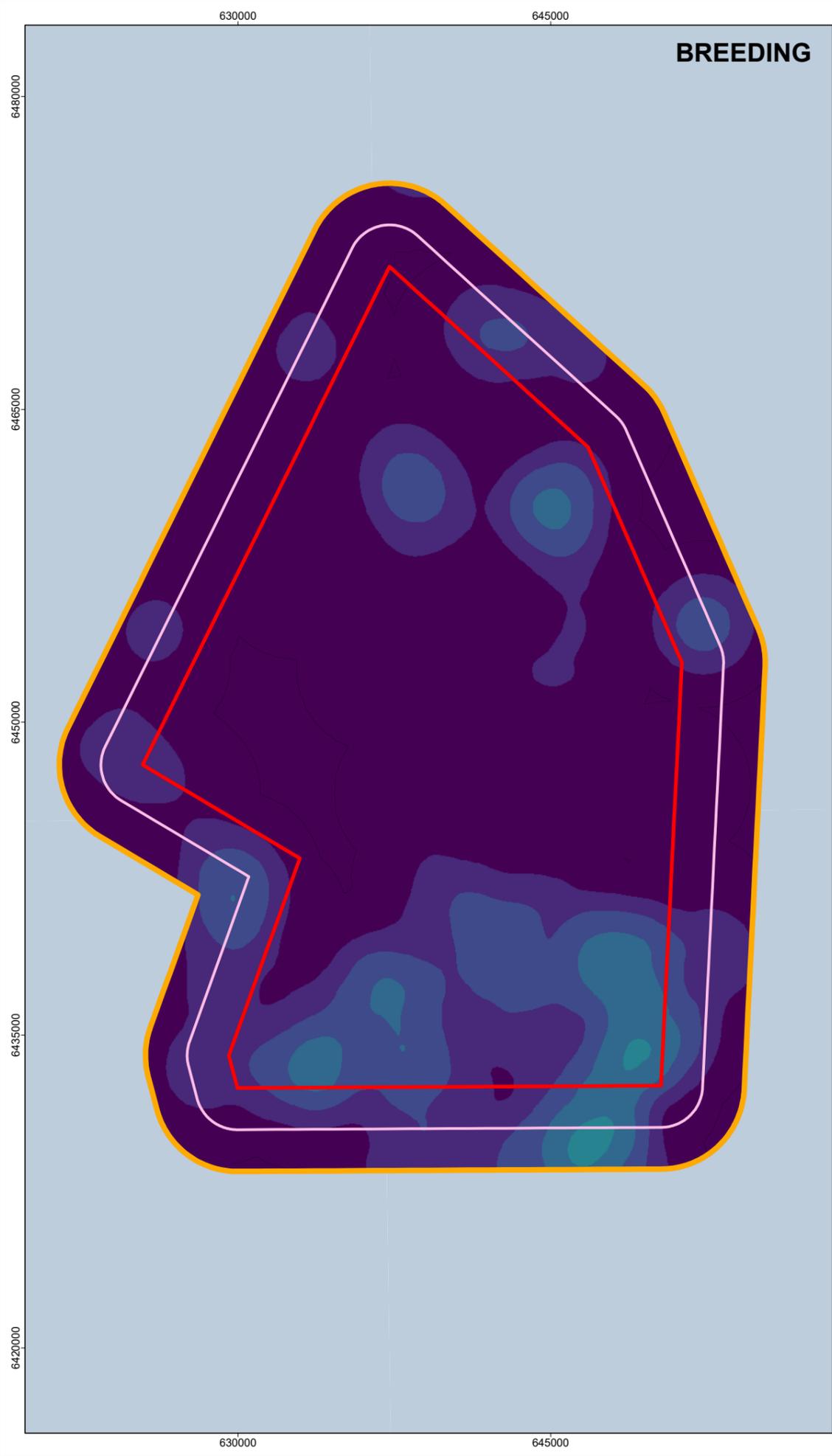
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PROJECT TITLE MarramWind Offshore Wind Farm

DRAWING TITLE
Figure 8 Razorbill kernel density heatmap by season
Environmental Impact Assessment Report
Appendix 12.1

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4.6.5 Highly pathogenic avian influenza (HPAI) review

- 4.6.5.1 Tremlett *et al.* (2024) conducted a review of pre and post HPAI outbreak colony counts for key seabird species. Upon review, the mortality levels of razorbill due to HPAI were assessed as low due to the minimal numbers of mortalities due to the virus. Therefore, the DAS data that has been collected as part of the baseline characterisation for the Project is representative, regardless of the presence of HPAI. In addition, a further, less significant outbreak of HPAI occurred at seabird colonies in 2023, although highly limited impacts to razorbill were reported (Tremlett *et al.*, 2024). Subsequent years have experienced minor isolated HPAI outbreaks without any significant mortality events recorded (DEFRA, 2024). Details of known colony trends for key designated razorbill colonies with connectivity screened in for Appropriate Assessment are provided within the **RIAA**.

4.7 Puffin

4.7.1 The Project survey data (aerial survey data 2021 to 2023)

- 4.7.1.1 Out of the 24 DAS, puffin were recorded in 13 surveys within the OAA and 14 surveys within the OAA plus 2km buffer (**Appendix C**). Puffin had a peak abundance in the OAA plus 2km buffer in May 2021 (abundance estimate of 325 individuals) and May 2022 (abundance estimate of 782 individuals) in the first and second year of DAS, respectively (**Table 4.21** and **Table 4.22**). Within the OAA the average puffin density was 0.15 individuals/ km² with densities ranging between zero and 0.93 individuals per km². Within the OAA plus 2km buffer the average density was 0.15 individuals per km², ranging between zero and 0.85 individuals per km².

Table 4.21 Puffin raw counts, total estimated abundance and total estimated density (individuals per km²) within the OAA

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
April 2021	18	164	0.24	1	8	0.01	17	157	0.23
May 2021	11	104	0.15	1	8	0.01	10	96	0.14
Jun 2021	2	17	0.02	1	8	0.01	1	9	0.01
July 2021	6	54	0.08	0	0	0.00	6	54	0.08
August 2021	0	0	0.00	0	0	0.00	0	0	0.00
September 2021	2	19	0.03	0	0	0.00	2	19	0.03

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
October 2021	0	0	0.00	0	0	0.00	0	0	0.00
December 2021	0	0	0.00	0	0	0.00	0	0	0.00
January 2022	0	0	0.00	0	0	0.00	0	0	0.00
March 2022	0	0	0.00	0	0	0.00	0	0	0.00
April 2022	20	186	0.27	0	0	0.00	20	186	0.27
May 2022	66	635	0.93	1	8	0.01	65	627	0.92
July number 1 2022	32	313	0.46	0	0	0.00	32	313	0.46

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
July number 2 2022	33	317	0.46	0	0	0.00	33	317	0.46
August 2022	54	474	0.69	0	0	0.00	54	474	0.69
September 2022	0	0	0.00	0	0	0.00	0	0	0.00
October 2022	4	40	0.06	0	0	0.00	4	40	0.06
November number 1 2022	0	0	0.00	0	0	0.00	0	0	0.00
November number 2 2022	5	52	0.08	0	0	0.00	5	52	0.08
February number 1 2023	0	0	0.00	0	0	0.00	0	0	0.00

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
February number 2 2023	0	0	0.00	0	0	0.00	0	0	0.00
February number 3 2023	1	10	0.01	0	0	0.00	1	10	0.01
March number 1 2023	0	0	0.00	0	0	0.00	0	0	0.00
March number 2 2023	0	0	0.00	0	0	0.00	0	0	0.00

Table note: Seasons are colour coded as follows: yellow = breeding season, blue = non-breeding season

Table 4.22 Puffin raw counts, total estimated abundance and total estimated density (individuals per km²) with the OAA plus 2km buffer

Within the OAA plus 2km buffer									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
April 2021	23	214	0.23	2	16	0.02	21	198	0.22
May 2021	34	325	0.35	1	8	0.01	33	318	0.35
Jun 2021	2	18	0.02	1	8	0.01	1	10	0.01
July 2021	6	55	0.06	0	0	0.00	6	55	0.06
August 2021	0	0	0.00	0	0	0.00	0	0	0.00
September 2021	3	29	0.03	0	0	0.00	3	29	0.03

Within the OAA plus 2km buffer									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
October 2021	0	0	0.00	0	0	0.00	0	0	0.00
December 2021	0	0	0.00	0	0	0.00	0	0	0.00
January 2022	0	0	0.00	0	0	0.00	0	0	0.00
March 2022	0	0	0.00	0	0	0.00	0	0	0.00
April 2022	25	242	0.26	0	0	0.00	25	242	0.26
May-22	80	782	0.85	1	8	0.01	79	774	0.84
July number 1 2022	42	410	0.45	0	0	0.00	42	410	0.45

Within the OAA plus 2km buffer									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
July number 2 2022	49	471	0.51	0	0	0.00	49	471	0.51
August 2022	71	625	0.68	0	0	0.00	71	625	0.68
September 2022	0	0	0.00	0	0	0.00	0	0	0.00
October 2022	7	70	0.08	0	0	0.00	7	70	0.08
November number 1 2022	1	10	0.01	0	0	0.00	1	10	0.01
November number 2 2022	5	54	0.06	0	0	0.00	5	54	0.06
February number 1 2023	0	0	0.00	0	0	0.00	0	0	0.00

Within the OAA plus 2km buffer									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
February number 2 2023	0	0	0.00	0	0	0.00	0	0	0.00
February number 3 2023	1	11	0.01	0	0	0.00	1	11	0.01
March number 1 2023	0	0	0.00	0	0	0.00	0	0	0.00
March number 2 2023	0	0	0.00	0	0	0.00	0	0	0.00

Table note: Seasons are colour coded as follows: yellow = breeding season, blue = non-breeding season

4.7.2 Age ratios

4.7.2.1 All records of puffin were assigned to the 'unknown' age class, as there are no readily identifiable features between different age classes within DAS data.

4.7.3 Seasonal mean peak abundance estimates

4.7.3.1 Within the OAA plus 2km buffer puffin were present in the greatest abundance during the breeding season, with an estimated mean peak abundance of 554 individuals and a mean peak density of 0.60 individuals/km² (**Table 4.23**, **Table 4.24** and **Plate 4.6**). During both non-breeding seasons, puffin numbers were very low, with no records during most surveys. This is expected, given that puffins breeding on the east coast of Britain disperse widely into the North Sea in winter, with many birds from the northern isles also wintering in the North Atlantic (Furness, 2015). In the breeding season in Year 1, abundance was high in April and May 2021 but low in the following months, suggesting that most records consisted of migrating birds. In Year 2, abundance was higher throughout the breeding season, likely due to a combination of migratory movements and foraging, as the study area lies within the species' MMFR plus one standard deviation from several colonies.

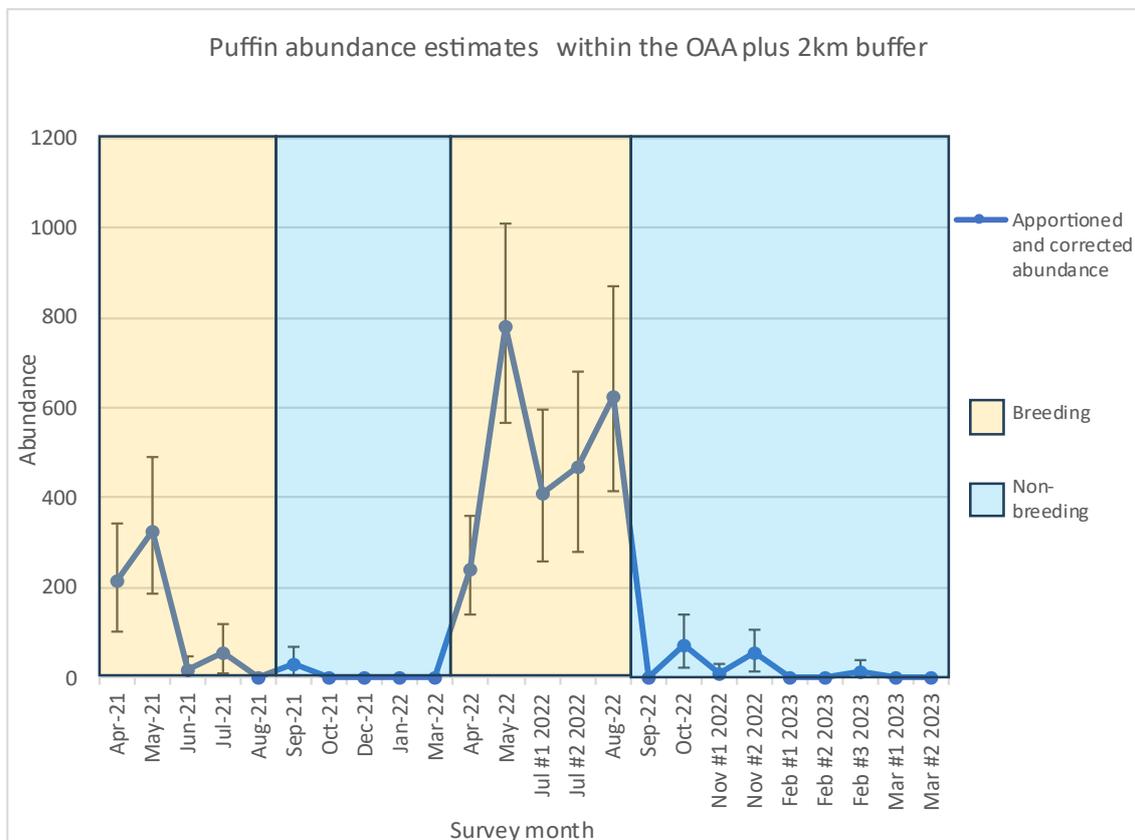
Table 4.23 Puffin seasonal mean peak abundance and density (individuals per km²) within the OAA

Within the OAA						
Season	All behaviours		Flying		Sitting	
	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density
Breeding (April to mid-August)	400	0.58	8	0.01	392	0.57
Non-breeding (mid-August to March)	33	0.05	0	0.00	36	0.05

Table 4.24 Puffin seasonal mean peak abundance and density (individuals per km²) within the OAA plus 2km buffer

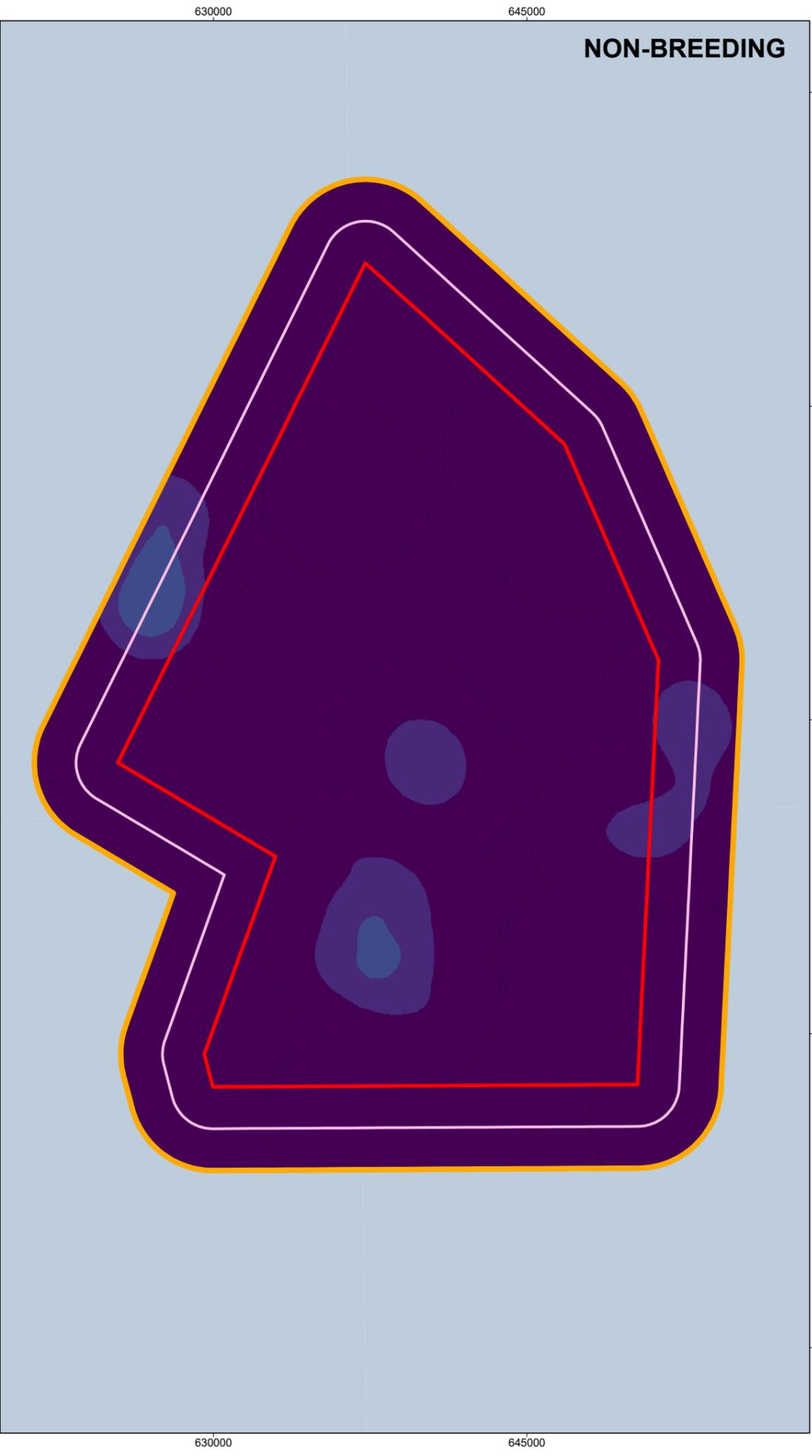
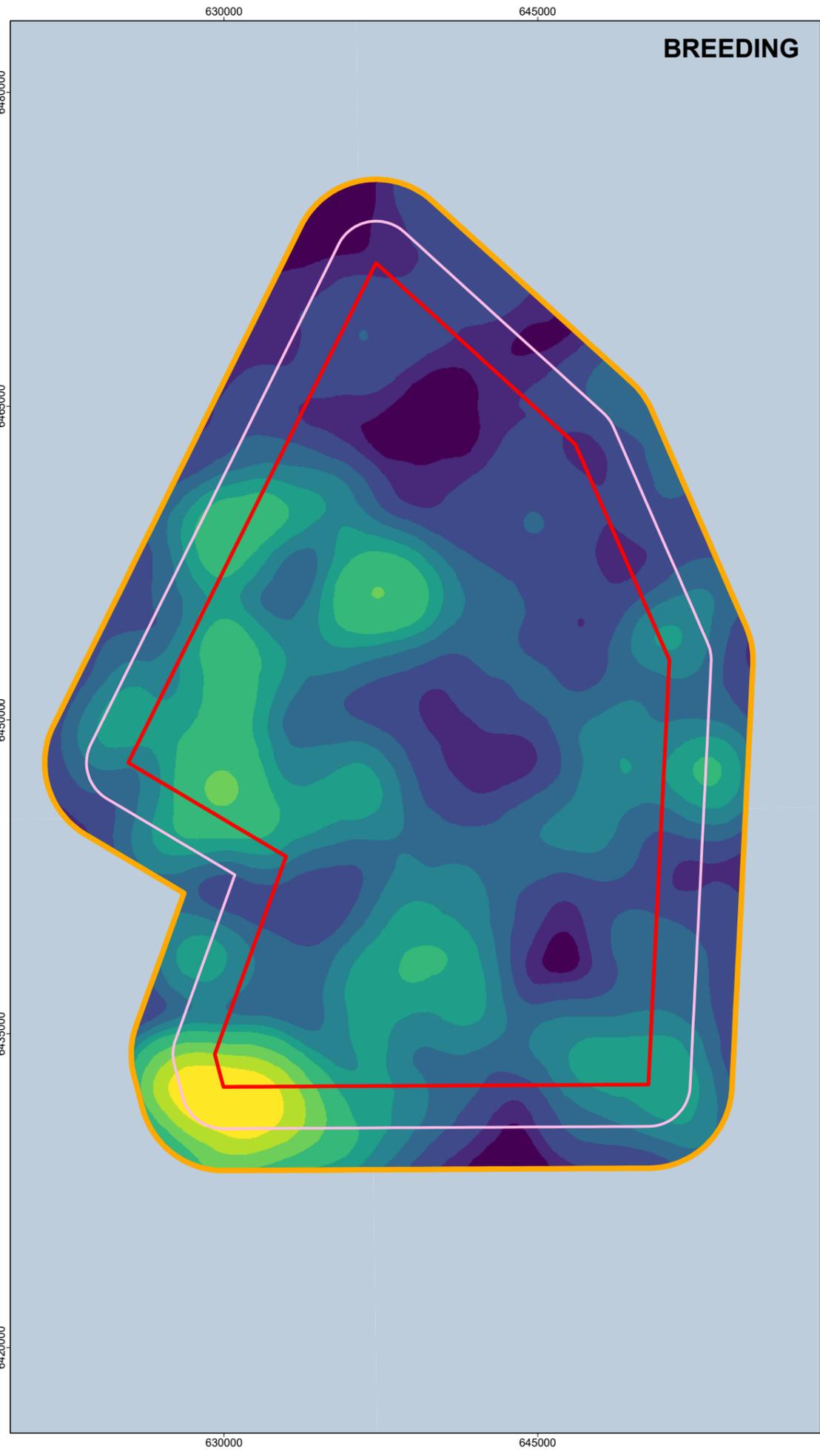
Within the OAA plus 2km buffer						
Season	All behaviours		Flying		Sitting	
	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density
Breeding (April to mid-August)	554	0.60	12	0.01	546	0.59
Non-breeding (mid-August to March)	50	0.05	0	0.00	50	0.05

Plate 4.6 Puffin abundance estimates for the 24-month survey period within the OAA plus 2km buffer, by season

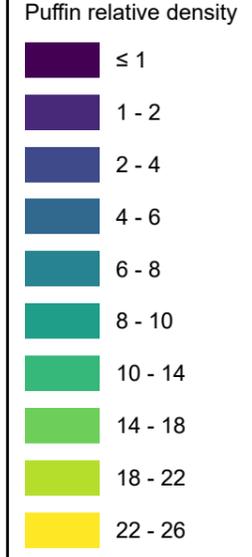


4.7.4 Spatial density distribution and flight direction

- 4.7.4.1 Puffin densities were higher throughout the study area in the breeding season compared to the non-breeding season. Density was lower in the north and north-east, and highest in the south-western corner of the study area. In the non-breeding season, there were very few records which were scattered throughout the study area (**Figure 9**).
- 4.7.4.2 There were no surveys with more than five observed puffin flights. Therefore, no rose diagrams were created for this species and conclusions about flight direction cannot be drawn.



- Option Agreement Area
- Option Agreement Area 2km Buffer
- Option Agreement Area 4km Buffer



REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER
2	29/10/2025	BB	GB	MB	LG
1	21/07/2025	GB	BB	MB	LG

WSP DRAWING NUMBER 808368-WEIS-IA-ES-FG-O6-22536

MarramWind DRAWING NUMBER MAR-GEN-ENV-MAP-WSP-000252

DATUM ETRS 89 PROJECTION UTM Zone 30N

SCALE 1:250,000 PAGE SIZE A3

PROJECT TITLE MarramWind Offshore Wind Farm

DRAWING TITLE
Figure 9 Puffin kernel density heatmap by season
Environmental Impact Assessment Report
Appendix 12.1

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4.7.5 Highly pathogenic avian influenza (HPAI) review

- 4.7.5.1 Tremlett *et al.* (2024) conducted a review of pre and post HPAI outbreak colony counts for key seabird species. Upon review, the mortality levels of puffin due to HPAI were assessed as low due to the minimal numbers of mortalities due to the virus. Therefore, the DAS data that has been collected as part of the baseline characterisation for the Project is representative, regardless of the presence of HPAI. In addition, a further, less significant outbreak of HPAI occurred at seabird colonies in 2023, although highly limited impacts to puffin were reported (Tremlett *et al.*, 2024). Subsequent years have experienced minor isolated HPAI outbreaks without any significant mortality events recorded (DEFRA, 2024). Details of known colony trends for key designated puffin colonies with connectivity screened in for Appropriate Assessment are provided within the **RIAA**.

4.8 Fulmar

4.8.1 The Project survey data (aerial survey data 2021 to 2023)

- 4.8.1.1 Out of the 24 DAS, fulmar were recorded in all surveys within the OAA and the OAA plus 2km buffer (**Appendix C**). Fulmar had a peak abundance in the OAA plus 2km buffer in August 2021 (abundance estimate of 3,702 individuals) and September 2022 (abundance estimate of 3,435 individuals) in the first and second year of DAS, respectively (**Table 4.25** and **Table 4.26**). Within the OAA the average fulmar density was 1.46 individuals/ km² with densities ranging between 0.15 and 4.87 individuals per km². Within the OAA plus 2km buffer the average density was 1.43 individuals per km², ranging between 0.22 and 4.03.

Table 4.25 Fulmar raw counts, total estimated abundance and total estimated density (individuals per km²) within the OAA

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
April 2021	81	641	0.94	31	247	0.36	50	395	0.58
May 2021	38	302	0.44	28	223	0.33	10	78	0.11
Jun 2021	22	175	0.26	14	111	0.16	8	64	0.09
July 2021	143	1,104	1.61	99	763	1.12	44	341	0.50
August 2021	407	3,331	4.87	338	2,776	4.06	69	556	0.81
September 2021	190	1,430	2.09	37	281	0.41	153	1,150	1.68

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
October 2021	67	544	0.80	12	98	0.14	55	446	0.65
December 2021	99	797	1.17	79	636	0.93	20	161	0.24
January 2022	77	617	0.90	59	473	0.69	18	144	0.21
March 2022	21	167	0.24	16	127	0.19	5	40	0.06
April 2022	23	181	0.26	7	55	0.08	16	127	0.19
May 2022	13	103	0.15	12	95	0.14	1	8	0.01
July number 1 2022	164	1,302	1.90	100	797	1.17	64	506	0.74

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
July number 2 2022	216	1,723	2.52	126	1,003	1.47	90	720	1.05
August 2022	106	821	1.20	61	472	0.69	45	349	0.51
September 2022	402	3,164	4.63	104	825	1.21	298	2,340	3.42
October 2022	183	1,433	2.10	27	212	0.31	156	1,221	1.79
November number 1 2022	163	1,282	1.87	91	716	1.05	72	566	0.83
November number 2 2022	270	2,212	3.24	123	1,000	1.46	147	1,212	1.77
February number 1 2023	54	430	0.63	36	286	0.42	18	144	0.21

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
February number 2 2023	55	442	0.65	36	288	0.42	19	153	0.22
February number 3 2023	91	712	1.04	54	422	0.62	37	290	0.42
March number 1 2023	83	670	0.98	47	371	0.54	36	298	0.44
March number 2 2023	42	333	0.49	26	207	0.30	16	126	0.18

Table note: Seasons are colour coded as follows: yellow = breeding season, blue = non-breeding season

Table 4.26 Fulmar raw counts, total estimated abundance and total estimated density (individuals per km²) within the OAA plus 2km buffer

Within the OAA plus 2km buffer									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
April 2021	92	720	0.78	37	295	0.32	55	425	0.46
May 2021	54	424	0.46	35	275	0.30	19	149	0.16
Jun 2021	28	223	0.24	17	136	0.15	11	87	0.09
July 2021	211	1,627	1.77	146	1,125	1.22	65	501	0.54
August 2021	447	3,702	4.03	358	2,982	3.24	89	720	0.78
September 2021	243	1,865	2.03	54	415	0.45	189	1,451	1.58

Within the OAA plus 2km buffer									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
October 2021	86	705	0.77	24	195	0.21	62	510	0.55
December 2021	125	1,007	1.10	103	829	0.90	22	179	0.19
January 2022	98	784	0.85	78	623	0.68	20	161	0.18
March 2022	29	227	0.25	22	172	0.19	7	56	0.06
April 2022	32	253	0.28	7	56	0.06	25	198	0.22
May 2022	25	199	0.22	22	175	0.19	3	24	0.03
July number 1 2022	312	2,518	2.74	152	1,217	1.32	160	1,301	1.41

Within the OAA plus 2km buffer									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
July number 2 2022	312	2,482	2.70	167	1,330	1.45	145	1,152	1.25
August 2022	151	1,174	1.28	86	669	0.73	65	505	0.55
September 2022	423	3,425	3.72	107	850	0.92	316	2,575	2.80
October 2022	231	1,822	1.98	34	268	0.29	197	1,554	1.69
November number 1 2022	242	1,920	2.09	135	1,072	1.17	107	847	0.92
November number 2 2022	352	2,887	3.14	160	1,310	1.42	192	1,576	1.71
February number 1 2023	86	686	0.75	61	486	0.53	25	200	0.22

Within the OAA plus 2km buffer									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
February number 2 2023	76	610	0.66	51	410	0.45	25	201	0.22
February number 3 2023	138	1,085	1.18	69	543	0.59	69	542	0.59
March number 1 2023	105	840	0.91	64	506	0.55	41	334	0.36
March number 2 2023	53	418	0.45	31	245	0.27	22	174	0.19

Table note: Seasons are colour coded as follows: yellow = breeding season, blue = non-breeding season

4.8.2 Age ratios

- 4.8.2.1 All records of fulmar were assigned to the 'unknown' age class, as there were no readily identifiable features between different age classes within the DAS data, nor any other conventional survey method.

4.8.3 Seasonal mean peak abundance estimates

- 4.8.3.1 Within the OAA plus 2km buffer fulmar were present in the greatest abundance during the breeding season, with an estimated mean peak abundance of 3,110 individuals and a mean peak density of 3.38 individuals/km² (**Table 4.27**, **Table 4.28** and **Plate 4.7**). In Year 1, fulmar abundance decreased through the first half of the breeding season, before increasing to a peak in August 2021. The peak in August 2021 is expected to be artificially inflated due to the presence of a shipping vessel within the OAA, which fulmars were observed actively following. Abundance gradually decreased throughout the non-breeding season and remained low in April and May 2022. Abundance then increased in the middle of the breeding season in Year 2, with large numbers of fulmars recorded during the July surveys. Numbers then decreased in August before increasing again at the start of the non-breeding season in September, likely indicating migratory movements. Following this, there was a small decrease in fulmar abundance before another peak in November 2022. Fulmar abundance then decreased sharply and remained low for the rest of the non-breeding season.

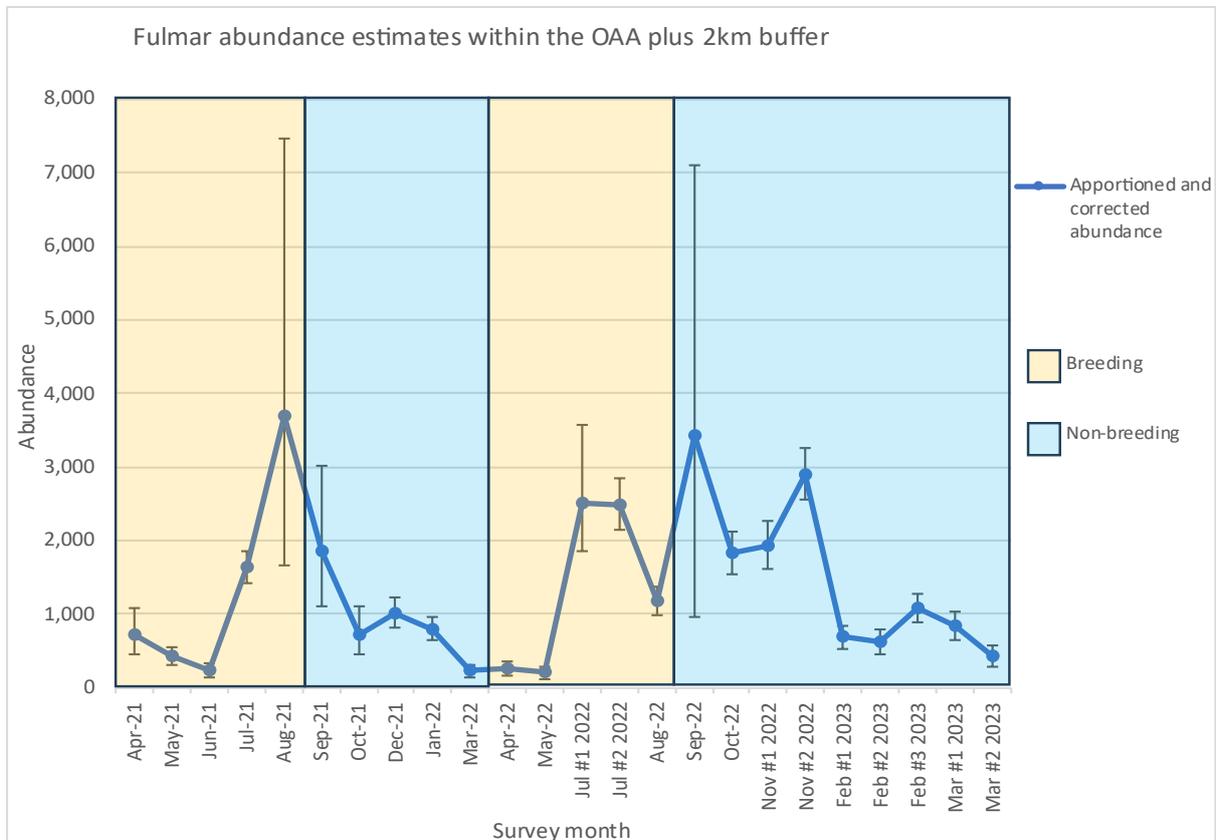
Table 4.27 Fulmar seasonal mean peak abundance and density (individuals per km²) within the OAA

Within the OAA						
Season	All behaviours		Flying		Sitting	
	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density
Breeding (April to mid-September)	2,527	3.69	1,890	2.76	638	0.93
Non-breeding (mid-September to March)	755	1.10	529	0.77	230	0.34

Table 4.28 Fulmar seasonal mean peak abundance and density (individuals per km²) within the OAA plus 2km buffer

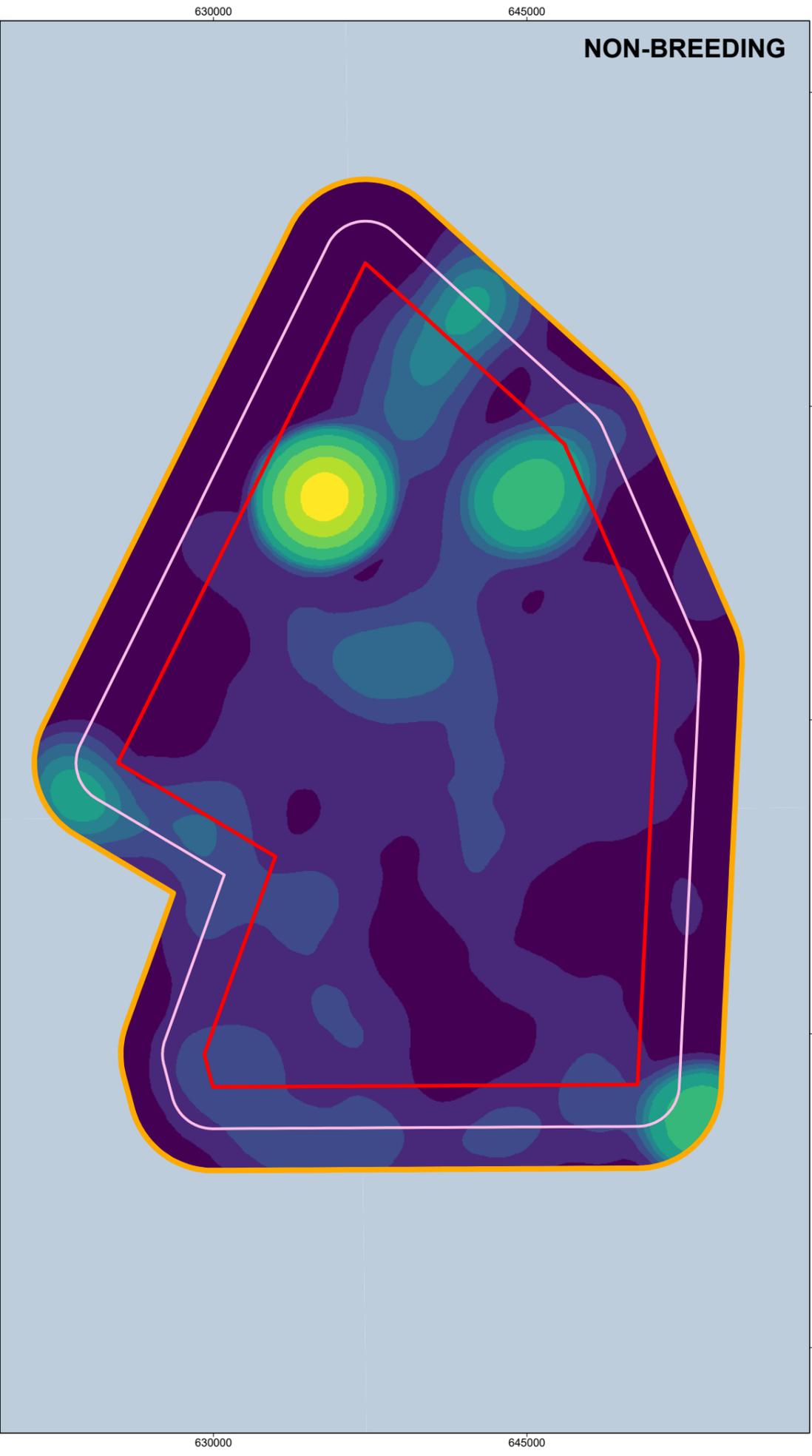
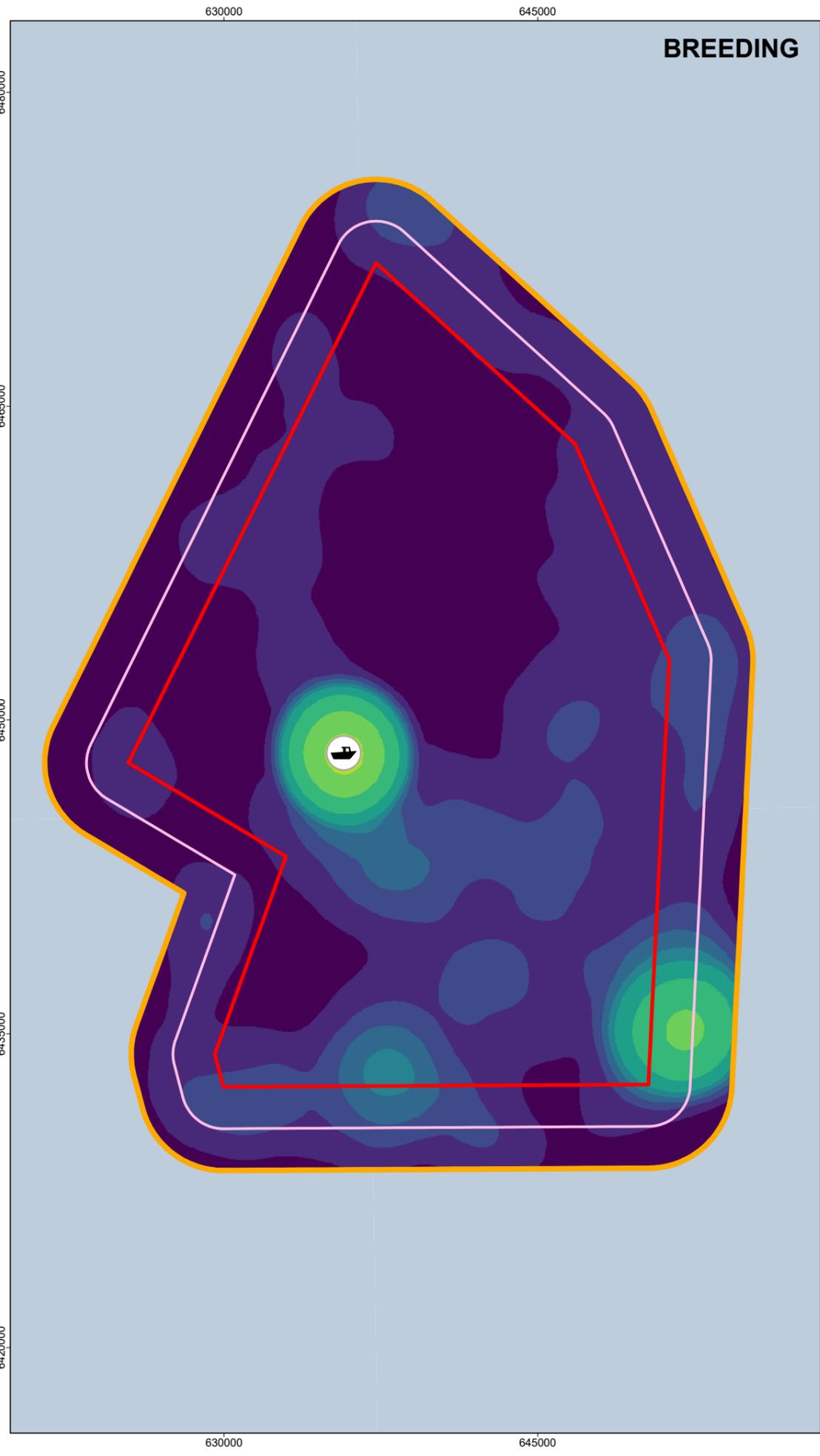
Within the OAA plus 2km buffer						
Season	All behaviours		Flying		Sitting	
	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density
Breeding (April to mid-September)	3,110	3.38	2,156	2.34	1,011	1.10
Non-breeding (mid-September to March)	1,046	1.14	686	0.75	361	0.39

Plate 4.7 Fulmar abundance estimates for the 24-month survey period within the OAA plus 2km buffer, by season



4.8.4 Spatial density distribution and flight direction

- 4.8.4.1 During the breeding season, there were two clear hotspots for fulmar density, with one in the south-eastern corner of the study area and one near the centre. The hotspot in the centre relates to the presence of a fishing vessel which attracted a large number of birds during the August 2021 survey, and this is indicated in **Figure 10**. Therefore, the density of fulmars in this location and the high abundance recorded within the study area was likely artificially inflated. During the non-breeding season, the highest densities of fulmar were recorded in the north of the study area, with a clear hotspot near the north-western border of the OAA.
- 4.8.4.2 The flight directions of fulmars in the study area varied widely between surveys and within some surveys. In August 2021, there was a clear southerly orientation to flights, with a sample size of 388 observations, though such direction likely relates to a large number of fulmars following a fishing vessel. Most fulmar flights in September 2021 were also in a southerly direction, which may indicate post-breeding migration. Flights were mainly in a south-westerly direction in October and December 2021 and had a clear southern orientation in January 2022. Flights also had a south-westerly orientation in July, September and the first November survey in 2022, whereas most flights in August, October and the second November survey in 2022 were in a south-easterly direction. Flight directions continued to vary through the rest of the survey programme, without obvious trends. This may indicate birds either foraging or commuting through the study area.



Option Agreement Area

- Option Agreement Area
- Option Agreement Area 2km Buffer
- Option Agreement Area 4km Buffer

Fulmar relative density

- ≤ 20
- 20 - 30
- 30 - 40
- 40 - 50
- 50 - 60
- 60 - 90
- 90 - 150
- 150 - 220
- 220 - 300
- > 300

Fishing vessel

0 5 10 Kilometres



ddmm/yyyy	--	--	--	--
2	29/10/2025	BB	GB	MB LG
1	21/07/2025	GB	BB	MB LG
REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER APPROVER

WSP DRAWING NUMBER 808368-WEIS-IA-ES-FG-06-68752

MarramWind DRAWING NUMBER MAR-GEN-ENV-MAP-WSP-000232

DATUM	ETRS 89	PROJECTION	UTM Zone 30N
SCALE	1:250,000	PAGE SIZE	A3

PROJECT TITLE MarramWind Offshore Wind Farm

DRAWING TITLE
 Figure 10 Fulmar kernel density heatmap by season
Environmental Impact Assessment Report
Appendix 12.1

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4.8.5 Highly pathogenic avian influenza (HPAI) review

- 4.8.5.1 Tremlett *et al.* (2024) conducted a review of pre and post HPAI outbreak colony counts for key seabird species. Upon review, the mortality levels of fulmar due to HPAI were assessed as low due to the minimal numbers of mortalities due to the virus. Therefore, the DAS data that has been collected as part of the baseline characterisation for the Project is representative, regardless of the presence of HPAI. In addition, a further, less significant outbreak of HPAI occurred at seabird colonies in 2023, although highly limited impacts to fulmar were reported (Tremlett *et al.*, 2024). Subsequent years have experienced minor isolated HPAI outbreaks without any significant mortality events recorded (DEFRA, 2024). Details of known colony trends for key designated fulmar colonies with connectivity screened in for Appropriate Assessment are provided within the **RIAA**.

4.9 Gannet

4.9.1 The Project survey data (aerial survey data 2021 to 2023)

- 4.9.1.1 Out of the 24 DAS, gannet were recorded in all surveys within the OAA and the OAA plus 2km buffer (**Appendix C**). Gannet had a peak abundance in the OAA plus 2km buffer in August 2021 (abundance estimate of 2,724 individuals) and April 2022 (abundance estimate of 615 individuals) in the first and second year of DAS, respectively (**Table 4.29** and **Table 4.30**). Within the OAA the average gannet density was 0.36 individuals/ km² with densities ranging between 0.01 and 3.72 individuals per km². Within the OAA plus 2km buffer the average density was 0.36 individuals per km², ranging between 0.01 and 2.96 individuals per km².

Table 4.29 Gannet raw counts, total estimated abundance and total estimated density (individuals per km²) within the OAA

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
April 2021	74	582	0.85	18	142	0.21	56	439	0.64
May 2021	27	214	0.31	16	126	0.18	11	87	0.13
Jun 2021	35	278	0.41	11	88	0.13	24	191	0.28
July 2021	9	68	0.10	7	53	0.08	2	15	0.02
August 2021	315	2,542	3.72	244	1,972	2.88	71	571	0.84
September 2021	51	390	0.57	35	266	0.39	16	124	0.18

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
October 2021	42	337	0.49	31	249	0.36	11	88	0.13
December 2021	2	16	0.02	2	16	0.02	0	0	0.00
January 2022	2	16	0.02	2	16	0.02	0	0	0.00
March 2022	5	40	0.06	5	40	0.06	0	0	0.00
April 2022	9	71	0.10	7	55	0.08	2	16	0.02
May 2022	49	390	0.57	28	222	0.32	21	168	0.25
July number 1 2022	9	70	0.10	5	38	0.06	4	32	0.05

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
July number 2 2022	12	96	0.14	6	48	0.07	6	48	0.07
August 2022	15	117	0.17	7	54	0.08	8	63	0.09
September 2022	52	414	0.61	17	138	0.20	35	276	0.40
October 2022	15	118	0.17	11	86	0.13	4	32	0.05
November number 1 2022	5	40	0.06	3	24	0.04	2	16	0.02
November number 2 2022	3	25	0.04	2	17	0.02	1	8	0.01
February number 1 2023	1	8	0.01	1	8	0.01	0	0	0.00

Within the OAA									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
February number 2 2023	2	16	0.02	2	16	0.02	0	0	0.00
February number 3 2023	6	48	0.07	6	48	0.07	0	0	0.00
March number 1 2023	1	8	0.01	1	8	0.01	0	0	0.00
March number 2 2023	7	55	0.08	4	32	0.05	3	24	0.04

Table note: Seasons are colour coded as follows: yellow = breeding season, blue = non-breeding season

Table 4.30 Gannet raw counts, total estimated abundance and total estimated density (individuals per km²) within the OAA plus 2km buffer

Within the OAA plus 2km buffer									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
April 2021	98	772	0.84	32	252	0.27	66	521	0.57
May 2021	30	237	0.26	18	143	0.16	12	93	0.10
Jun 2021	44	348	0.38	15	120	0.13	29	229	0.25
July 2021	16	123	0.13	9	69	0.08	7	53	0.06
August 2021	332	2,724	2.96	260	2,140	2.33	72	583	0.63
September 2021	74	570	0.62	45	348	0.38	29	222	0.24

Within the OAA plus 2km buffer									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
October 2021	55	442	0.48	41	329	0.36	14	113	0.12
December 2021	2	17	0.02	2	17	0.02	0	0	0.00
January 2022	2	16	0.02	2	16	0.02	0	0	0.00
March 2022	8	63	0.07	8	63	0.07	0	0	0.00
April 2022	75	615	0.67	8	64	0.07	67	550	0.60
May 2022	65	520	0.57	37	297	0.32	28	224	0.24
July number 1 2022	16	129	0.14	8	64	0.07	8	65	0.07

Within the OAA plus 2km buffer									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
July number 2 2022	16	127	0.14	8	63	0.07	8	63	0.07
August 2022	24	186	0.20	10	78	0.08	14	108	0.12
September 2022	65	526	0.57	21	172	0.19	44	354	0.38
October 2022	21	165	0.18	12	94	0.10	9	71	0.08
November number 1 2022	10	79	0.09	5	40	0.04	5	39	0.04
November number 2 2022	4	33	0.04	3	25	0.03	1	8	0.01
February number 1 2023	1	8	0.01	1	8	0.01	0	0	0.00

Within the OAA plus 2km buffer									
Survey	All behaviours			Flying			Sitting		
	Raw count	Abundance	Density	Raw count	Abundance	Density	Raw count	Abundance	Density
February number 2 2023	8	65	0.07	2	16	0.02	6	50	0.05
February number 3 2023	8	63	0.07	8	63	0.07	0	0	0.00
March number 1 2023	2	16	0.02	2	16	0.02	0	0	0.00
March number 2 2023	10	81	0.09	6	48	0.05	4	32	0.03

Table note: Seasons are colour coded as follows: yellow = breeding season, blue = non-breeding season

4.9.2 Age ratios

- 4.9.2.1 In gannets, juvenile and first calendar year plumage is primarily grey-brown in colour without any yellow plumage on the head (Svensson *et al.*, 2023), making them distinct from adult birds. In second calendar year birds, the plumage on the head, underparts, uppertail coverts and some of the lesser wing coverts turns white, also making these birds distinguishable from other age classes. For third calendar year birds, most tail feathers and secondaries are black, while the rest of the plumage resembles adult birds, so they are also distinguishable from adults, depending on the quality of the DAS imagery and the behaviour of the bird. The distinguishing features required to age a gannet may be difficult to see if the bird is banking in flight or sitting on the water. Fourth calendar year birds have black central tail feathers and some off scattered secondaries remain black, while the rest of the plumage resembles that of an adult. As with third calendar year birds, depending on the quality of the imagery of the bird, this age category may be less regularly distinguished from adults. From the fourth summer moult onwards, the plumage of gannets remains indistinguishable, with the average age of first breeding at five years old. There is therefore potential to overestimate the proportion of breeding adult birds within the survey area when using site-specific survey data.
- 4.9.2.2 Age classes for gannet were determined through identification of individuals from DAS imagery across the entire offshore study area (OAA plus 4km buffer). Following initial identification, the proportions of the different age classes identified could be calculated for each season. The age classes identification categorised individuals into 'adult' (over fourth year) plumage, 'juvenile' (first winter/ summer) plumage, second through fourth calendar year plumage, and 'unknown'. For the breeding and non-breeding season considered for gannet, the percentage of 'unknown' birds was 11.0% and 9.5%, respectively. Of the gannet with an identified age class, the majority were 'adult' plumage, with 87.1% in the breeding season and 90.0% in the non-breeding season, with few individuals categorised as juvenile (0% to 0.7%), second year (0% to 0.5%), third year (0.5% to 0.6%) and fourth year birds (0% to 0.7%) (Table 4.31).

Table 4.31 Gannet plumage proportions from raw counts

Season	Plumage proportions (%)					
	Adult	Fourth calendar year	Third calendar year	Second calendar year	Juvenile	Unknown
Breeding	87.1% (n = 911)	0.7% (n = 7)	0.6% (n = 6)	0.5% (n = 5)	0.2% (n = 2)	11.0% (n = 115)
Non-breeding	90.0% (n = 194)	N/A	0.5% (n = 1)	N/A	N/A	9.5% (n = 19)

4.9.3 Seasonal mean peak abundance estimates

- 4.9.3.1 Within the OAA plus 2km buffer gannet were present in the greatest abundance during the breeding season, with an estimated mean peak abundance of 1,670 individuals and a mean peak density of 1.82 individuals/km² (Table 4.32, Table 4.33 and Plate 4.8). In Year 1, gannet abundance decreased through the first half of the breeding season. This pattern was also apparent during the breeding season in Year 2, and the early peaks may be

explained by birds moving through the study area during return migration. In Year 1, abundance peaked in August 2021. This peak is expected to be artificially inflated due to the presence of a shipping vessel within the OAA, which gannets were observed actively following, whereas there was only a small increase in numbers in September 2022. Abundance was consistently low through both non-breeding seasons, which is expected given the migratory behaviour of gannets, as most winter in the North Atlantic, mainly in the Bay of Biscay or off the coast of West Africa, with a minority wintering in the North Sea (Furness, 2015).

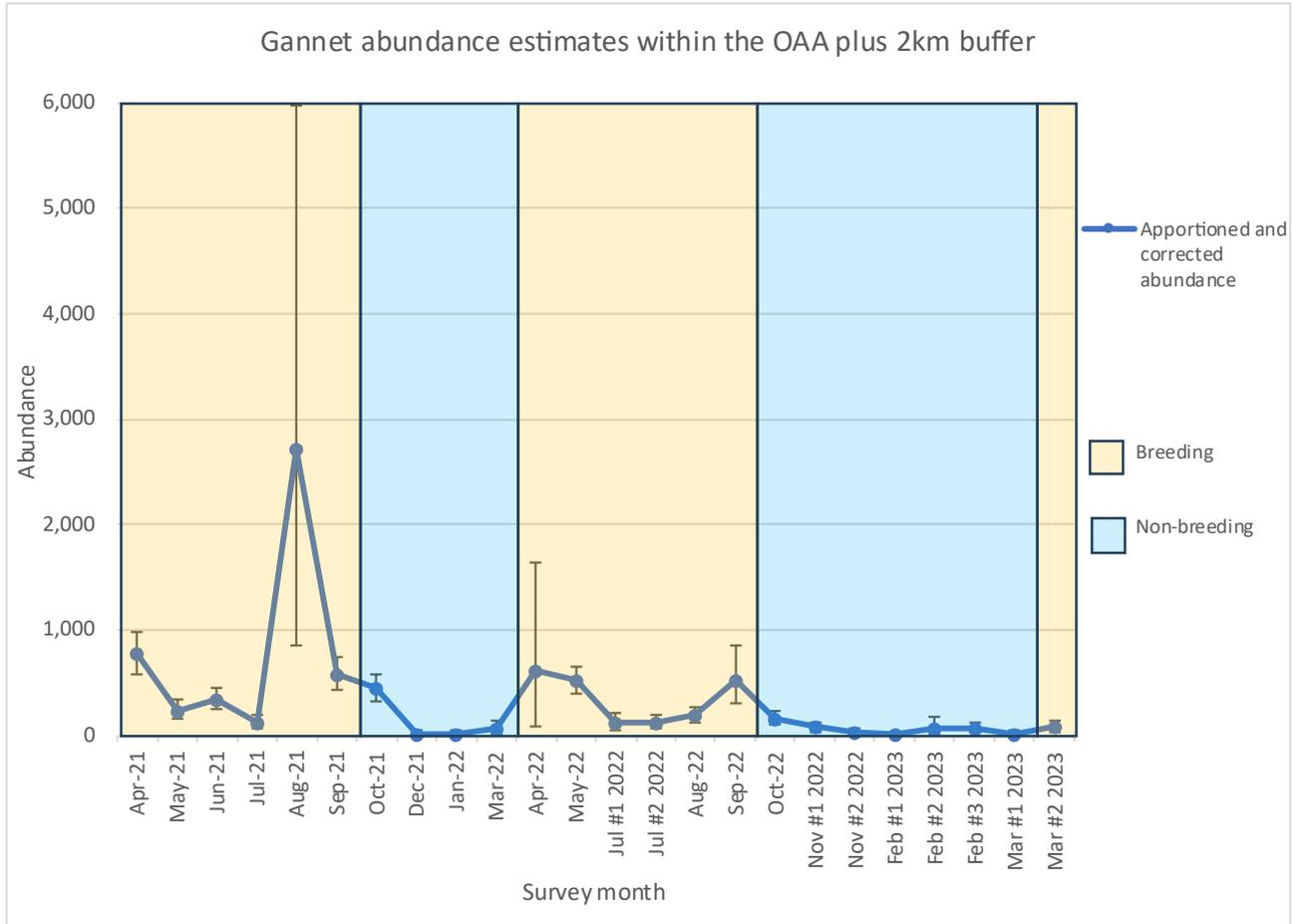
Table 4.32 Gannet seasonal mean peak abundance and density (individuals per km²) within the OAA

Within the OAA						
Season	All behaviours		Flying		Sitting	
	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density
Breeding (mid-March to September)	1,478	2.16	1,097	1.60	424	0.62
Non-breeding (October to mid-March)	228	0.33	168	0.24	60	0.09

Table 4.33 Gannet seasonal mean peak abundance and density (individuals per km²) within the OAA plus 2km buffer

Within the OAA plus 2km buffer						
Season	All behaviours		Flying		Sitting	
	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density	Seasonal mean peak abundance	Seasonal mean peak density
Breeding (mid-March to September)	1,670	1.82	1,219	1.32	567	0.62
Non-breeding (October – to mid-March)	304	0.33	212	0.23	92	0.10

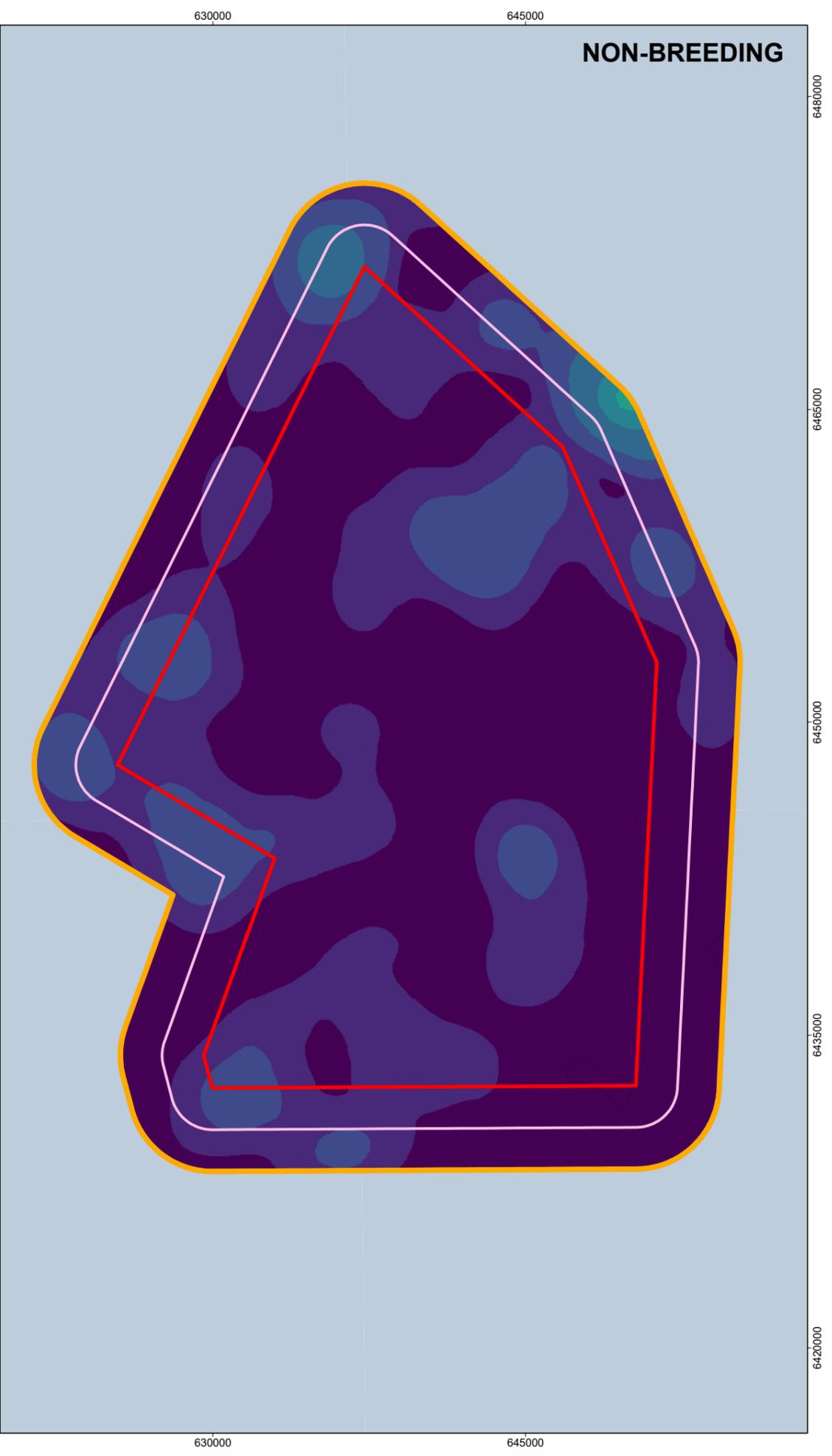
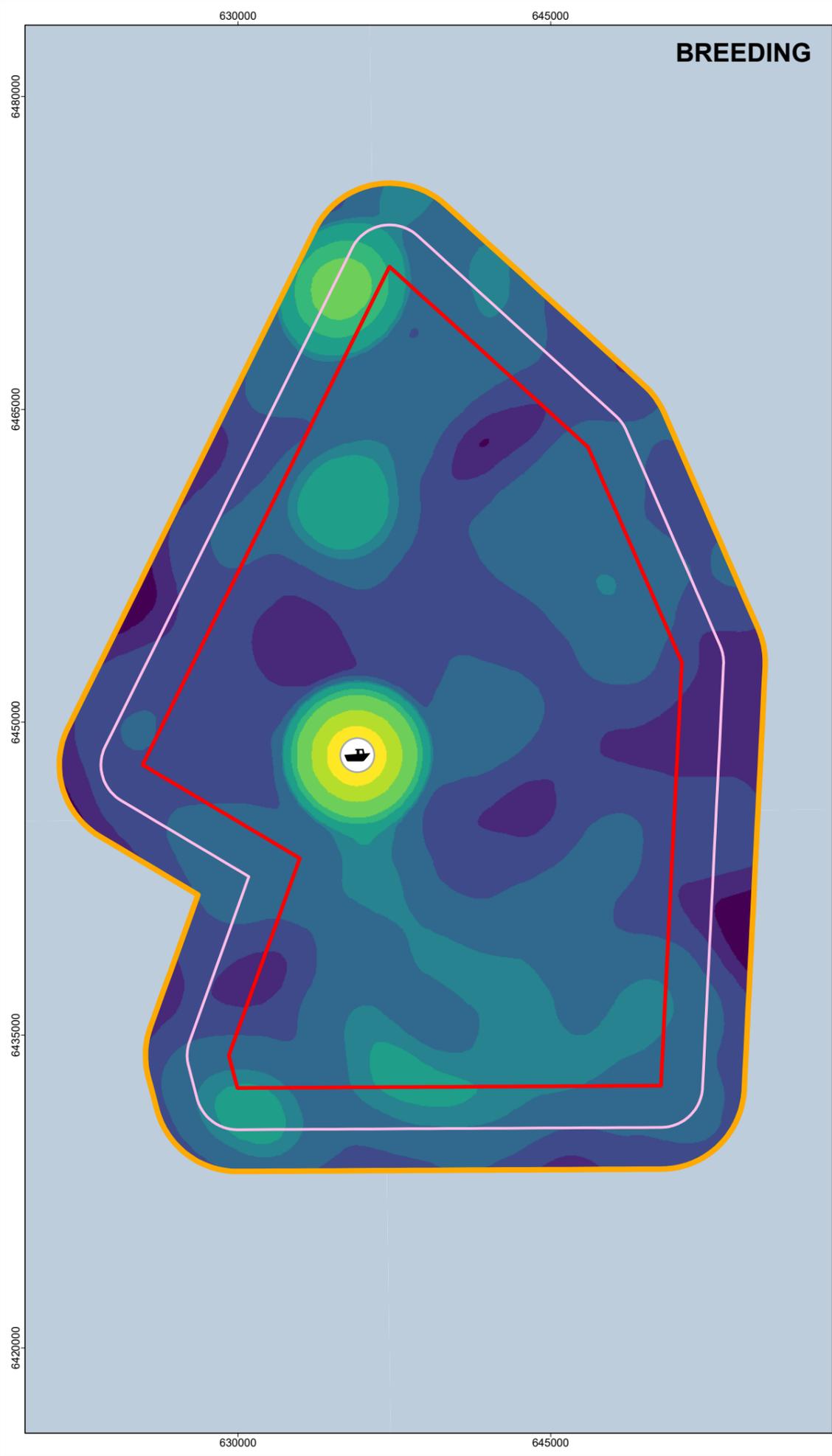
Plate 4.8 Gannet abundance estimates for the 24-month survey period within the OAA plus 2km buffer, by season



4.9.4 Spatial density distribution and flight direction

4.9.4.1 Gannet densities were much higher in the breeding season than in the non-breeding season. The highest density was recorded near the centre of the study area, however this was due to the presence of a fishing vessel in August 2021, as indicated in **Figure 11**. Therefore, the high density in this location and the abundance of gannets within the study area during this survey are likely artificially inflated. During the non-breeding season, there were some areas of slightly higher density in the north-east and south-west of the study area.

4.9.4.2 Gannet flight directions varied throughout the survey programme, with no significant trend observed during most surveys. In April 2021, most flights were in a south-easterly direction. From August 2021 to March 2022, flights had a clear southerly or south-westerly orientation, however the trend in August was likely influenced by the presence of a fishing vessel. Flights in March 2022 had a northern orientation. There was no significant trend in flight direction in the remaining surveys.



BREEDING

NON-BREEDING

- Option Agreement Area
- Option Agreement Area 2km Buffer
- Option Agreement Area 4km Buffer

Gannet relative density

- ≤ 2
- 2 - 4
- 4 - 8
- 8 - 16
- 16 - 20
- 20 - 40
- 40 - 60
- 60 - 120
- 120 - 180
- >180

⚓ Fishing vessel

0 5 10

Kilometres

North Sea
Scale: 1:10,000,000

REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER
2	29/10/2025	BB	GB	MB	LG
1	21/07/2025	GB	BB	MB	LG

WSP DRAWING NUMBER 808368-WEIS-IA-ES-FG-O6-66738

MarramWind DRAWING NUMBER MAR-GEN-ENV-MAP-WSP-000234

DATUM	ETRS 89	PROJECTION	UTM Zone 30N
SCALE	1:250,000	PAGE SIZE	A3

PROJECT TITLE MarramWind Offshore Wind Farm

DRAWING TITLE

Figure 11 Gannet kernel density heatmap by season

Environmental Impact Assessment Report

Appendix 12.1

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MarramWind

4.9.5 Highly pathogenic avian influenza (HPAI) review

- 4.9.5.1 Gannets in the UK were first recorded as having HPAI in May 2022 (DEFRA, 2022e) with cases of the virus in this species increasing in number and location since. A review of pre and post HPAI outbreak colony trends was conducted by Tremlett *et al.* (2024) for various seabird species. Gannet AONs and Apparently Occupied Sites (AOS) were shown to have decreased by 25% when comparing pre-HPAI records to counts conducted in 2023 post the outbreak. It must be noted that colony specific trends do differ in terms of colony count change.
- 4.9.5.2 Gannet AONs at Forth Islands SPA (the largest gannetry in the UK) have seen a decrease of 31% from the pre-outbreak baseline count in 2014 to the most recent count taken in 2023 (Harris *et al.*, 2023). The colony at Forth Islands SPA saw a large decline in the population due to the outbreak of HPAI (**Table 4.34**), however, the first signs of the virus at the colony did not occur until 30 June 2022. Since the initial decline in the population (Lane *et al.*, 2024), there has been recovery from 2022 to 2023 suggesting an increase of 142% (Harris *et al.*, 2024). It is considered this population recovery has continued between 2023 and 2024 and that lower numbers recorded in 2024 instead reflect an updated surveying method.

Table 4.34 Gannet colony counts at Forth Islands SPA from 2009 to 2024 (SMP, 2025; Harris *et al.*, 2023 and Lane *et al.*, 2024)

	Year					
	2009	2014	2021**	2022*	2023**	2024
Colony count (AON)	60,853	75,259	81,000	21,227	51,844	46,049

Table note: *2022 count taken from Lane *et al.* (2024) **2021 and 2023 count taken from Harris *et al.* (2024)

- 4.9.5.3 Details of known colony trends for key designated gannet colonies with connectivity screened in for Appropriate Assessment are provided within the **RIAA**.

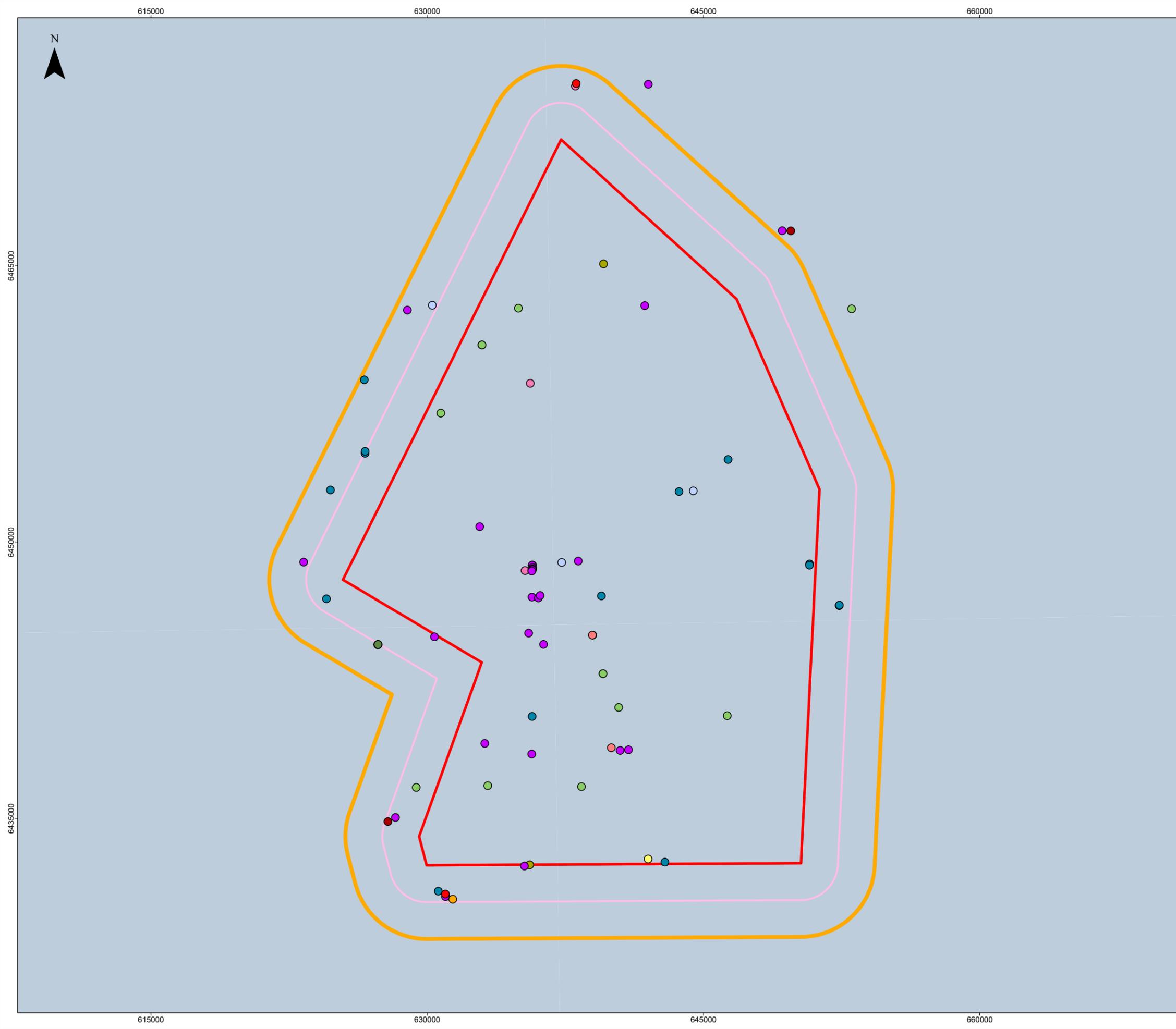
4.10 Other species recorded

4.10.1 The Project survey data (aerial survey data April 2021 to March 2023)

- 4.10.1.1 Whimbrel was recorded once in the OAA in May 2022, with a peak estimated abundance of eight individuals, corresponding to a density of 0.01 individuals/km² (**Appendix C**). This record occurred near the southern edge of the OAA (**Figure 12**).
- 4.10.1.2 Ruff was not recorded in the OAA. This species was recorded once in the OAA plus 4km buffer in July 2022, with a peak estimated abundance of eight individuals, corresponding to a density of 0.01 individuals/km² (**Appendix C**). This record occurred in the west of the study area (**Figure 12**).
- 4.10.1.3 Woodcock was not recorded in the OAA. This species was recorded once in the OAA plus 2km buffer and once in the OAA plus 4km buffer in November 2022, with a peak estimated abundance of 16 individuals, corresponding to a density of 0.01 individuals/km²

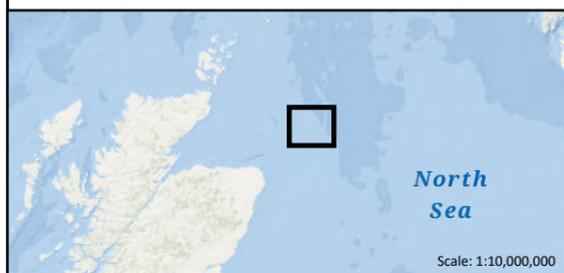
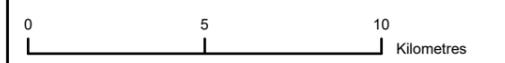
(**Appendix C**) in the OAA plus 4km buffer. These records occurred in the north and south-west of the study area (**Figure 12**).

- 4.10.1.4 Common gull was recorded in one of the 24 DAS in the OAA in July 2021, with a peak estimated abundance of 16 individuals, corresponding to a density of 0.01 individuals/km² (**Appendix C**). Common gulls were observed in the west and north-west of the OAA (**Figure 12**).
- 4.10.1.5 Lesser black-backed gull was recorded once in the OAA in November 2022, with a peak estimated abundance of eight individuals, corresponding to a density of 0.01 individuals/km² (**Appendix C**). This record occurred in the north of the OAA (**Figure 12**).
- 4.10.1.6 Arctic tern was recorded in five of the 24 DAS in the OAA, with a peak estimated abundance of 39 individuals in July 2021, corresponding to a density of 0.06 individuals/km² (**Appendix C**). Records were scattered throughout the OAA and surrounding buffers (**Figure 12**).
- 4.10.1.7 Great skua was recorded in four of the 24 DAS in the OAA, with a peak estimated abundance of 128 individuals in August 2021, corresponding to a density of 0.19 individuals/km² (**Appendix C**). As with gannet and fulmar, this predicted abundance was likely inflated due to the attraction effect of a fishing vessel during the August 2021 survey, as birds were observed following the vessel. This species was mainly recorded in the west and south-west of the OAA (**Figure 12**).
- 4.10.1.8 Arctic skua was not recorded in the OAA. This species was recorded once in the OAA plus 2km buffer in August 2022, with a peak estimated abundance of eight individuals, corresponding to a density of 0.01 individuals/km² (**Appendix C**). This record occurred in the south-west corner of the study area (**Figure 12**).
- 4.10.1.9 Little auk was recorded in one of the 24 DAS in the OAA in November 2022, with a peak estimated abundance of 17 individuals, corresponding to a density of 0.02 individuals/km² (**Appendix C**). This species was recorded near the centre of the OAA (**Figure 12**).
- 4.10.1.10 Red-throated diver was not recorded in the OAA. This species was recorded once in the OAA plus 2km buffer in May 2022, with a peak estimated abundance of eight individuals, corresponding to a density of 0.01 individuals/km² (**Appendix C**). This record occurred in the south-west corner of the study area (**Figure 12**).
- 4.10.1.11 European storm petrel was recorded in five of the 24 DAS in the OAA, with a peak estimated abundance of 139 individuals in July 2021, corresponding to a density of 0.20 individuals/km² (**Appendix C**). This species was mainly recorded in the south and north-west of the OAA (**Figure 12**).
- 4.10.1.12 Manx shearwater was recorded in two of the 24 DAS in the OAA, with a peak estimated abundance of 15 individuals in July 2022, corresponding to a density of 0.02 individuals/km² (**Appendix C**). These records occurred in the south of the OAA (**Figure 12**).



- Option Agreement Area
- Option Agreement Area 2km Buffer
- Option Agreement Area 4km Buffer

- Other species recorded
- Arctic skua
 - Arctic tern
 - Common gull
 - European storm petrel
 - Great skua
 - Lesser black-backed gull
 - Little auk
 - Manx shearwater
 - Red-throated diver
 - Ruff
 - Whimbrel
 - Woodcock



	ddmm/yyyy	--	--	--	--
2	29/10/2025	BB	GB	MB	LG
1	18/07/2025	GB	BB	MB	LG
REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER

WSP DRAWING NUMBER 808368-WEIS-IA-ES-FG-06-66779

MarramWind DRAWING NUMBER MAR-GEN-ENV-MAP-WSP-000236

DATUM	ETRS 89	PROJECTION	UTM Zone 30N
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SCALE	1:200,000	PAGE SIZE	A3
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PROJECT TITLE MarramWind Offshore Wind Farm

DRAWING TITLE
Figure 12 Distribution of other species recorded within the Project study area
Environmental Impact Assessment Report
Appendix 12.1

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5. Intertidal Ornithology Survey Results

- 5.1.1.1 A summary of the key findings from the intertidal surveys completed for the two proposed landfall locations for the Project is provided below.

5.2 Landfall site – Scotstown Beach

- 5.2.1.1 The survey area was found to support large numbers of herring gulls, a qualifying feature of the nearby Buchan Ness to Collieston Coast SPA during the breeding season. Important numbers of herring gulls were recorded with a peak count of 260 in early May 2023, equating to approximately 3.0% of the SPA population of 4,292 pairs but <1% of the UK population of 61,077 pairs (see **Table 5.3**).
- 5.2.1.2 In addition, important numbers of Sandwich terns, a qualifying feature of the Loch of Strathbeg SPA, were recorded in the breeding season. A peak count of 70 individuals were recorded in June 2023 equating to approximately 12.5% of the SPA population (280 pairs), but <1% of the UK population.
- 5.2.1.3 Common guillemot were also recorded in important numbers, with the August peak count of 230 individuals equating to approximately 1.3% of the Buchan Ness to Collieston Coast SPA population of 8,640 pairs but <1% of the UK population of 1,265,888 individuals.
- 5.2.1.4 Shags were present at Scotstown Beach in important numbers, with a peak count of 820 in August 2023 (approximately 39.2% of the SPA population of 1,045 pairs, and 2.0% of the UK population of 20,209 pairs). Other seabird species were recorded in notable numbers (although with peak counts representing <1% of UK populations), these were common gull, Arctic tern, razorbill and gannet.
- 5.2.1.5 Scotstown Beach had a relatively low wildfowl and grebe species diversity in comparison to other landfall zones (see **Table 5.1**). However, eider and long-tailed duck were generally recorded in moderate abundances, although there was a single notable count of eider (120 individuals in August), and one of wigeon (320 individuals in November), both < 1% of the UK populations. Eider is a qualifying feature of the Ythan Estuary, Sands of Forvie and Meikle Loch SPA, although at 16.32km distant from Scotstown Beach there is unlikely to be any connectivity to the SPA population.
- 5.2.1.6 A number of wader species were also recorded frequently, and in high numbers, notably golden plover and lapwing (see **Table 5.2**). However, none of these species had a peak count greater than 1% of the UK populations. Also of note is a record of 15 whimbrel in September and a further record of three in August. However, it is likely that these birds were flocks on passage, and it is unlikely that the Scotstown Beach survey area is used frequently by important numbers of whimbrel.

Table 5.1 Monthly peak counts of all wildfowl and grebe species recorded during bird surveys at landfall site – Scotstown

Species	Month											
	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23	Mar 23	Early May 23	Late May 23	Jun 23	Jul 23	Aug 23
Pink-footed goose	0	1	0	0	0	0	0	0	0	0	0	0
Gadwall	30	0	0	0	0	0	0	0	0	0	0	0
Wigeon	0	16	320	0	0	0	0	0	0	0	0	0
Eider	0	8	41	7	64	19	36	24	2	0	4	120
Long-tailed duck	0	0	0	0	9	26	30	0	0	0	0	0
Red-breasted merganser	0	0	0	0	0	0	3	0	0	0	0	0

Table 5.2 Monthly peak counts of all wader species recorded during bird surveys at landfall site - Scotstown

Species	Month											
	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23	Mar 23	Early May 23	Late May 23	Jun 23	Jul 23	Aug 23
Oystercatcher	0	8	13	16	11	20	6	6	11	9	19	19
Lapwing	0	0	130	0	190	20	0	0	0	0	0	0
Golden plover	0	70	40	0	260	150	0	0	0	0	0	0
Ringed plover	0	0	0	0	0	0	0	65	0	0	0	27

Species	Month											
	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23	Mar 23	Early May 23	Late May 23	Jun 23	Jul 23	Aug 23
Whimbrel	15	0	0	0	0	0	0	0	0	0	0	3
Curlew	20	0	5	0	14	10	22	4	0	11	0	8
Bar-tailed godwit	0	1	0	0	0	0	0	0	0	0	0	2
Turnstone	0	7	4	0	0	0	0	20	0	2	0	5
Knot	0	0	0	0	0	0	0	0	0	0	0	24
Sanderling	0	3	0	0	0	0	0	15	0	0	0	38
Dunlin	0	0	0	0	0	0	0	0	0	0	0	6
Purple sandpiper	0	5	0	9	0	0	0	4	0	0	0	0
Redshank	0	0	20	35	0	31	4	0	0	0	0	9

Table 5.3 Monthly peak counts of all other target species recorded during bird surveys at landfall site - Scotstown

Species	Month											
	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23	Mar 23	Early May 23	Late May 23	Jun 23	Jul 23	Aug 23
Kittiwake	4	9	7	0	0	0	0	39	110	10	28	0
Black-headed gull	20	12	1	11	4	0	159	2	0	12	0	37
Common gull	32	34	90	0	0	0	427	74	45	0	9	15

Species	Month											
	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23	Mar 23	Early May 23	Late May 23	Jun 23	Jul 23	Aug 23
Great black-backed gull	20	7	9	25	7	0	0	6	7	0	18	25
Herring gull	30	34	19	11	51	50	69	260	80	200	70	80
Lesser black-backed gull	2	0	0	0	0	0	0	2	0	0	0	2
Sandwich tern	0	0	0	0	0	0	0	46	12	70	24	17
Arctic tern	0	0	0	0	0	0	0	265	0	80	135	54
Arctic skua	0	1	0	0	0	0	0	0	1	0	1	0
Common guillemot	0	3	0	6	1	0	0	49	8	16	45	230
Razorbill	0	7	4	0	2	6	58	16	0	22	350	140
Puffin	0	2	0	0	0	2	1	0	0	0	0	2
Red-throated diver	0	8	2	3	4	10	17	9	0	1	0	0
Black-throated diver	2	0	0	0	0	0	0	0	0	0	0	0
Great northern diver	0	1	0	0	0	0	0	0	0	0	0	0
Gannet	20	300	30	0	0	0	0	0	2	0	61	6
Shag	15	236	244	400	220	355	255	370	54	375	300	820

5.2.2 Landfall site - Lunderton (North and South)

- 5.2.2.1 Important numbers of Sandwich terns (a qualifying feature of the Loch of Strathbeg SPA) were recorded at Lunderton during the breeding season. The peak count of Sandwich terns was 45 individuals in early May, equating to approximately 8.0% of the Loch of Strathbeg SPA population of 280 pairs but <1% of the UK population of 12,980 pairs (see **Table 5.6**).
- 5.2.2.2 Shag, a qualifying feature of the Buchan Ness to Collieston Coast SPA in the breeding season, were recorded in important numbers at Lunderton. Shag was recorded 59 times, with high abundances in September, December, June, and August. The highest peak count of 295 in June is equivalent to approximately 14.1% of the SPA population of 1,045 pairs (JNCC, 2015) but <1% of the UK breeding population of 20,209 pairs.
- 5.2.2.3 Guillemot, a qualifying feature of the Buchan Ness to Collieston Coast SPA in the breeding season, were recorded in notable numbers. The highest numbers were recorded in August with a peak count of 162 individuals, although this equates to just under 1% of the SPA population of 8,640 pairs and significantly less than 1% of the UK population (1,265,888 individuals).
- 5.2.2.4 Herring gull, a qualifying feature of the Buchan Ness to Collieston Coast SPA during the breeding season, was also recorded in notable numbers. The highest peak count was of 60 individuals in September, equating to <1% of the UK population of 61,077 pairs and <1% of the SPA population of 4,292 pairs. Notable numbers of razorbill were also recorded although the peak count represented <1% of the UK breeding population.
- 5.2.2.5 Lunderton had a generally low wildfowl and grebe species diversity and abundance, with the exception of eider and common scoter (see **Table 5.4**). Eider were also recorded in important numbers at Lunderton, with a peak count of 100 in January equating to 5.4% of the Ythan Estuary, Sands of Forvie and Meikle Loch SPA population, but <1% of the UK non-breeding population. Common scoter were recorded during early May only, with a peak count of 700 individuals, although these were likely birds on migration and equate to <1% of the UK non-breeding population of 135,000 individuals. Waders were recorded in low numbers with only oystercatcher and redshank regularly recorded (see **Table 5.5**).

Table 5.4 Monthly peak counts of all wildfowl and grebe species recorded during bird surveys at landfall site – Lunderton (North and South)

Species	Month											
	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23	Mar 23	Early May 23	Late May 23	Jun 23	Jul 23	Aug 23
Pink-footed goose	2	0	0	0	0	0	0	0	0	0	0	0
Wigeon	4	0	0	0	0	0	0	0	0	0	0	0
Eider	2	3	30	37	100	7	51	4	56	2	13	13
Common scoter	0	0	0	0	0	0	0	700	0	0	0	0
Long-tailed duck	0	2	4	0	0	0	0	0	0	0	0	0
Goldeneye	0	0	0	0	0	1	3	0	0	0	0	0
Red-breasted merganser	0	0	0	0	0	0	0	0	23	3	0	0

Table 5.5 Monthly peak counts of all wader species recorded during bird surveys at landfall site – Lunderton (North and South)

Species	Month											
	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23	Mar 23	Early May 23	Late May 23	Jun 23	Jul 23	Aug 23
Oystercatcher	4	2	0	11	5	2	7	14	20	5	5	11
Grey plover	1	0	0	0	0	0	0	0	0	0	0	0
Ringed plover	0	0	0	0	1	30	26	10	11	0	0	4
Curlew	3	2	0	5	0	1	4	0	0	1	1	0
Turnstone	2	0	0	3	6	13	4	0	0	0	1	2
Knot	0	0	0	0	0	0	0	0	0	0	0	1
Sanderling	3	0	0	4	0	0	0	0	0	0	0	16
Dunlin	0	10	0	0	0	11	13	0	5	0	1	0
Purple Sandpiper	0	0	0	0	25	25	1	0	0	0	0	0
Redshank	1	10	2	11	36	24	20	1	0	0	3	1

Table 5.6 Monthly peak counts of all other target species recorded during bird surveys at landfall site – Lunderton (North and South)

Species	Month											
	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23	Mar 23	Early May 23	Late May 23	Jun 23	Jul 23	Aug 23
Kittiwake	8	2	4	0	0	0	0	0	20	45	27	1
Black-headed gull	6	3	0	2	1	0	150	0	5	0	0	3
Common gull	2	0	0	5	0	0	2	15	56	5	98	6
Great black-backed gull	2	1	18	0	0	2	0	0	7	0	0	2
Herring gull	12	1	1	14	10	10	60	30	83	0	15	5
Lesser black-backed gull	1	0	0	0	0	0	0	0	0	0	3	0
Sandwich tern	0	0	0	0	0	0	0	45	6	10	0	0
'Commic' tern	0	0	0	0	0	0	0	110	0	0	0	0
Arctic skua	0	0	0	0	0	0	0	0	1	0	0	0
Guillemot	1	0	0	0	0	0	4	50	96	21	100	162
Razorbill	1	4	1	1	1	0	30	2	0	5	150	76
Black guillemot	0	0	0	0	0	0	0	0	0	0	0	1
Puffin	0	1	0	0	0	0	0	0	0	0	0	0
Red-throated diver	0	2	1	1	0	0	0	5	0	1	0	0
Great northern diver	0	1	0	0	0	0	0	0	0	0	0	0

Species	Month											
	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23	Mar 23	Early May 23	Late May 23	Jun 23	Jul 23	Aug 23
Gannet	3	10	0	0	0	0	0	0	0	0	0	0
Shag	139	30	40	150	0	4	4	84	50	295	31	236
Little egret	0	2	0	0	0	0	0	0	0	0	0	0

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7. Glossary of Terms and Abbreviations

7.1 Abbreviations

Acronym	Definition
AON	Apparently Occupied Nest
BOU	British Ornithologists' Union
BTO	British Trust for Ornithology
CV	Coefficient of Variance
DAS	Digital Aerial Survey
DEFRA	Department for Environment, Food and Rural Affairs
EIA	Environmental Impact Assessment
ETG	Expert Topic Group
GIS	Geographic Information System
GSD	Ground Sampling Distance
HPAI	Highly Pathogenic Avian Influenza
HRA	Habitats Regulations Appraisal
JNCC	Joint Nature Conservation Committee
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MMFR	Mean Maximum Foraging Range
NESBReC	North East Scotland Biodiversity Record Centre
NEWS	Non-estuarine Waterbird Surveys
OAA	Option Agreement Area
OWF	Offshore Wind Farm
QA	Quality Assurance
RIAA	Report to Inform Appropriate Assessment
SD	Standard Deviation
SNCB	Statutory Nature Conservation Body
SOC	Scottish Ornithologists' Club

Acronym	Definition
SPA	Special Protection Area
SPR	ScottishPower Renewables
SSSI	Site of Special Scientific Interest
VP	Vantage Point
WeBS	Wetland Bird Survey

7.2 Glossary of terms

Term	Definition
Appropriate Assessment	An assessment to determine the implications of a plan or project on relevant national site network sites in view of that site's conservation objectives. An Appropriate Assessment forms part of the Habitats Regulations Appraisal (HRA) and is required when a plan or project (either alone or in-combination with other plans or projects) is likely to have a significant effect on a national site network. Where there are adverse impacts, it also includes an assessment of the potential mitigation for those impacts.
Collision	Contact between two or more bodies (e.g. vessels, animals).
Conservation Objective	An objective set for each qualifying feature of a site. One of the key purposes is to provide a benchmark against which plans and projects are assessed.
Digital Aerial Surveys	Digital surveys carried out by aeroplane.
Mean (average)	The arithmetic average of a set of numbers, e.g. add up the numbers and divide by the number of numbers
Qualifying Feature	Habitats, species or assemblages that are protected under the Habitats Regulations and are designated as SACs and SPAs.
Receptor	This term originates as defined in Regulation 5(2) of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 and include population and human health, biodiversity, land, soil, water, air, climate, material assets, cultural heritage and landscape that may be at risk from exposure to pollutants that could potentially arise as a result of the Project. It is equivalent to the term 'factors' defined in 4(3) of the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017, where factors may be subject to significant effects of the Project and include population and human health, biodiversity, land, soil, water, air, climate, material assets, cultural heritage and the landscape.

Appendix A

Scientific Names and Taxonomy

Species	Scientific name	Conservation Status (BoCC5; Wildlife and Countryside Act 1981; Birds Directive)
Pink-footed goose	<i>Anser brachyrhynchus</i>	Amber
Mallard	<i>Anas platyrhynchos</i>	Amber
Gadwall	<i>Mareca strepera</i>	Amber
Wigeon	<i>Mareca penelope</i>	Amber
Eider	<i>Somateria mollissima</i>	Amber
Common scoter	<i>Melanitta nigra</i>	Red; Sch1
Long-tailed duck	<i>Clangula hyemalis</i>	Red
Goldeneye	<i>Bucephala clangula</i>	Red
Goosander	<i>Mergus merganser</i>	Amber
Red-breasted merganser	<i>Mergus serrator</i>	Amber
Oystercatcher	<i>Haematopus ostralegus</i>	Amber
Lapwing	<i>Vanellus vanellus</i>	Red
Grey plover	<i>Pluvialis squatarola</i>	Amber
Golden plover	<i>Pluvialis apricaria</i>	Green; Ann1
Ringed plover	<i>Charadrius hiaticula</i>	Red
Turnstone	<i>Arenaria interpres</i>	Amber
Knot	<i>Calidris canutus</i>	Amber
Sanderling	<i>Calidris alba</i>	Amber
Dunlin	<i>Calidris alpina</i>	Red
Purple Sandpiper	<i>Calidris maritima</i>	Red; Sch1
Redshank	<i>Tringa totanus</i>	Amber
Bar-tailed godwit	<i>Limosa lapponica</i>	Amber
Curlew	<i>Numenius arquata</i>	Red
Whimbrel	<i>Numenius phaeopus</i>	Red; Sch1

Species	Scientific name	Conservation Status (BoCC5; Wildlife and Countryside Act 1981; Birds Directive)
Ruff	<i>Calidris pugnax</i>	Red; Sch1; Ann1
Snipe	<i>Gallinago gallinago</i>	Amber
Woodcock	<i>Scolopax rusticola</i>	Red
Kittiwake	<i>Rissa tridactyla</i>	Red
Black-headed gull	<i>Chroicocephalus ridibundus</i>	Amber
Common gull	<i>Larus canus</i>	Red
Great black-backed gull	<i>Larus marinus</i>	Red
Herring gull	<i>Larus argentatus</i>	Red
Lesser black-backed gull	<i>Larus fuscus</i>	Amber
Sandwich tern	<i>Thalasseus sandvicensis</i>	Amber; Ann1
Arctic tern	<i>Sterna paradisaea</i>	Amber; Ann1
Common tern	<i>Sterna hirundo</i>	Amber; Ann1
Great skua	<i>Stercorarius skua</i>	Red
Arctic skua	<i>Stercorarius parasiticus</i>	Red
Little auk	<i>Alle alle</i>	Green
Common guillemot	<i>Uria aalge</i>	Amber
Black guillemot	<i>Cepphus grylle</i>	Amber
Razorbill	<i>Alca torda</i>	Amber
Puffin	<i>Fratercula arctica</i>	Red
Red-throated diver	<i>Gavia stellata</i>	Amber; Sch1; Ann1
Black-throated diver	<i>Gavia arctica</i>	Amber; Sch1; Ann1
Great northern diver	<i>Gavia immer</i>	Amber; Sch1; Ann1
Storm petrel	<i>Hydrobates pelagicus</i>	Amber; Ann1
Fulmar	<i>Fulmarus glacialis</i>	Amber
Manx shearwater	<i>Puffinus puffinus</i>	Amber
Gannet	<i>Morus bassanus</i>	Amber
Shag	<i>Gulosus aristotelis</i>	Red
Little egret	<i>Egretta garzetta</i>	Green; Ann1

Species	Scientific name	Conservation Status (BoCC5; Wildlife and Countryside Act 1981; Birds Directive)
Kingfisher	<i>Alcedo atthis</i>	Amber; Sch1; Ann1

Appendix B

Abundance and Behaviour Information for All Birds (Excluding Apportionment and Correction for Availability Bias)

Table B1.1 Whimbrel - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for the OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
May-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Jun-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Jul-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Aug-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Sep-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
May-22	1	8	1	24	1	0.01	1	8	1	24	1	0.01	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Aug-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Sep-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Oct-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0

Table B1.2 Whimbrel - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for the OAA plus 2 km buffer

OAA plus 2km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Survey																		
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-22	1	8	1	24	0.99	0.01	1	8	1	24	0.99	0.01	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

OAA plus 2km buffer	All behaviours						Flying						Sitting						
	Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0

Table B1.3 Whimbrel - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for the OAA plus 4 km buffer

OAA plus 4km buffer	All behaviours						Flying						Sitting						
	Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
May-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Jun-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Jul-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Aug-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Sep-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Oct-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Dec-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Jan-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Mar-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Apr-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
May-22	1	8	1	32	1	0.01	1	8	1	32	1	0.01	0	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Aug-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0

OAA plus 4km buffer	All behaviours						Flying						Sitting						
	Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Oct-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Survey																		
Sep-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oct-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

OAA plus 2km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Survey																		
Sep-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oct-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table B2.3 Ruff - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for the OAA plus 4km buffer

OAA plus 4km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Survey																		
Apr-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
May-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Jun-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Jul-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Aug-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Sep-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
May-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Jul-(II)-22	10	80	10	241	1	0.07	10	80	10	241	1	0.07	0	0	0	0	0	0
Aug-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0

OAA plus 4km buffer	All behaviours						Flying						Sitting						
	Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Oct-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oct-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table B3.2 Woodcock - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for the OAA plus 2km buffer

OAA plus 2km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

OAA plus 2km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(I)-22	1	8	1	24	0.99	0.01	1	8	1	24	0.99	0.01	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

Table B3.3 Woodcock - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for the OAA plus 4km buffer

OAA plus 4km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

OAA plus 4km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(I)-22	2	16	2	40	0.68	0.01	2	16	2	40	0.68	0.01	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

OAA	All behaviours						Flying						Sitting						
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	
Sep-22	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Oct-22	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Nov-(I)-22	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Nov-(II)-22	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Feb-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Feb-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Feb-(III)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Mar-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Mar-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00

OAA plus 2km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Survey																		
Sep-22	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00
Oct-22	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00
Nov-(I)-22	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00
Nov-(II)-22	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00
Feb-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00
Feb-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00
Feb-(III)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00
Mar-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00
Mar-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00

OAA plus 4km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0
Oct-22	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0

Table B5.1 Kittiwake - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for the OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	146	1,137	614	1,905	0.29	1.66	47	370	244	527	0.20	0.54	99	767	276	1,496	0.42	1.12
May-21	34	266	150	394	0.23	0.39	27	212	111	323	0.26	0.31	7	54	7	126	0.59	0.08
Jun-21	3	25	3	64	0.72	0.04	1	8	1	24	0.99	0.01	2	17	2	48	0.93	0.02
Jul-21	2	14	2	46	1.00	0.02	0	0	0	0	0.00	0.00	2	14	2	46	1.00	0.02
Aug-21	24	193	105	314	0.28	0.28	22	177	89	290	0.30	0.26	2	16	2	40	0.70	0.02
Sep-21	1	8	1	23	0.99	0.01	1	8	1	23	0.99	0.01	0	0	0	0	0.00	0.00
Oct-21	6	48	6	128	0.69	0.07	6	48	6	128	0.69	0.07	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jan-22	8	62	24	104	0.35	0.09	5	39	8	72	0.45	0.06	3	23	3	56	0.56	0.03
Mar-22	11	87	39	142	0.31	0.13	7	56	16	103	0.37	0.08	4	31	8	63	0.50	0.05
Apr-22	1	8	1	24	1.00	0.01	0	0	0	0	0.00	0.00	1	8	1	24	1.00	0.01
May-22	12	95	48	151	0.29	0.14	10	79	32	135	0.32	0.12	2	16	2	40	0.71	0.02
Jul-(I)-22	1	8	1	24	0.99	0.01	0	0	0	0	0.00	0.00	1	8	1	24	0.99	0.01
Jul-(II)-22	156	1,230	758	1,793	0.21	1.80	35	278	191	375	0.17	0.41	121	952	470	1,522	0.27	1.39
Aug-22	11	86	39	147	0.32	0.13	8	63	16	116	0.38	0.09	3	22	3	47	0.58	0.03

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Oct-22	8	64	24	118	0.39	0.09	5	40	8	79	0.45	0.06	3	24	3	63	0.72	0.04
Nov-(I)-22	7	55	16	102	0.37	0.08	7	55	16	102	0.37	0.08	0	0	0	0	0.00	0.00
Nov-(II)-22	13	105	40	186	0.34	0.15	12	97	40	170	0.36	0.14	1	8	1	24	0.97	0.01
Feb-(I)-23	3	24	3	56	0.59	0.04	2	16	2	40	0.75	0.02	1	8	1	24	1.00	0.01
Feb-(II)-23	20	161	88	240	0.24	0.24	17	137	72	208	0.26	0.20	3	24	3	56	0.59	0.04
Feb-(III)-23	4	32	8	63	0.48	0.05	4	32	8	63	0.48	0.05	0	0	0	0	0.00	0.00
Mar-(I)-23	7	56	24	95	0.37	0.08	7	56	24	95	0.37	0.08	0	0	0	0	0.00	0.00
Mar-(II)-23	9	70	24	118	0.33	0.10	8	62	24	110	0.35	0.09	1	8	1	24	0.98	0.01

Table B5.2 Kittiwake - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for the OAA plus 2km buffer

OAA plus 2km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	171	1,351	805	2,139	0.26	1.47	66	517	355	703	0.17	0.56	105	833	324	1,579	0.40	0.91
May-21	40	315	190	458	0.22	0.34	33	260	150	379	0.23	0.28	7	55	7	134	0.59	0.06
Jun-21	3	24	3	64	0.78	0.03	1	8	1	24	1.00	0.01	2	16	2	64	1.00	0.02
Jul-21	2	15	2	46	1.00	0.02	0	0	0	0	0.00	0.00	2	15	2	46	1.00	0.02
Aug-21	31	252	138	389	0.24	0.27	27	220	113	348	0.26	0.24	4	32	8	65	0.50	0.03
Sep-21	1	8	1	23	1.00	0.01	1	8	1	23	1.00	0.01	0	0	0	0	0.00	0.00
Oct-21	7	58	8	145	0.62	0.06	7	58	8	145	0.62	0.06	0	0	0	0	0.00	0.00
Dec-21	3	24	3	56	0.57	0.03	2	16	2	40	0.68	0.02	1	8	1	32	1.00	0.01
Jan-22	12	98	48	152	0.28	0.11	8	66	24	112	0.36	0.07	4	32	8	64	0.50	0.03
Mar-22	14	111	56	182	0.28	0.12	8	64	24	111	0.34	0.07	6	47	8	95	0.47	0.05
Apr-22	16	124	16	309	0.60	0.13	3	23	3	55	0.58	0.03	13	100	13	285	0.73	0.11
May-22	14	112	56	175	0.26	0.12	12	96	48	151	0.28	0.10	2	16	2	40	0.71	0.02
Jul-(I)-22	1	8	1	24	0.99	0.01	0	0	0	0	0.00	0.00	1	8	1	24	0.99	0.01
Jul-(II)-22	185	1,479	960	2,071	0.19	1.61	47	377	272	504	0.16	0.41	138	1,102	624	1,687	0.25	1.20
Aug-22	16	124	70	195	0.26	0.13	11	86	39	140	0.32	0.09	5	39	8	78	0.45	0.04

OAA plus 2km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	1	8	1	24	1.00	0.01	1	8	1	24	1.00	0.01	0	0	0	0	0.00	0.00
Oct-22	9	72	24	126	0.36	0.08	6	48	16	95	0.41	0.05	3	24	3	63	0.74	0.03
Nov-(I)-22	11	87	39	142	0.30	0.09	11	87	39	142	0.30	0.09	0	0	0	0	0.00	0.00
Nov-(II)-22	19	153	81	235	0.26	0.17	18	144	73	219	0.27	0.16	1	9	1	24	0.98	0.01
Feb-(I)-23	5	40	8	80	0.44	0.04	4	32	8	64	0.51	0.03	1	8	1	24	1.00	0.01
Feb-(II)-23	22	177	112	265	0.23	0.19	19	152	88	233	0.25	0.17	3	25	3	56	0.58	0.03
Feb-(III)-23	14	111	55	165	0.26	0.12	13	103	47	157	0.27	0.11	1	8	1	24	0.97	0.01
Mar-(I)-23	10	81	32	135	0.31	0.09	10	81	32	135	0.31	0.09	0	0	0	0	0.00	0.00
Mar-(II)-23	11	88	32	150	0.33	0.10	10	80	32	143	0.35	0.09	1	8	1	24	0.98	0.01

Table B5.3 Kittiwake - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for the OAA plus 4km buffer

OAA plus 4km buffer	All behaviours						Flying						Sitting					
	Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)
Apr-21	199	1,575	1,048	2,319	0.22	1.34	77	611	429	818	0.16	0.52	122	963	469	1,707	0.34	0.82
May-21	46	368	245	515	0.19	0.31	38	304	190	443	0.21	0.26	8	64	8	143	0.52	0.05
Jun-21	3	23	3	64	0.74	0.02	1	8	1	24	1.00	0.01	2	16	2	48	0.99	0.01
Jul-21	3	22	3	62	0.79	0.02	1	7	1	23	0.99	0.01	2	15	2	46	1.00	0.01
Aug-21	36	292	179	415	0.21	0.25	32	261	155	383	0.22	0.22	4	32	8	65	0.51	0.03
Sep-21	2	15	2	39	0.69	0.01	2	15	2	39	0.69	0.01	0	0	0	0	0.00	0.00
Oct-21	8	68	16	153	0.52	0.06	8	68	16	153	0.52	0.06	0	0	0	0	0.00	0.00
Dec-21	6	48	8	89	0.44	0.04	4	32	8	73	0.52	0.03	2	16	2	41	0.76	0.01
Jan-22	12	97	48	153	0.29	0.08	8	65	24	113	0.34	0.06	4	32	8	72	0.50	0.03
Mar-22	18	144	72	223	0.26	0.12	12	96	48	151	0.30	0.08	6	48	8	103	0.48	0.04
Apr-22	20	156	40	327	0.48	0.13	6	49	8	104	0.48	0.04	14	108	14	271	0.67	0.09
May-22	19	155	88	224	0.23	0.13	16	131	72	192	0.25	0.11	3	24	3	56	0.58	0.02
Jul-(I)-22	2	16	2	40	0.67	0.01	1	8	1	24	0.97	0.01	1	8	1	24	0.98	0.01
Jul-(II)-22	227	1,818	1,261	2,473	0.17	1.54	61	490	369	618	0.13	0.42	166	1,329	787	1,975	0.23	1.13
Aug-22	25	196	117	289	0.21	0.17	18	142	70	219	0.25	0.12	7	54	16	102	0.38	0.05

OAA plus 4km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	2	16	2	41	0.71	0.01	1	8	1	25	1.00	0.01	1	8	1	25	1.00	0.01
Oct-22	10	78	32	142	0.36	0.07	7	54	16	103	0.39	0.05	3	24	3	63	0.74	0.02
Nov-(I)-22	16	125	71	190	0.25	0.11	16	125	71	190	0.25	0.11	0	0	0	0	0.00	0.00
Nov-(II)-22	19	155	81	244	0.27	0.13	18	147	73	236	0.28	0.12	1	8	1	24	1.00	0.01
Feb-(I)-23	7	57	16	104	0.38	0.05	6	49	16	96	0.41	0.04	1	8	1	24	1.00	0.01
Feb-(II)-23	31	251	161	363	0.21	0.21	24	194	113	282	0.23	0.16	7	57	8	121	0.51	0.05
Feb-(III)-23	15	118	63	182	0.25	0.10	14	110	55	166	0.26	0.09	1	8	1	24	1.00	0.01
Mar-(I)-23	11	88	40	136	0.29	0.07	11	88	40	136	0.29	0.07	0	0	0	0	0.00	0.00
Mar-(II)-23	12	96	48	159	0.30	0.08	11	88	40	151	0.32	0.07	1	8	1	24	1.00	0.01

Table B6.1 Common Gull - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for the OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-21	2	16	2	38	0.68	0.02	2	16	2	38	0.68	0.02	0	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

Table B6.2 Common Gull - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for the OAA plus 2km buffer

OAA plus 2km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-21	2	15	2	38	0.69	0.02	2	15	2	38	0.69	0.02	0	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

OAA plus 2km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

Table B6.3 Common Gull - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for the OAA plus 4km buffer

OAA plus 4km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-21	3	23	3	54	0.58	0.02	3	23	3	54	0.58	0.02	0	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

OAA plus 4km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oct-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table B7.2 Small Gull species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 2km buffer

OAA plus 2km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-21	1	8	1	24	0.99	0.01	1	8	1	24	0.99	0.01	0	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

OAA plus 2km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

Table B7.3 Small Gull species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 4km buffer

OAA plus 4km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
May-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Jun-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Jul-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Aug-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Sep-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Oct-21	1	8	1	24	1	0.01	1	8	1	24	1	0.01	0	0	0	0	0	0
Dec-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Mar-22	1	8	1	24	1	0.01	1	8	1	24	1	0.01	0	0	0	0	0	0
Apr-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
May-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Aug-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0

OAA plus 4km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Survey																		
Sep-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Oct-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0

Table B8.1 Great Black-backed Gull - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	4	31	8	63	0.50	0.05	4	31	8	63	0.50	0.05	0	0	0	0	0.00	0.00
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Sep-21	1	8	1	23	1.00	0.01	1	8	1	23	1.00	0.01	0	0	0	0	0.00	0.00
Oct-21	2	16	2	40	0.72	0.02	1	8	1	24	0.99	0.01	1	8	1	24	1.00	0.01
Dec-21	3	23	3	56	0.59	0.03	2	16	2	40	0.72	0.02	1	8	1	24	1.00	0.01
Jan-22	29	231	143	327	0.20	0.34	16	127	64	199	0.28	0.19	13	103	56	167	0.30	0.15
Mar-22	6	47	8	95	0.46	0.07	3	23	3	55	0.60	0.03	3	24	3	63	0.72	0.04
Apr-22	1	8	1	24	1.00	0.01	1	8	1	24	1.00	0.01	0	0	0	0	0.00	0.00
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	1	8	1	24	0.95	0.01	1	8	1	24	0.95	0.01	0	0	0	0	0.00	0.00
Oct-22	3	23	3	55	0.62	0.03	2	16	2	39	0.74	0.02	1	8	1	31	1.00	0.01
Nov-(I)-22	6	47	16	86	0.40	0.07	2	15	2	39	0.69	0.02	4	31	8	71	0.50	0.05
Nov-(II)-22	6	50	16	97	0.41	0.07	4	33	8	65	0.50	0.05	2	17	2	48	0.71	0.02
Feb-(I)-23	7	57	24	103	0.36	0.08	3	24	3	56	0.60	0.04	4	33	8	64	0.45	0.05
Feb-(II)-23	5	39	8	80	0.45	0.06	2	16	2	40	0.71	0.02	3	24	3	56	0.57	0.04
Feb-(III)-23	5	39	8	71	0.43	0.06	1	8	1	24	1.00	0.01	4	31	8	63	0.49	0.05
Mar-(I)-23	3	24	3	56	0.55	0.04	2	16	2	40	0.69	0.02	1	8	1	24	1.00	0.01
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00

Table B8.2 Great Black-backed Gull - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for the OAA plus 2km buffer

OAA plus 2km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	4	31	8	63	0.50	0.03	4	31	8	63	0.50	0.03	0	0	0	0	0.00	0.00
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Sep-21	2	16	2	38	0.68	0.02	1	8	1	23	0.99	0.01	1	8	1	23	0.92	0.01
Oct-21	2	16	2	40	0.71	0.02	1	8	1	24	1.00	0.01	1	8	1	24	1.00	0.01
Dec-21	4	32	8	72	0.52	0.03	3	25	3	56	0.60	0.03	1	8	1	24	1.00	0.01
Jan-22	38	305	208	409	0.17	0.33	19	152	80	224	0.24	0.17	19	153	80	224	0.25	0.17
Mar-22	6	48	8	103	0.48	0.05	3	23	3	56	0.57	0.03	3	25	3	71	0.75	0.03
Apr-22	11	89	11	253	0.86	0.10	1	8	1	24	0.97	0.01	10	81	10	238	0.95	0.09
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00

OAA plus 2km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	1	8	1	32	0.99	0.01	1	8	1	32	0.99	0.01	0	0	0	0	0.00	0.00
Oct-22	3	23	3	55	0.57	0.03	2	16	2	39	0.70	0.02	1	8	1	24	1.00	0.01
Nov-(I)-22	10	79	32	142	0.38	0.09	2	16	2	47	0.72	0.02	8	63	16	126	0.44	0.07
Nov-(II)-22	10	81	41	130	0.31	0.09	5	40	8	81	0.45	0.04	5	41	8	81	0.43	0.04
Feb-(I)-23	10	81	32	136	0.32	0.09	4	33	8	72	0.50	0.04	6	48	16	88	0.41	0.05
Feb-(II)-23	8	66	24	112	0.35	0.07	3	25	3	56	0.58	0.03	5	41	8	80	0.45	0.04
Feb-(III)-23	5	40	8	79	0.45	0.04	1	8	1	24	0.96	0.01	4	32	8	63	0.49	0.03
Mar-(I)-23	3	24	3	56	0.61	0.03	2	16	2	48	0.74	0.02	1	8	1	24	1.00	0.01
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00

Table B8.3 Great Black-backed Gull - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for the OAA plus 4km buffer

OAA plus 4km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	4	31	8	64	0.49	0.03	4	31	8	64	0.49	0.03	0	0	0	0	0.00	0.00
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Sep-21	2	16	2	39	0.69	0.01	1	8	1	23	0.99	0.01	1	8	1	23	0.97	0.01
Oct-21	2	16	2	40	0.72	0.01	1	8	1	32	0.99	0.01	1	8	1	24	0.95	0.01
Dec-21	5	41	8	81	0.46	0.03	4	33	8	73	0.51	0.03	1	8	1	24	1.00	0.01
Jan-22	45	363	242	492	0.17	0.31	23	184	105	266	0.23	0.16	22	179	105	274	0.25	0.15
Mar-22	6	48	8	95	0.47	0.04	3	24	3	56	0.56	0.02	3	24	3	64	0.77	0.02
Apr-22	12	93	12	279	0.85	0.08	1	8	1	24	1.00	0.01	11	86	11	263	0.93	0.07
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00

OAA plus 4km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	3	25	3	66	0.74	0.02	3	25	3	66	0.74	0.02	0	0	0	0	0.00	0.00
Oct-22	5	39	8	79	0.46	0.03	3	24	3	55	0.58	0.02	2	16	2	40	0.71	0.01
Nov-(I)-22	13	101	40	166	0.32	0.09	2	15	2	40	0.70	0.01	11	86	32	151	0.36	0.07
Nov-(II)-22	14	113	57	179	0.29	0.10	6	49	16	89	0.42	0.04	8	64	16	114	0.39	0.05
Feb-(I)-23	87	685	129	1,661	0.63	0.58	14	109	32	224	0.47	0.09	73	575	73	1,500	0.74	0.49
Feb-(II)-23	17	133	40	282	0.47	0.11	4	33	8	73	0.49	0.03	13	100	16	250	0.59	0.08
Feb-(III)-23	5	40	8	79	0.45	0.03	1	8	1	24	1.00	0.01	4	32	8	71	0.51	0.03
Mar-(I)-23	4	32	8	64	0.50	0.03	3	24	3	56	0.57	0.02	1	8	1	24	0.99	0.01
Mar-(II)-23	3	24	3	56	0.59	0.02	1	8	1	24	1.00	0.01	2	16	2	40	0.71	0.01

Table B9.1 Herring Gull - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for the OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	1	7	1	24	1.00	0.01	1	7	1	24	1.00	0.01	0	0	0	0	0.00	0.00
May-21	1	8	1	24	0.99	0.01	1	8	1	24	0.99	0.01	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Dec-21	2	16	2	40	0.68	0.02	0	0	0	0	0.00	0.00	2	16	2	40	0.68	0.02
Jan-22	9	72	32	119	0.32	0.11	6	49	16	96	0.41	0.07	3	24	3	56	0.57	0.04
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
May-22	1	8	1	24	1.00	0.01	0	0	0	0	0.00	0.00	1	8	1	24	1.00	0.01
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Nov-(I)-22	8	62	8	141	0.58	0.09	4	31	4	71	0.61	0.05	4	31	4	94	0.98	0.05
Nov-(II)-22	9	72	24	121	0.37	0.11	5	40	8	81	0.45	0.06	4	32	4	73	0.60	0.05
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Feb-(III)-23	1	8	1	31	1.00	0.01	0	0	0	0	0.00	0.00	1	8	1	31	1.00	0.01
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Mar-(II)-23	1	8	1	24	0.99	0.01	1	8	1	24	0.99	0.01	0	0	0	0	0.00	0.00

Table B9.2 Herring Gull - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for the OAA plus 2km buffer

OAA plus 2km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	1	8	1	24	0.99	0.01	1	8	1	24	0.99	0.01	0	0	0	0	0.00	0.00
May-21	1	7	1	24	1.00	0.01	1	7	1	24	1.00	0.01	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Dec-21	3	24	3	56	0.61	0.03	1	8	1	24	1.00	0.01	2	16	2	40	0.72	0.02
Jan-22	10	81	40	128	0.31	0.09	7	57	24	96	0.36	0.06	3	24	3	56	0.58	0.03
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
May-22	1	8	1	24	0.98	0.01	0	0	0	0	0.00	0.00	1	8	1	24	0.98	0.01
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00

OAA plus 2km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Nov-(I)-22	15	118	32	228	0.43	0.13	4	32	4	79	0.61	0.03	11	86	11	197	0.55	0.09
Nov-(II)-22	10	81	32	138	0.35	0.09	6	49	16	89	0.40	0.05	4	32	4	73	0.62	0.03
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Feb-(III)-23	1	8	1	31	1.00	0.01	0	0	0	0	0.00	0.00	1	8	1	31	1.00	0.01
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Mar-(II)-23	1	8	1	24	0.97	0.01	1	8	1	24	0.97	0.01	0	0	0	0	0.00	0.00

Table B9.3 Herring Gull - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for the OAA plus 4km buffer

OAA plus 4km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	2	16	2	40	0.72	0.01	2	16	2	40	0.72	0.01	0	0	0	0	0.00	0.00
May-21	1	8	1	24	0.97	0.01	1	8	1	24	0.97	0.01	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Oct-21	2	16	2	49	1.00	0.01	2	16	2	49	1.00	0.01	0	0	0	0	0.00	0.00
Dec-21	3	24	3	57	0.58	0.02	1	8	1	24	0.99	0.01	2	16	2	41	0.71	0.01
Jan-22	12	97	48	153	0.28	0.08	8	65	24	113	0.34	0.06	4	32	4	65	0.52	0.03
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
May-22	1	8	1	24	1.00	0.01	0	0	0	0	0.00	0.00	1	8	1	24	1.00	0.01
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00

OAA plus 4km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Nov-(I)-22	39	309	103	586	0.41	0.26	5	40	5	87	0.54	0.03	34	269	71	539	0.47	0.23
Nov-(II)-22	10	81	33	138	0.34	0.07	6	48	16	89	0.41	0.04	4	33	4	81	0.60	0.03
Feb-(I)-23	18	141	18	425	0.94	0.12	1	8	1	24	0.99	0.01	17	133	17	409	1.00	0.11
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Feb-(III)-23	2	16	2	40	0.73	0.01	1	8	1	24	1.00	0.01	1	8	1	24	1.00	0.01
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Mar-(II)-23	2	17	2	40	0.67	0.01	2	17	2	40	0.67	0.01	0	0	0	0	0.00	0.00

Table B10.1 Lesser Black-backed Gull - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for the OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Survey																		
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(II)-22	1	8	1	24	0.97	0.01	1	8	1	24	0.97	0.01	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

Table B10.2 Lesser Black-backed Gull - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for the OAA plus 2km buffer

OAA plus 2km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	1	8	1	24	1	0.01	1	8	1	24	1	0.01	0	0	0	0	0	0
May-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Jun-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Jul-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Aug-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Sep-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
May-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Aug-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0

OAA plus 2km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Oct-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Nov-(II)-22	1	8	1	24	1	0.01	1	8	1	24	1	0.01	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0

Table B10.3 Lesser Black-backed Gull - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for the OAA plus 4km buffer

OAA plus 4km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	1	8	1	32	1.00	0.01	1	8	1	32	1.00	0.01	0	0	0	0	0	0
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

OAA plus 4km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(II)-22	1	8	1	24	0.99	0.01	1	8	1	24	0.99	0.01	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

Table B11.2 Black-backed Gull species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for the OAA plus 2km buffer

OAA plus 2km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	1	8	1	24	0.97	0.01	0	0	0	0	0	0	1	8	1	24	0.97	0.01
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jan-22	1	8	1	24	1.00	0.01	0	0	0	0	0	0	1	8	1	24	1.00	0.01
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

OAA plus 2km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(II)-22	1	8	1	24	1.00	0.01	0	0	0	0	0	0	1	8	1	24	1.00	0.01
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

Table B11.3 Black-backed Gull species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 4km buffer

OAA plus 4km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	1	8	1	24	0.98	0.01	0	0	0	0	0	0	1	8	1	24	0.98	0.01
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jan-22	1	8	1	24	1.00	0.01	0	0	0	0	0	0	1	8	1	24	1.00	0.01
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

OAA plus 4km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(II)-22	1	8	1	24	1.00	0.01	0	0	0	0	0	0	1	8	1	24	1.00	0.01
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

Table B12.1 Large Gull species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jan-22	1	8	1	24	0.98	0.01	0	0	0	0	0	0	1	8	1	24	0.98	0.01
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(II)-22	1	8	1	24	1.00	0.01	0	0	0	0	0	0	1	8	1	24	1.00	0.01
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

Table B12.3 Large Gull species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jan-22	1	9	1	32	0.98	0.01	0	0	0	0	0	0	1	9	1	32	0.98	0.01
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Apr-22	3	24	3	72	0.95	0.02	0	0	0	0	0	0	3	24	3	72	0.95	0.02
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(I)-22	1	8	1	32	0.98	0.01	0	0	0	0	0	0	1	8	1	32	0.98	0.01
Nov-(II)-22	2	17	2	41	0.71	0.01	0	0	0	0	0	0	2	17	2	41	0.71	0.01
Feb-(I)-23	1	8	1	32	1.00	0.01	0	0	0	0	0	0	1	8	1	32	1.00	0.01
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

Table B13.1 Arctic Tern - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-21	4	31	4	77	0.64	0.05	4	31	4	77	0.64	0.05	0	0	0	0	0	0
Aug-21	1	8	1	32	1.00	0.01	1	8	1	32	1.00	0.01	0	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-22	1	8	1	24	1.00	0.01	1	8	1	24	1.00	0.01	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-22	1	8	1	23	1.00	0.01	1	8	1	23	1.00	0.01	0	0	0	0	0	0

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

Table B13.2 Arctic Tern - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 2 km buffer

Survey	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-21	9	69	15	138	0.45	0.08	9	69	15	138	0.45	0.08	0	0	0	0	0	0
Aug-21	1	8	1	24	1.00	0.01	1	8	1	24	1.00	0.01	0	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-22	2	16	2	48	0.74	0.02	2	16	2	48	0.74	0.02	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-22	1	8	1	31	1.00	0.01	1	8	1	31	1.00	0.01	0	0	0	0	0	0

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

Table B13.3 Arctic Tern - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-21	11	85	23	155	0.38	0.07	11	85	23	155	0.38	0.07	0	0	0	0	0	0
Aug-21	1	8	1	24	0.99	0.01	1	8	1	24	0.99	0.01	0	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-22	3	24	3	64	0.77	0.02	3	24	3	64	0.77	0.02	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-22	1	8	1	23	0.98	0.01	1	8	1	23	0.98	0.01	0	0	0	0	0	0

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

Table B14.1 Commic Tern - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-21	3	24	3	63	0.74	0.04	3	24	3	63	0.74	0.04	0	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-21	1	8	1	23	0.99	0.01	1	8	1	23	0.99	0.01	0	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

Table B14.2 Commic Tern - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 2 km buffer

Survey	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-21	3	24	3	63	0.74	0.03	3	24	3	63	0.74	0.03	0	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-21	2	16	2	38	0.69	0.02	2	16	2	38	0.69	0.02	0	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

Table B14.3 Commic Tern - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-21	3	24	3	63	0.71	0.02	3	24	3	63	0.71	0.02	0	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-21	5	39	8	77	0.45	0.03	5	39	8	77	0.45	0.03	0	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

Table B15.1 Great Skua - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-21	3	23	3	54	0.58	0.03	3	23	3	54	0.58	0.03	0	0	0	0	0.00	0.00
Aug-21	14	111	24	242	0.53	0.16	13	103	16	242	0.57	0.15	1	8	1	24	0.94	0.01
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
May-22	1	8	1	24	0.96	0.01	1	8	1	24	0.96	0.01	0	0	0	0	0.00	0.00
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-(II)-22	1	8	1	24	1.00	0.01	1	8	1	24	1.00	0.01	0	0	0	0	0.00	0.00
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00

Table B15.2 Great Skua - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-21	6	46	15	92	0.42	0.05	5	39	8	77	0.46	0.04	1	8	1	23	0.99	0.01
Aug-21	14	115	24	251	0.53	0.13	13	106	16	243	0.56	0.12	1	8	1	24	0.95	0.01
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
May-22	2	16	2	40	0.70	0.02	2	16	2	40	0.70	0.02	0	0	0	0	0.00	0.00
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-(II)-22	1	8	1	24	0.98	0.01	1	8	1	24	0.98	0.01	0	0	0	0	0.00	0.00
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00

Table B15.3 Great Skua - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-21	7	54	15	93	0.37	0.05	6	46	15	85	0.41	0.04	1	8	1	23	0.95	0.01
Aug-21	15	122	33	252	0.48	0.10	14	115	24	244	0.51	0.10	1	8	1	24	1.00	0.01
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
May-22	2	17	2	40	0.68	0.01	2	17	2	40	0.68	0.01	0	0	0	0	0.00	0.00
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-(II)-22	1	8	1	24	0.98	0.01	1	8	1	24	0.98	0.01	0	0	0	0	0.00	0.00
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oct-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table B16.2 Arctic Skua - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 2 km buffer

Survey	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-22	1	8	1	23	0.97	0.01	1	8	1	23	0.97	0.01	0	0	0	0	0	0

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

Table B16.3 Arctic Skua - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-22	1	8	1	23	0.98	0.01	1	8	1	23	0.98	0.01	0	0	0	0	0	0

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

Table B17.1 Skua species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aug-21	2	17	2	48	0.97	0.02	0	0	0	0	0	0	2	17	2	48	0.97	0.02
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

Table B17.2 Skua species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 2 km buffer

Survey	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aug-21	2	17	2	49	0.96	0.02	0	0	0	0	0	0	2	17	2	49	0.96	0.02
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

Table B17.3 Skua species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aug-21	2	16	2	49	0.98	0.01	0	0	0	0	0	0	2	16	2	49	0.98	0.01
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

Table B18.1 Little Auk - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(II)-22	2	16	2	40	0.71	0.02	0	0	0	0	0	0	2	16	2	40	0.71	0.02
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

Table B18.2 Little Auk - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(II)-22	2	17	2	41	0.69	0.02	0	0	0	0	0	0	2	17	2	41	0.69	0.02
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

Table B18.3 Little Auk - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 4 km buffer

Survey	All behaviours						Flying						Sitting						
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(II)-22	3	25	3	57	0.57	0.02	0	0	0	0	0	0	3	25	3	57	0.57	0.02
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

Table B19.1 Guillemot - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	1,464	11,520	10,094	13,219	0.07	16.85	37	290	165	465	0.26	0.42	1,427	11,230	9,818	12,920	0.07	16.42
May-21	31	245	158	347	0.21	0.36	4	32	4	87	0.76	0.05	27	214	134	300	0.21	0.31
Jun-21	32	256	159	373	0.21	0.37	1	8	1	24	0.99	0.01	31	248	151	366	0.21	0.36
Jul-21	372	2,857	2,391	3,336	0.09	4.18	5	38	8	77	0.51	0.06	367	2,819	2,360	3,289	0.09	4.12
Aug-21	410	3,310	2,816	3,840	0.08	4.84	1	8	1	24	0.96	0.01	409	3,302	2,800	3,840	0.08	4.83
Sep-21	40	306	192	445	0.21	0.45	1	8	1	23	1.00	0.01	39	298	184	437	0.21	0.44
Oct-21	232	1,866	1,548	2,181	0.09	2.73	1	8	1	24	0.99	0.01	231	1,858	1,548	2,173	0.09	2.72
Dec-21	14	111	40	193	0.34	0.16	1	8	1	24	1.00	0.01	13	103	40	185	0.36	0.15
Jan-22	16	127	72	191	0.24	0.19	0	0	0	0	0.00	0.00	16	127	72	191	0.24	0.19
Mar-22	189	1,490	1,255	1,753	0.09	2.18	4	31	8	63	0.46	0.05	185	1,459	1,224	1,713	0.09	2.13
Apr-22	81	639	497	789	0.12	0.93	2	15	2	39	0.71	0.02	79	624	481	773	0.12	0.91
May-22	7	56	16	103	0.38	0.08	1	8	1	24	1.00	0.01	6	48	16	95	0.41	0.07
Jul-(I)-22	154	1,227	980	1,506	0.11	1.79	1	8	1	24	1.00	0.01	153	1,219	964	1,498	0.11	1.78
Jul-(II)-22	380	3,035	2,400	3,802	0.12	4.44	9	72	24	136	0.40	0.11	371	2,963	2,336	3,723	0.12	4.33
Aug-22	1,016	7,862	6,417	9,396	0.10	11.50	0	0	0	0	0.00	0.00	1,016	7,862	6,417	9,396	0.10	11.50

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	199	1,616	1,243	2,023	0.13	2.36	1	8	1	24	0.97	0.01	198	1,608	1,235	2,015	0.13	2.35
Oct-22	134	1,051	795	1,339	0.13	1.54	0	0	0	0	0.00	0.00	134	1,051	795	1,339	0.13	1.54
Nov-(I)-22	153	1,204	925	1,482	0.12	1.76	7	53	7	149	0.78	0.08	146	1,151	886	1,434	0.12	1.68
Nov-(II)-22	373	3,008	2,593	3,425	0.07	4.40	1	8	1	24	1.00	0.01	372	3,000	2,585	3,425	0.07	4.39
Feb-(I)-23	76	606	455	773	0.14	0.89	1	8	1	24	0.98	0.01	75	598	447	766	0.14	0.87
Feb-(II)-23	132	1,060	873	1,281	0.10	1.55	12	97	32	176	0.40	0.14	120	963	777	1,161	0.10	1.41
Feb-(III)-23	99	771	620	926	0.10	1.13	6	47	8	94	0.48	0.07	93	725	581	879	0.10	1.06
Mar-(I)-23	89	705	548	865	0.12	1.03	10	78	24	167	0.47	0.11	79	626	492	762	0.11	0.92
Mar-(II)-23	51	399	268	552	0.18	0.58	12	92	24	189	0.48	0.13	39	307	197	426	0.19	0.45

Table B19.2 Guillemot - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 2 km buffer

Survey	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	1,827	14,411	12,877	16,279	0.06	15.67	46	368	205	552	0.24	0.40	1,781	14,042	12,523	15,877	0.06	15.27
May-21	47	369	252	489	0.17	0.40	5	38	5	95	0.66	0.04	42	331	221	450	0.18	0.36
Jun-21	42	340	216	495	0.21	0.37	1	8	1	24	0.97	0.01	41	332	216	487	0.21	0.36
Jul-21	456	3,502	3,007	4,022	0.07	3.81	6	45	8	92	0.47	0.05	450	3,458	2,968	3,991	0.07	3.76
Aug-21	525	4,280	3,736	4,894	0.07	4.65	1	8	1	32	1.00	0.01	524	4,271	3,719	4,886	0.07	4.64
Sep-21	53	402	277	538	0.17	0.44	1	7	1	23	1.00	0.01	52	395	269	531	0.17	0.43
Oct-21	374	3,013	2,529	3,496	0.08	3.28	2	15	2	40	0.73	0.02	372	2,997	2,513	3,480	0.08	3.26
Dec-21	21	170	89	266	0.26	0.18	1	8	1	24	0.98	0.01	20	162	81	258	0.27	0.18
Jan-22	23	184	104	264	0.22	0.20	0	0	0	0	0.00	0.00	23	184	104	264	0.22	0.20
Mar-22	244	1,934	1,673	2,212	0.07	2.10	4	32	8	63	0.50	0.03	240	1,902	1,641	2,181	0.07	2.07
Apr-22	95	751	586	918	0.11	0.82	3	23	3	55	0.59	0.03	92	728	562	895	0.11	0.79
May-22	18	143	72	223	0.27	0.16	1	8	1	24	1.00	0.01	17	135	64	215	0.28	0.15
Jul-(I)-22	201	1,603	1,320	1,919	0.10	1.74	1	8	1	24	1.00	0.01	200	1,596	1,312	1,911	0.10	1.74
Jul-(II)-22	493	3,935	3,247	4,749	0.10	4.28	19	149	56	280	0.40	0.16	474	3,785	3,078	4,589	0.10	4.12
Aug-22	1,525	11,930	10,012	13,880	0.08	12.97	0	0	0	0	0.00	0.00	1,525	11,930	10,012	13,880	0.08	12.97

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	288	2,348	1,898	2,867	0.11	2.55	1	9	1	24	0.97	0.01	287	2,340	1,881	2,858	0.11	2.54
Oct-22	240	1,888	1,530	2,264	0.10	2.05	1	8	1	24	1.00	0.01	239	1,880	1,523	2,264	0.10	2.04
Nov-(I)-22	210	1,653	1,347	1,977	0.10	1.80	7	56	7	158	0.77	0.06	203	1,597	1,308	1,914	0.10	1.74
Nov-(II)-22	433	3,502	3,055	3,954	0.06	3.81	2	16	2	41	0.74	0.02	431	3,486	3,047	3,930	0.06	3.79
Feb-(I)-23	95	757	591	951	0.12	0.82	3	24	3	56	0.60	0.03	92	733	567	927	0.12	0.80
Feb-(II)-23	174	1,402	1,173	1,647	0.09	1.52	17	136	56	233	0.34	0.15	157	1,266	1,045	1,471	0.09	1.38
Feb-(III)-23	129	1,015	827	1,212	0.09	1.10	6	47	8	94	0.47	0.05	123	968	795	1,149	0.10	1.05
Mar-(I)-23	120	958	788	1,130	0.09	1.04	10	80	24	159	0.45	0.09	110	878	716	1,042	0.09	0.95
Mar-(II)-23	86	682	475	911	0.16	0.74	29	231	95	420	0.34	0.25	57	452	317	602	0.16	0.49

Table B19.3 Guillemot - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 4 km buffer

Survey	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	2,231	17,736	15,939	19,663	0.06	15.04	61	481	310	691	0.20	0.41	2,170	17,255	15,510	19,162	0.06	14.63
May-21	61	484	356	649	0.16	0.41	9	73	9	150	0.51	0.06	52	412	293	554	0.16	0.35
Jun-21	48	384	264	528	0.18	0.33	1	8	1	24	1.00	0.01	47	377	248	520	0.18	0.32
Jul-21	550	4,249	3,683	4,789	0.07	3.60	8	63	23	116	0.38	0.05	542	4,186	3,629	4,727	0.07	3.55
Aug-21	653	5,324	4,688	5,991	0.06	4.51	2	16	2	41	0.76	0.01	651	5,308	4,672	5,990	0.06	4.50
Sep-21	74	575	416	732	0.14	0.49	1	8	1	31	0.99	0.01	73	567	408	724	0.14	0.48
Oct-21	517	4,182	3,656	4,707	0.06	3.55	3	24	3	57	0.57	0.02	514	4,158	3,632	4,691	0.06	3.53
Dec-21	30	245	154	349	0.22	0.21	1	8	1	24	1.00	0.01	29	236	146	349	0.22	0.20
Jan-22	35	282	186	395	0.18	0.24	0	0	0	0	0.00	0.00	35	282	186	395	0.18	0.24
Mar-22	311	2,485	2,146	2,805	0.07	2.11	5	40	8	79	0.46	0.03	306	2,445	2,114	2,773	0.07	2.07
Apr-22	121	960	781	1,163	0.10	0.81	3	24	3	56	0.57	0.02	118	936	757	1,139	0.10	0.79
May-22	27	217	128	305	0.21	0.18	1	8	1	24	0.98	0.01	26	209	120	304	0.21	0.18
Jul-(I)-22	244	1,954	1,632	2,274	0.08	1.66	1	8	1	24	1.00	0.01	243	1,946	1,631	2,266	0.09	1.65
Jul-(II)-22	619	4,996	4,232	5,790	0.08	4.24	22	176	80	313	0.35	0.15	597	4,819	4,064	5,629	0.08	4.09
Aug-22	1,945	15,159	13,018	17,469	0.07	12.85	0	0	0	0	0.00	0.00	1,945	15,159	13,018	17,469	0.07	12.85

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	362	2,984	2,492	3,550	0.09	2.53	1	8	1	33	1.00	0.01	361	2,976	2,484	3,541	0.09	2.52
Oct-22	382	3,027	2,524	3,545	0.09	2.57	2	17	2	40	0.70	0.01	380	3,010	2,516	3,537	0.09	2.55
Nov-(I)-22	252	1,997	1,656	2,361	0.09	1.69	8	62	8	166	0.69	0.05	244	1,935	1,600	2,297	0.09	1.64
Nov-(II)-22	497	4,053	3,588	4,532	0.06	3.44	3	24	3	57	0.58	0.02	494	4,029	3,572	4,507	0.06	3.42
Feb-(I)-23	111	896	706	1,091	0.11	0.76	4	32	8	64	0.50	0.03	107	864	674	1,059	0.11	0.73
Feb-(II)-23	225	1,815	1,532	2,096	0.08	1.54	25	203	89	339	0.31	0.17	200	1,612	1,355	1,871	0.08	1.37
Feb-(III)-23	198	1,566	1,329	1,788	0.08	1.33	6	47	8	95	0.48	0.04	192	1,519	1,281	1,740	0.08	1.29
Mar-(I)-23	166	1,326	1,126	1,557	0.08	1.12	15	118	40	224	0.38	0.10	151	1,208	1,014	1,422	0.08	1.02
Mar-(II)-23	109	864	644	1,098	0.14	0.73	35	277	135	453	0.30	0.23	74	587	422	748	0.14	0.50

Table A20.1 Razorbill - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	18	142	47	267	0.40	0.21	1	8	1	24	1.00	0.01	17	134	47	252	0.42	0.20
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-21	5	38	5	92	0.62	0.06	0	0	0	0	0.00	0.00	5	38	5	92	0.62	0.06
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Sep-21	10	77	31	138	0.37	0.11	0	0	0	0	0.00	0.00	10	77	31	138	0.37	0.11
Oct-21	4	32	8	64	0.51	0.05	0	0	0	0	0.00	0.00	4	32	8	64	0.51	0.05
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jan-22	1	8	1	24	0.99	0.01	0	0	0	0	0.00	0.00	1	8	1	24	0.99	0.01
Mar-22	5	40	8	79	0.45	0.06	0	0	0	0	0.00	0.00	5	40	8	79	0.45	0.06
Apr-22	5	40	5	95	0.60	0.06	2	16	2	63	1.00	0.02	3	23	3	63	0.77	0.03
May-22	5	41	5	96	0.59	0.06	0	0	0	0	0.00	0.00	5	41	5	96	0.59	0.06
Jul-(I)-22	7	55	8	120	0.51	0.08	0	0	0	0	0.00	0.00	7	55	8	120	0.51	0.08
Jul-(II)-22	38	306	175	454	0.24	0.45	0	0	0	0	0.00	0.00	38	306	175	454	0.24	0.45
Aug-22	2	16	2	39	0.69	0.02	0	0	0	0	0.00	0.00	2	16	2	39	0.69	0.02

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	15	121	57	195	0.28	0.18	0	0	0	0	0.00	0.00	15	121	57	195	0.28	0.18
Oct-22	9	71	16	134	0.43	0.10	0	0	0	0	0.00	0.00	9	71	16	134	0.43	0.10
Nov-(I)-22	37	285	126	486	0.32	0.42	2	16	2	63	0.99	0.02	35	269	118	470	0.33	0.39
Nov-(II)-22	113	914	719	1,139	0.12	1.34	0	0	0	0	0.00	0.00	113	914	719	1,139	0.12	1.34
Feb-(I)-23	1	8	1	32	1.00	0.01	0	0	0	0	0.00	0.00	1	8	1	32	1.00	0.01
Feb-(II)-23	17	137	72	208	0.24	0.20	0	0	0	0	0.00	0.00	17	137	72	208	0.24	0.20
Feb-(III)-23	1	8	1	24	1.00	0.01	0	0	0	0	0.00	0.00	1	8	1	24	1.00	0.01
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Mar-(II)-23	3	24	3	47	0.56	0.04	0	0	0	0	0.00	0.00	3	24	3	47	0.56	0.04

Table B20.2 Razorbill - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	21	165	71	300	0.35	0.18	1	8	1	32	1	0.01	20	157	63	292	0.36	0.17
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Jul-21	7	54	8	108	0.47	0.06	0	0	0	0	0	0.00	7	54	8	108	0.47	0.06
Aug-21	5	41	8	89	0.54	0.04	0	0	0	0	0	0.00	5	41	8	89	0.54	0.04
Sep-21	12	92	38	154	0.32	0.10	0	0	0	0	0	0.00	12	92	38	154	0.32	0.10
Oct-21	5	41	8	89	0.47	0.04	0	0	0	0	0	0.00	5	41	8	89	0.47	0.04
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Jan-22	3	24	3	48	0.57	0.03	0	0	0	0	0	0.00	3	24	3	48	0.57	0.03
Mar-22	7	56	16	103	0.38	0.06	0	0	0	0	0	0.00	7	56	16	103	0.38	0.06
Apr-22	5	38	5	87	0.62	0.04	2	15	2	48	1	0.02	3	22	3	63	0.77	0.02
May-22	8	64	16	136	0.48	0.07	0	0	0	0	0	0.00	8	64	16	136	0.48	0.07
Jul-(I)-22	11	88	32	160	0.39	0.10	0	0	0	0	0	0.00	11	88	32	160	0.39	0.10
Jul-(II)-22	52	416	248	600	0.22	0.45	5	39	5	120	1	0.04	47	378	232	552	0.22	0.41
Aug-22	9	70	23	125	0.37	0.08	0	0	0	0	0	0.00	9	70	23	125	0.37	0.08

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	20	164	90	244	0.24	0.18	0	0	0	0	0	0.00	20	164	90	244	0.24	0.18
Oct-22	17	133	63	229	0.30	0.14	0	0	0	0	0	0.00	17	133	63	229	0.30	0.14
Nov-(I)-22	47	372	197	583	0.26	0.40	2	15	2	63	1	0.02	45	356	189	567	0.27	0.39
Nov-(II)-22	149	1,214	1,005	1,467	0.10	1.32	0	0	0	0	0	0.00	149	1,214	1,005	1,467	0.10	1.32
Feb-(I)-23	1	8	1	32	0.99	0.01	0	0	0	0	0	0.00	1	8	1	32	0.99	0.01
Feb-(II)-23	22	175	104	249	0.21	0.19	0	0	0	0	0	0.00	22	175	104	249	0.21	0.19
Feb-(III)-23	4	32	8	71	0.51	0.03	0	0	0	0	0	0.00	4	32	8	71	0.51	0.03
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Mar-(II)-23	3	23	3	55	0.59	0.03	0	0	0	0	0	0.00	3	23	3	55	0.59	0.03

Table B20.3 Razorbill - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	23	185	87	318	0.32	0.16	1	8	1	24	1.00	0.01	22	177	79	302	0.33	0.15
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-21	8	62	15	124	0.43	0.05	0	0	0	0	0.00	0.00	8	62	15	124	0.43	0.05
Aug-21	5	39	8	90	0.53	0.03	0	0	0	0	0.00	0.00	5	39	8	90	0.53	0.03
Sep-21	16	123	62	193	0.27	0.10	0	0	0	0	0.00	0.00	16	123	62	193	0.27	0.10
Oct-21	5	41	8	81	0.44	0.03	0	0	0	0	0.00	0.00	5	41	8	81	0.44	0.03
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jan-22	3	25	3	56	0.59	0.02	0	0	0	0	0.00	0.00	3	25	3	56	0.59	0.02
Mar-22	8	64	24	111	0.35	0.05	0	0	0	0	0.00	0.00	8	64	24	111	0.35	0.05
Apr-22	5	40	5	95	0.58	0.03	2	16	2	48	0.97	0.01	3	23	3	64	0.74	0.02
May-22	9	72	16	144	0.44	0.06	0	0	0	0	0.00	0.00	9	72	16	144	0.44	0.06
Jul-(I)-22	13	105	40	185	0.37	0.09	0	0	0	0	0.00	0.00	13	105	40	185	0.37	0.09
Jul-(II)-22	73	583	394	795	0.18	0.49	5	42	5	120	0.95	0.04	68	541	369	755	0.18	0.46
Aug-22	9	71	31	125	0.37	0.06	0	0	0	0	0.00	0.00	9	71	31	125	0.37	0.06

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	24	197	123	295	0.22	0.17	0	0	0	0	0.00	0.00	24	197	123	295	0.22	0.17
Oct-22	34	268	150	411	0.25	0.23	0	0	0	0	0.00	0.00	34	268	150	411	0.25	0.23
Nov-(I)-22	53	425	246	641	0.24	0.36	2	17	2	48	0.90	0.01	51	408	230	626	0.25	0.35
Nov-(II)-22	185	1,506	1,229	1,798	0.10	1.28	0	0	0	0	0.00	0.00	185	1,506	1,229	1,798	0.10	1.28
Feb-(I)-23	4	33	8	64	0.49	0.03	0	0	0	0	0.00	0.00	4	33	8	64	0.49	0.03
Feb-(II)-23	26	210	129	298	0.20	0.18	0	0	0	0	0.00	0.00	26	210	129	298	0.20	0.18
Feb-(III)-23	6	46	8	95	0.46	0.04	0	0	0	0	0.00	0.00	6	46	8	95	0.46	0.04
Mar-(I)-23	2	16	2	40	0.74	0.01	0	0	0	0	0.00	0.00	2	16	2	40	0.74	0.01
Mar-(II)-23	4	32	8	64	0.51	0.03	0	0	0	0	0.00	0.00	4	32	8	64	0.51	0.03

Table B21.1 Puffin - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	18	140	63	220	0.30	0.20	1	8	1	24	1	0.01	17	132	55	220	0.31	0.19
May-21	11	86	32	158	0.38	0.13	1	8	1	31	1	0.01	10	79	24	150	0.41	0.12
Jun-21	2	16	2	40	0.73	0.02	1	8	1	24	1	0.01	1	8	1	24	1.00	0.01
Jul-21	6	46	6	100	0.54	0.07	0	0	0	0	0	0.00	6	46	6	100	0.54	0.07
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Sep-21	2	15	2	38	0.71	0.02	0	0	0	0	0	0.00	2	15	2	38	0.71	0.02
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Apr-22	20	157	79	245	0.27	0.23	0	0	0	0	0	0.00	20	157	79	245	0.27	0.23
May-22	66	526	366	700	0.17	0.77	1	8	1	24	1	0.01	65	518	358	692	0.17	0.76
Jul-(I)-22	32	257	151	382	0.24	0.38	0	0	0	0	0	0.00	32	257	151	382	0.24	0.38
Jul-(II)-22	33	264	151	391	0.24	0.39	0	0	0	0	0	0.00	33	264	151	391	0.24	0.39
Aug-22	54	420	256	613	0.22	0.61	0	0	0	0	0	0.00	54	420	256	613	0.22	0.61

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Oct-22	4	32	8	71	0.50	0.05	0	0	0	0	0	0.00	4	32	8	71	0.50	0.05
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Nov-(II)-22	5	39	8	73	0.44	0.06	0	0	0	0	0	0.00	5	39	8	73	0.44	0.06
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Feb-(III)-23	1	8	1	24	0.99	0.01	0	0	0	0	0	0.00	1	8	1	24	0.99	0.01
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00

Table B21.2 Puffin - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 2 km buffer

Survey	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	23	183	87	292	0.28	0.20	2	16	2	39	0.69	0.02	21	167	79	268	0.30	0.18
May-21	34	267	150	402	0.24	0.29	1	8	1	24	0.98	0.01	33	259	142	394	0.25	0.28
Jun-21	2	16	2	40	0.66	0.02	1	8	1	24	0.95	0.01	1	8	1	24	0.98	0.01
Jul-21	6	46	8	100	0.52	0.05	0	0	0	0	0.00	0.00	6	46	8	100	0.52	0.05
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Sep-21	3	22	3	54	0.59	0.02	0	0	0	0	0.00	0.00	3	22	3	54	0.59	0.02
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Apr-22	25	199	111	293	0.24	0.22	0	0	0	0	0.00	0.00	25	199	111	293	0.24	0.22
May-22	80	636	462	829	0.14	0.69	1	8	1	24	1.00	0.01	79	628	454	813	0.15	0.68
Jul-(I)-22	42	337	208	488	0.20	0.37	0	0	0	0	0.00	0.00	42	337	208	488	0.20	0.37
Jul-(II)-22	49	393	232	568	0.21	0.43	0	0	0	0	0.00	0.00	49	393	232	568	0.21	0.43
Aug-22	71	551	366	771	0.18	0.60	0	0	0	0	0.00	0.00	71	551	366	771	0.18	0.60

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Oct-22	7	56	16	110	0.44	0.06	0	0	0	0	0.00	0.00	7	56	16	110	0.44	0.06
Nov-(I)-22	1	8	1	24	1.00	0.01	0	0	0	0	0.00	0.00	1	8	1	24	1.00	0.01
Nov-(II)-22	5	41	8	81	0.43	0.04	0	0	0	0	0.00	0.00	5	41	8	81	0.43	0.04
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Feb-(III)-23	1	8	1	31	1.00	0.01	0	0	0	0	0.00	0.00	1	8	1	31	1.00	0.01
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00

Table B21.3 Puffin - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 4 km buffer

Survey	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	23	186	95	286	0.27	0.16	2	16	2	40	0.70	0.01	21	170	87	270	0.28	0.14
May-21	55	435	261	641	0.22	0.37	3	24	3	63	0.74	0.02	52	411	245	625	0.23	0.35
Jun-21	3	23	3	56	0.58	0.02	2	16	2	40	0.70	0.01	1	8	1	24	1.00	0.01
Jul-21	9	68	15	124	0.41	0.06	0	0	0	0	0.00	0.00	9	68	15	124	0.41	0.06
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Sep-21	3	23	3	54	0.60	0.02	0	0	0	0	0.00	0.00	3	23	3	54	0.60	0.02
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Apr-22	28	224	135	327	0.22	0.19	0	0	0	0	0.00	0.00	28	224	135	327	0.22	0.19
May-22	109	872	673	1,090	0.12	0.74	1	8	1	24	1.00	0.01	108	865	665	1,082	0.12	0.73
Jul-(I)-22	57	459	321	619	0.16	0.39	0	0	0	0	0.00	0.00	57	459	321	619	0.16	0.39
Jul-(II)-22	68	547	369	739	0.17	0.46	0	0	0	0	0.00	0.00	68	547	369	739	0.17	0.46
Aug-22	86	670	453	882	0.16	0.57	0	0	0	0	0.00	0.00	86	670	453	882	0.16	0.57

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	2	17	2	41	0.69	0.01	0	0	0	0	0.00	0.00	2	17	2	41	0.69	0.01
Oct-22	10	80	24	142	0.36	0.07	0	0	0	0	0.00	0.00	10	80	24	142	0.36	0.07
Nov-(I)-22	1	8	1	24	1.00	0.01	0	0	0	0	0.00	0.00	1	8	1	24	1.00	0.01
Nov-(II)-22	5	40	8	81	0.46	0.03	0	0	0	0	0.00	0.00	5	40	8	81	0.46	0.03
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Feb-(III)-23	1	8	1	24	0.95	0.01	0	0	0	0	0.00	0.00	1	8	1	24	0.95	0.01
Mar-(I)-23	2	16	2	40	0.70	0.01	0	0	0	0	0.00	0.00	2	16	2	40	0.70	0.01
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00

Table B22.1 Guillemot/Razorbill - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	64	502	370	646	0.14	0.73	0	0	0	0	0.00	0.00	64	502	370	646	0.14	0.73
May-21	4	31	8	63	0.48	0.05	1	8	1	24	0.99	0.01	3	24	3	55	0.57	0.04
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-21	24	187	92	292	0.29	0.27	0	0	0	0	0.00	0.00	24	187	92	292	0.29	0.27
Aug-21	10	81	32	145	0.35	0.12	0	0	0	0	0.00	0.00	10	81	32	145	0.35	0.12
Sep-21	212	1,620	1,350	1,933	0.09	2.37	0	0	0	0	0.00	0.00	212	1,620	1,350	1,933	0.09	2.37
Oct-21	55	439	313	569	0.16	0.64	1	8	1	24	0.92	0.01	54	431	297	569	0.16	0.63
Dec-21	132	1,060	852	1,286	0.10	1.55	1	8	1	24	0.95	0.01	131	1,052	844	1,278	0.10	1.54
Jan-22	139	1,107	892	1,322	0.10	1.62	1	8	1	24	1.00	0.01	138	1,099	884	1,314	0.10	1.61
Mar-22	42	333	221	458	0.18	0.49	2	15	2	47	1.00	0.02	40	318	205	442	0.19	0.47
Apr-22	8	62	24	118	0.39	0.09	0	0	0	0	0.00	0.00	8	62	24	118	0.39	0.09
May-22	8	64	24	111	0.36	0.09	0	0	0	0	0.00	0.00	8	64	24	111	0.36	0.09
Jul-(I)-22	20	158	80	263	0.30	0.23	0	0	0	0	0.00	0.00	20	158	80	263	0.30	0.23
Jul-(II)-22	32	254	136	391	0.26	0.37	0	0	0	0	0.00	0.00	32	254	136	391	0.26	0.37
Aug-22	27	206	93	341	0.31	0.30	0	0	0	0	0.00	0.00	27	206	93	341	0.31	0.30

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	49	398	252	560	0.20	0.58	0	0	0	0	0.00	0.00	49	398	252	560	0.20	0.58
Oct-22	32	249	157	354	0.20	0.36	0	0	0	0	0.00	0.00	32	249	157	354	0.20	0.36
Nov-(I)-22	81	631	415	870	0.18	0.92	0	0	0	0	0.00	0.00	81	631	415	870	0.18	0.92
Nov-(II)-22	123	996	800	1,228	0.11	1.46	0	0	0	0	0.00	0.00	123	996	800	1,228	0.11	1.46
Feb-(I)-23	13	103	48	167	0.30	0.15	0	0	0	0	0.00	0.00	13	103	48	167	0.30	0.15
Feb-(II)-23	22	178	96	288	0.26	0.26	2	17	2	48	0.93	0.02	20	161	80	256	0.28	0.24
Feb-(III)-23	2	15	2	39	0.72	0.02	0	0	0	0	0.00	0.00	2	15	2	39	0.72	0.02
Mar-(I)-23	7	55	16	103	0.39	0.08	0	0	0	0	0.00	0.00	7	55	16	103	0.39	0.08
Mar-(II)-23	2	16	2	39	0.71	0.02	1	8	1	24	1.00	0.01	1	8	1	32	0.99	0.01

Table B22.2 Guillemot/Razorbill - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	80	631	466	805	0.14	0.69	0	0	0	0	0.00	0.00	80	631	466	805	0.14	0.69
May-21	6	48	8	102	0.47	0.05	3	24	3	71	0.76	0.03	3	24	3	55	0.56	0.03
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-21	30	230	131	361	0.25	0.25	0	0	0	0	0.00	0.00	30	230	131	361	0.25	0.25
Aug-21	13	106	49	170	0.29	0.12	0	0	0	0	0.00	0.00	13	106	49	170	0.29	0.12
Sep-21	267	2,040	1,707	2,399	0.08	2.22	0	0	0	0	0.00	0.00	267	2,040	1,707	2,399	0.08	2.22
Oct-21	79	640	475	830	0.14	0.70	1	8	1	24	1.00	0.01	78	632	467	822	0.14	0.69
Dec-21	178	1,441	1,218	1,670	0.08	1.57	1	8	1	24	1.00	0.01	177	1,433	1,210	1,662	0.08	1.56
Jan-22	189	1,519	1,266	1,771	0.09	1.65	1	7	1	24	1.00	0.01	188	1,512	1,258	1,763	0.09	1.64
Mar-22	65	518	389	658	0.14	0.56	2	17	2	63	1.00	0.02	63	501	373	642	0.14	0.54
Apr-22	9	70	24	127	0.36	0.08	0	0	0	0	0.00	0.00	9	70	24	127	0.36	0.08
May-22	13	104	48	175	0.32	0.11	0	0	0	0	0.00	0.00	13	104	48	175	0.32	0.11
Jul-(I)-22	25	200	104	304	0.26	0.22	0	0	0	0	0.00	0.00	25	200	104	304	0.26	0.22
Jul-(II)-22	46	365	232	536	0.21	0.40	0	0	0	0	0.00	0.00	46	365	232	536	0.21	0.40
Aug-22	45	352	202	521	0.23	0.38	0	0	0	0	0.00	0.00	45	352	202	521	0.23	0.38

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	82	669	448	912	0.17	0.73	0	0	0	0	0.00	0.00	82	669	448	912	0.17	0.73
Oct-22	82	647	434	891	0.18	0.70	0	0	0	0	0.00	0.00	82	647	434	891	0.18	0.70
Nov-(I)-22	103	812	583	1,071	0.16	0.88	1	8	1	24	0.96	0.01	102	804	567	1,063	0.16	0.87
Nov-(II)-22	164	1,332	1,078	1,612	0.10	1.45	0	0	0	0	0.00	0.00	164	1,332	1,078	1,612	0.10	1.45
Feb-(I)-23	18	144	80	216	0.24	0.16	0	0	0	0	0.00	0.00	18	144	80	216	0.24	0.16
Feb-(II)-23	30	242	145	346	0.21	0.26	3	24	3	72	0.74	0.03	27	218	129	313	0.21	0.24
Feb-(III)-23	3	24	3	55	0.58	0.03	0	0	0	0	0.00	0.00	3	24	3	55	0.58	0.03
Mar-(I)-23	9	72	32	119	0.32	0.08	0	0	0	0	0.00	0.00	9	72	32	119	0.32	0.08
Mar-(II)-23	3	24	3	55	0.58	0.03	1	8	1	24	0.98	0.01	2	16	2	40	0.72	0.02

Table B22.3 Guillemot/Razorbill - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	99	787	588	961	0.12	0.67	0	0	0	0	0.00	0.00	99	787	588	961	0.12	0.67
May-21	11	88	24	182	0.46	0.07	3	23	3	63	0.74	0.02	8	65	8	143	0.55	0.06
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-21	31	243	124	364	0.25	0.21	0	0	0	0	0.00	0.00	31	243	124	364	0.25	0.21
Aug-21	17	139	73	220	0.26	0.12	0	0	0	0	0.00	0.00	17	139	73	220	0.26	0.12
Sep-21	341	2,631	2,251	3,029	0.08	2.23	1	8	1	23	0.99	0.01	340	2,624	2,243	3,029	0.08	2.23
Oct-21	121	988	752	1,221	0.12	0.84	1	9	1	32	0.99	0.01	120	980	752	1,205	0.12	0.83
Dec-21	226	1,827	1,573	2,108	0.08	1.55	1	8	1	24	1.00	0.01	225	1,819	1,557	2,100	0.08	1.54
Jan-22	253	2,043	1,775	2,339	0.07	1.73	1	8	1	32	1.00	0.01	252	2,035	1,766	2,331	0.07	1.73
Mar-22	80	636	485	787	0.12	0.54	2	16	2	64	1.00	0.01	78	620	477	771	0.12	0.53
Apr-22	10	78	32	135	0.35	0.07	0	0	0	0	0.00	0.00	10	78	32	135	0.35	0.07
May-22	17	135	64	216	0.28	0.11	0	0	0	0	0.00	0.00	17	135	64	216	0.28	0.11
Jul-(I)-22	31	245	129	369	0.24	0.21	0	0	0	0	0.00	0.00	31	245	129	369	0.24	0.21
Jul-(II)-22	53	426	273	586	0.19	0.36	0	0	0	0	0.00	0.00	53	426	273	586	0.19	0.36
Aug-22	55	432	273	609	0.21	0.37	0	0	0	0	0.00	0.00	55	432	273	609	0.21	0.37

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	101	829	607	1,099	0.15	0.70	0	0	0	0	0.00	0.00	101	829	607	1,099	0.15	0.70
Oct-22	95	752	530	997	0.16	0.64	0	0	0	0	0.00	0.00	95	752	530	997	0.16	0.64
Nov-(I)-22	122	964	713	1,243	0.14	0.82	1	8	1	24	1.00	0.01	121	956	697	1,236	0.14	0.81
Nov-(II)-22	198	1,606	1,326	1,904	0.09	1.36	0	0	0	0	0.00	0.00	198	1,606	1,326	1,904	0.09	1.36
Feb-(I)-23	25	198	128	281	0.20	0.17	0	0	0	0	0.00	0.00	25	198	128	281	0.20	0.17
Feb-(II)-23	39	311	202	419	0.18	0.26	3	23	3	65	0.78	0.02	36	288	178	395	0.19	0.24
Feb-(III)-23	5	39	8	79	0.45	0.03	0	0	0	0	0.00	0.00	5	39	8	79	0.45	0.03
Mar-(I)-23	11	87	40	144	0.30	0.07	0	0	0	0	0.00	0.00	11	87	40	144	0.30	0.07
Mar-(II)-23	3	24	3	56	0.58	0.02	1	8	1	32	0.99	0.01	2	16	2	40	0.70	0.01

Table B23.1 Auk species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	23	184	94	299	0.28	0.27	0	0	0	0	0	0	23	184	94	299	0.28	0.27
May-21	2	16	2	39	0.69	0.02	0	0	0	0	0	0	2	16	2	39	0.69	0.02
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-21	6	47	15	85	0.40	0.07	0	0	0	0	0	0	6	47	15	85	0.40	0.07
Aug-21	1	8	1	24	1.00	0.01	0	0	0	0	0	0	1	8	1	24	1.00	0.01
Sep-21	4	31	8	61	0.49	0.05	0	0	0	0	0	0	4	31	8	61	0.49	0.05
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Dec-21	2	17	2	40	0.70	0.02	0	0	0	0	0	0	2	17	2	40	0.70	0.02
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Apr-22	2	16	2	39	0.67	0.02	0	0	0	0	0	0	2	16	2	39	0.67	0.02
May-22	3	24	3	56	0.58	0.04	0	0	0	0	0	0	3	24	3	56	0.58	0.04
Jul-(I)-22	9	73	24	135	0.39	0.11	0	0	0	0	0	0	9	73	24	135	0.39	0.11
Jul-(II)-22	12	96	40	159	0.32	0.14	0	0	0	0	0	0	12	96	40	159	0.32	0.14
Aug-22	1	8	1	23	1.00	0.01	0	0	0	0	0	0	1	8	1	23	1.00	0.01

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-22	1	8	1	31	0.98	0.01	0	0	0	0	0	0	1	8	1	31	0.98	0.01
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(II)-22	16	130	65	202	0.26	0.19	0	0	0	0	0	0	16	130	65	202	0.26	0.19
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(III)-23	1	8	1	24	1.00	0.01	0	0	0	0	0	0	1	8	1	24	1.00	0.01
Mar-(I)-23	1	8	1	24	0.99	0.01	0	0	0	0	0	0	1	8	1	24	0.99	0.01
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

Table B23.2 Auk species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 2 km buffer

Survey	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	29	231	134	339	0.22	0.25	0	0	0	0	0	0	29	231	134	339	0.22	0.25
May-21	4	32	8	71	0.50	0.03	0	0	0	0	0	0	4	32	8	71	0.50	0.03
Jun-21	1	8	1	24	1.00	0.01	0	0	0	0	0	0	1	8	1	24	1.00	0.01
Jul-21	6	46	15	85	0.41	0.05	0	0	0	0	0	0	6	46	15	85	0.41	0.05
Aug-21	1	8	1	24	1.00	0.01	0	0	0	0	0	0	1	8	1	24	1.00	0.01
Sep-21	6	47	15	85	0.41	0.05	0	0	0	0	0	0	6	47	15	85	0.41	0.05
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Dec-21	2	16	2	40	0.68	0.02	0	0	0	0	0	0	2	16	2	40	0.68	0.02
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Apr-22	5	40	5	103	0.65	0.04	0	0	0	0	0	0	5	40	5	103	0.65	0.04
May-22	6	48	16	88	0.40	0.05	0	0	0	0	0	0	6	48	16	88	0.40	0.05
Jul-(I)-22	11	86	32	152	0.36	0.09	0	0	0	0	0	0	11	86	32	152	0.36	0.09
Jul-(II)-22	14	112	48	176	0.29	0.12	0	0	0	0	0	0	14	112	48	176	0.29	0.12
Aug-22	7	53	8	117	0.57	0.06	0	0	0	0	0	0	7	53	8	117	0.57	0.06

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-22	2	15	2	39	0.72	0.02	0	0	0	0	0	0	2	15	2	39	0.72	0.02
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(II)-22	20	161	97	235	0.22	0.18	0	0	0	0	0	0	20	161	97	235	0.22	0.18
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(III)-23	1	8	1	24	0.99	0.01	0	0	0	0	0	0	1	8	1	24	0.99	0.01
Mar-(I)-23	2	15	2	40	0.76	0.02	0	0	0	0	0	0	2	15	2	40	0.76	0.02
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

Table B23.3 Auk species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	32	253	159	365	0.22	0.21	0	0	0	0	0.00	0.00	32	253	159	365	0.22	0.21
May-21	11	88	32	174	0.39	0.07	0	0	0	0	0.00	0.00	11	88	32	174	0.39	0.07
Jun-21	3	23	3	56	0.58	0.02	0	0	0	0	0.00	0.00	3	23	3	56	0.58	0.02
Jul-21	8	62	23	108	0.35	0.05	0	0	0	0	0.00	0.00	8	62	23	108	0.35	0.05
Aug-21	1	9	1	33	0.99	0.01	0	0	0	0	0.00	0.00	1	9	1	33	0.99	0.01
Sep-21	11	83	39	139	0.30	0.07	0	0	0	0	0.00	0.00	11	83	39	139	0.30	0.07
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Dec-21	2	16	2	41	0.74	0.01	0	0	0	0	0.00	0.00	2	16	2	41	0.74	0.01
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Apr-22	7	55	8	119	0.55	0.05	0	0	0	0	0.00	0.00	7	55	8	119	0.55	0.05
May-22	7	56	16	104	0.38	0.05	0	0	0	0	0.00	0.00	7	56	16	104	0.38	0.05
Jul-(I)-22	12	96	40	161	0.33	0.08	0	0	0	0	0.00	0.00	12	96	40	161	0.33	0.08
Jul-(II)-22	17	137	72	217	0.27	0.12	0	0	0	0	0.00	0.00	17	137	72	217	0.27	0.12
Aug-22	11	86	31	156	0.39	0.07	0	0	0	0	0.00	0.00	11	86	31	156	0.39	0.07

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Oct-22	2	16	2	47	0.71	0.01	0	0	0	0	0.00	0.00	2	16	2	47	0.71	0.01
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Nov-(II)-22	22	180	114	260	0.21	0.15	0	0	0	0	0.00	0.00	22	180	114	260	0.21	0.15
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Feb-(III)-23	2	16	2	40	0.71	0.01	0	0	0	0	0.00	0.00	2	16	2	40	0.71	0.01
Mar-(I)-23	3	24	3	48	0.56	0.02	1	8	1	24	0.99	0.01	2	16	2	40	0.67	0.01
Mar-(II)-23	1	8	1	24	1.00	0.01	0	0	0	0	0.00	0.00	1	8	1	24	1.00	0.01

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oct-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table B24.2 Red-throated Diver - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
May-22	1	8	1	24	0.98	0.01	0	0	0	0	0	0	1	8	1	24	0.98	0.01
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

OAA plus 4 km buffer	All behaviours						Flying						Sitting						
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	
Sep-22	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Oct-22	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Nov-(I)-22	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Nov-(II)-22	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Feb-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Feb-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Feb-(III)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Mar-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Mar-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00

Table B25.1 European Storm Petrel - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-22	10	78	23	147	0.44	0.11	10	78	23	147	0.44	0.11	0	0	0	0	0	0

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-22	1	8	1	24	0.99	0.01	1	8	1	24	0.99	0.01	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

Table B25.2 European Storm Petrel - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-22	11	84	31	156	0.39	0.09	11	84	31	156	0.39	0.09	0	0	0	0	0	0

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-22	1	8	1	24	1.00	0.01	1	8	1	24	1.00	0.01	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

Table B25.3 European Storm Petrel - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-22	11	85	23	164	0.41	0.07	11	85	23	164	0.41	0.07	0	0	0	0	0	0

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-22	1	8	1	32	1.00	0.01	1	8	1	32	1.00	0.01	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

Table B26.1 Storm Petrel species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jun-21	5	41	5	119	1.00	0.06	5	41	5	119	1.00	0.06	0	0	0	0	0	0
Jul-21	18	139	31	277	0.45	0.20	18	139	31	277	0.45	0.20	0	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(II)-22	1	8	1	24	1.00	0.01	1	8	1	24	1.00	0.01	0	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

Table B26.2 Storm Petrel species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jun-21	5	39	5	120	1.00	0.04	5	39	5	120	1.00	0.04	0	0	0	0	0	0
Jul-21	37	283	92	546	0.41	0.31	37	283	92	546	0.41	0.31	0	0	0	0	0	0
Aug-21	2	16	2	41	0.69	0.02	2	16	2	41	0.69	0.02	0	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(II)-22	2	16	2	40	0.71	0.02	2	16	2	40	0.71	0.02	0	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

Table B26.3 Storm Petrel species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jun-21	5	41	5	160	1.00	0.03	5	41	5	160	1.00	0.03	0	0	0	0	0	0
Jul-21	38	298	116	573	0.40	0.25	38	298	116	573	0.40	0.25	0	0	0	0	0	0
Aug-21	3	24	3	57	0.57	0.02	3	24	3	57	0.57	0.02	0	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(II)-22	3	23	3	56	0.61	0.02	3	23	3	56	0.61	0.02	0	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Survey																		
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

Table B27.1 Fulmar - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	81	641	386	984	0.24	0.94	31	247	150	362	0.22	0.36	50	395	158	724	0.37	0.58
May-21	38	302	213	410	0.17	0.44	28	223	142	315	0.19	0.33	10	78	32	142	0.35	0.11
Jun-21	22	175	111	254	0.22	0.26	14	111	56	175	0.27	0.16	8	64	24	111	0.36	0.09
Jul-21	143	1,104	922	1,299	0.09	1.61	99	763	623	922	0.10	1.12	44	341	231	453	0.17	0.50
Aug-21	407	3,331	1,356	6,728	0.46	4.87	338	2,776	871	6,091	0.55	4.06	69	556	315	936	0.28	0.81
Sep-21	190	1,430	736	2,684	0.37	2.09	37	281	169	414	0.23	0.41	153	1,150	460	2,415	0.45	1.68
Oct-21	67	544	305	914	0.29	0.80	12	98	48	160	0.29	0.14	55	446	209	802	0.34	0.65
Dec-21	99	797	627	989	0.12	1.17	79	636	483	804	0.13	0.93	20	161	80	257	0.28	0.24
Jan-22	77	617	462	780	0.13	0.90	59	473	350	605	0.14	0.69	18	144	72	239	0.31	0.21
Mar-22	21	167	103	245	0.22	0.24	16	127	71	197	0.25	0.19	5	40	8	79	0.44	0.06
Apr-22	23	181	103	268	0.23	0.26	7	55	16	95	0.37	0.08	16	127	55	205	0.29	0.19
May-22	13	103	48	167	0.30	0.15	12	95	40	159	0.32	0.14	1	8	1	24	0.98	0.01
Jul-(I)-22	164	1,302	1,099	1,498	0.08	1.90	100	797	653	948	0.10	1.17	64	506	367	653	0.14	0.74
Jul-(II)-22	216	1,723	1,459	2,025	0.08	2.52	126	1,003	821	1,204	0.10	1.47	90	720	526	948	0.15	1.05
Aug-22	106	821	660	993	0.10	1.20	61	472	357	590	0.13	0.69	45	349	225	473	0.17	0.51

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	402	3,164	691	7,150	0.51	4.63	104	825	122	1,844	0.56	1.21	298	2,340	309	5,924	0.65	3.42
Oct-22	183	1,433	1,181	1,701	0.09	2.10	27	212	134	291	0.19	0.31	156	1,221	976	1,480	0.11	1.79
Nov-(I)-22	163	1,282	1,027	1,575	0.11	1.87	91	716	557	893	0.12	1.05	72	566	384	792	0.18	0.83
Nov-(II)-22	270	2,181	1,890	2,496	0.07	3.19	123	993	816	1,171	0.09	1.45	147	1,188	961	1,430	0.10	1.74
Feb-(I)-23	54	430	311	550	0.14	0.63	36	286	199	375	0.16	0.42	18	144	72	223	0.25	0.21
Feb-(II)-23	55	442	312	577	0.15	0.65	36	288	192	392	0.17	0.42	19	153	72	248	0.30	0.22
Feb-(III)-23	91	712	557	871	0.11	1.04	54	422	306	534	0.14	0.62	37	290	196	392	0.18	0.42
Mar-(I)-23	83	662	477	865	0.15	0.97	47	371	246	508	0.19	0.54	36	291	167	429	0.24	0.43
Mar-(II)-23	42	333	213	466	0.19	0.49	26	207	118	315	0.24	0.30	16	126	55	205	0.29	0.18

Table B27.2 Fulmar - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	92	720	450	1,082	0.22	0.78	37	295	182	426	0.21	0.32	55	425	189	766	0.34	0.46
May-21	54	424	316	536	0.13	0.46	35	275	189	363	0.16	0.30	19	149	87	229	0.23	0.16
Jun-21	28	223	136	319	0.20	0.24	17	136	72	208	0.25	0.15	11	87	40	144	0.32	0.09
Jul-21	211	1,627	1,407	1,861	0.07	1.77	146	1,125	946	1,315	0.08	1.22	65	501	377	646	0.14	0.54
Aug-21	447	3,702	1,661	7,477	0.43	4.03	358	2,982	1,005	6,602	0.53	3.24	89	720	478	1,078	0.22	0.78
Sep-21	243	1,865	1,115	3,022	0.28	2.03	54	415	277	569	0.18	0.45	189	1,451	730	2,591	0.36	1.58
Oct-21	86	705	443	1,111	0.24	0.77	24	195	113	274	0.21	0.21	62	510	258	894	0.32	0.55
Dec-21	125	1,007	807	1,218	0.10	1.10	103	829	661	1,016	0.11	0.90	22	179	97	274	0.26	0.19
Jan-22	98	784	633	962	0.11	0.85	78	623	489	761	0.11	0.68	20	161	80	256	0.29	0.18
Mar-22	29	227	143	317	0.18	0.25	22	172	103	254	0.22	0.19	7	56	16	103	0.38	0.06
Apr-22	32	253	166	356	0.19	0.28	7	56	16	103	0.39	0.06	25	198	119	285	0.21	0.22
May-22	25	199	120	287	0.21	0.22	22	175	104	255	0.23	0.19	3	24	3	56	0.60	0.03
Jul-(I)-22	312	2,518	1,855	3,583	0.18	2.74	152	1,217	1,024	1,416	0.08	1.32	160	1,301	688	2,359	0.34	1.41
Jul-(II)-22	312	2,482	2,151	2,846	0.07	2.70	167	1,330	1,135	1,551	0.08	1.45	145	1,152	896	1,463	0.12	1.25
Aug-22	151	1,174	981	1,378	0.09	1.28	86	669	529	833	0.11	0.73	65	505	374	646	0.14	0.55

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	423	3,425	953	7,093	0.47	3.72	107	850	138	1,881	0.55	0.92	316	2,575	407	6,115	0.60	2.80
Oct-22	231	1,822	1,538	2,130	0.08	1.98	34	268	181	363	0.17	0.29	197	1,554	1,294	1,862	0.09	1.69
Nov-(I)-22	242	1,920	1,615	2,276	0.09	2.09	135	1,072	874	1,307	0.10	1.17	107	847	622	1,118	0.15	0.92
Nov-(II)-22	352	2,857	2,528	3,209	0.06	3.11	160	1,304	1,102	1,515	0.08	1.42	192	1,553	1,288	1,823	0.09	1.69
Feb-(I)-23	86	686	535	839	0.11	0.75	61	486	359	623	0.14	0.53	25	200	128	280	0.20	0.22
Feb-(II)-23	76	610	442	779	0.14	0.66	51	410	281	538	0.16	0.45	25	201	112	313	0.26	0.22
Feb-(III)-23	138	1,085	889	1,283	0.09	1.18	69	543	417	685	0.13	0.59	69	542	393	685	0.14	0.59
Mar-(I)-23	105	832	637	1,034	0.12	0.90	64	506	366	668	0.15	0.55	41	326	191	469	0.22	0.35
Mar-(II)-23	53	418	293	570	0.17	0.45	31	245	143	364	0.23	0.27	22	174	103	261	0.24	0.19

Table B27.3 Fulmar - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)
Apr-21	102	813	532	1,144	0.20	0.69	42	335	222	469	0.19	0.28	60	478	230	810	0.32	0.41
May-21	85	671	523	816	0.11	0.57	51	403	293	523	0.14	0.34	34	268	174	364	0.18	0.23
Jun-21	43	343	240	456	0.16	0.29	30	239	152	328	0.18	0.20	13	104	48	168	0.28	0.09
Jul-21	284	2,197	1,942	2,476	0.06	1.86	184	1,424	1,222	1,640	0.07	1.21	100	773	611	951	0.11	0.66
Aug-21	491	4,010	2,011	7,382	0.38	3.40	388	3,172	1,270	6,487	0.48	2.69	103	837	578	1,196	0.19	0.71
Sep-21	440	3,375	1,904	5,402	0.27	2.86	72	554	408	732	0.14	0.47	368	2,821	1,356	4,808	0.32	2.39
Oct-21	98	789	510	1,157	0.22	0.67	28	225	138	315	0.20	0.19	70	564	307	914	0.29	0.48
Dec-21	154	1,250	1,046	1,476	0.09	1.06	123	999	811	1,184	0.10	0.85	31	250	154	365	0.20	0.21
Jan-22	121	979	807	1,170	0.09	0.83	99	801	653	952	0.10	0.68	22	177	97	282	0.27	0.15
Mar-22	44	347	246	469	0.16	0.29	30	236	159	326	0.18	0.20	14	110	56	183	0.30	0.09
Apr-22	47	377	271	502	0.15	0.32	14	112	56	175	0.26	0.09	33	265	167	366	0.18	0.22
May-22	30	238	152	329	0.19	0.20	27	214	128	305	0.20	0.18	3	24	3	56	0.59	0.02
Jul-(I)-22	465	3,730	2,805	5,006	0.16	3.16	214	1,718	1,455	2,009	0.08	1.46	251	2,012	1,109	3,279	0.28	1.71
Jul-(II)-22	397	3,184	2,819	3,574	0.06	2.70	201	1,612	1,397	1,855	0.07	1.37	196	1,572	1,261	1,927	0.10	1.33
Aug-22	203	1,582	1,351	1,819	0.07	1.34	123	958	789	1,132	0.09	0.81	80	624	484	773	0.12	0.53

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	462	3,765	1,328	7,353	0.42	3.19	113	951	205	2,164	0.53	0.81	349	2,813	566	6,156	0.53	2.39
Oct-22	286	2,264	1,939	2,619	0.07	1.92	47	371	269	475	0.14	0.31	239	1,893	1,614	2,216	0.08	1.61
Nov-(I)-22	367	2,906	2,400	3,501	0.10	2.46	205	1,618	1,268	2,028	0.12	1.37	162	1,288	927	1,743	0.16	1.09
Nov-(II)-22	440	3,586	3,197	3,970	0.06	3.04	210	1,718	1,473	1,969	0.07	1.46	230	1,868	1,578	2,164	0.08	1.58
Feb-(I)-23	139	1,124	867	1,412	0.12	0.95	84	677	522	851	0.12	0.57	55	446	265	674	0.24	0.38
Feb-(II)-23	121	980	750	1,250	0.13	0.83	82	664	500	847	0.13	0.56	39	316	161	524	0.29	0.27
Feb-(III)-23	188	1,485	1,258	1,740	0.08	1.26	90	709	562	870	0.11	0.60	98	776	601	965	0.12	0.66
Mar-(I)-23	145	1,151	887	1,454	0.12	0.98	81	646	487	838	0.14	0.55	64	506	312	735	0.22	0.43
Mar-(II)-23	63	505	366	652	0.15	0.43	35	283	175	406	0.21	0.24	28	222	135	326	0.22	0.19

Table B28.1 Fulmar/Gull species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Nov-(II)-22	4	33	8	73	0.52	0.05	1	8	1	24	1	0.01	3	25	3	57	0.59	0.04
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Mar-(I)-23	1	8	1	24	0.99	0.01	0	0	0	0	0	0.00	1	8	1	24	0.99	0.01
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00

Table B28.2 Fulmar/Gull species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Nov-(II)-22	4	32	8	65	0.50	0.03	1	8	1	24	1	0.01	3	24	3	57	0.58	0.03
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Mar-(I)-23	1	8	1	24	0.98	0.01	0	0	0	0	0	0.00	1	8	1	24	0.98	0.01
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00

Table B28.3 Fulmar/Gull species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Nov-(II)-22	5	41	8	81	0.44	0.03	1	8	1	24	1	0.01	4	33	8	65	0.49	0.03
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Feb-(III)-23	1	8	1	24	1.00	0.01	0	0	0	0	0	0.00	1	8	1	24	1.00	0.01
Mar-(I)-23	1	8	1	24	0.97	0.01	0	0	0	0	0	0.00	1	8	1	24	0.97	0.01
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00

Table B29.1 Manx Shearwater - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
May-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Jun-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Jul-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Aug-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Sep-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Oct-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Dec-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Jan-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Mar-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Apr-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
May-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Jul-(I)-22	2	15	2	48	1	0.02	2	15	2	48	1	0.02	0	0	0	0	0	0.00
Jul-(II)-22	1	8	1	24	1	0.01	0	0	0	0	0	0.00	1	8	1	24	1	0.01
Aug-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Oct-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Nov-(I)-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Nov-(II)-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Feb-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Feb-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Feb-(III)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Mar-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Mar-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00

Table B29.2 Manx Shearwater - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00
Jul-(I)-22	2	16	2	48	0.95	0.02	2	16	2	48	0.95	0.02	0	0	0	0	0	0.00
Jul-(II)-22	1	8	1	24	1.00	0.01	0	0	0	0	0.00	0.00	1	8	1	24	1	0.01
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00

Table B29.3 Manx Shearwater - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Jul-(I)-22	2	17	2	64	1.00	0.01	2	17	2	64	1	0.01	0	0	0	0	0.00	0.00
Jul-(II)-22	1	8	1	24	0.99	0.01	0	0	0	0	0	0.00	1	8	1	24	0.99	0.01
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0.00	0	0	0	0	0.00	0.00

Table B30.1 Small Shearwater species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	1	8	1	24	0.95	0.01	1	8	1	24	0.95	0.01	0	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

Table B30.2 Small Shearwater species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
May-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Jun-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Jul-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Aug-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Sep-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
May-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Aug-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	1	8	1	33	1	0.01	1	8	1	33	1	0.01	0	0	0	0	0	0
Oct-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0

Table B30.3 Small Shearwater species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	1	8	1	25	0.99	0.01	1	8	1	25	0.99	0.01	0	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0	0

Table B31.1 Auk/Shearwater species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-21	1	8	1	23	0.98	0.01	0	0	0	0	0	0	1	8	1	23	0.98	0.01
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(II)-22	2	16	2	63	1.00	0.02	0	0	0	0	0	0	2	16	2	63	1.00	0.02
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

Table B31.2 Auk/Shearwater species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Survey																		
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-21	1	8	1	23	0.95	0.01	0	0	0	0	0	0	1	8	1	23	0.95	0.01
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(II)-22	2	16	2	48	0.98	0.02	0	0	0	0	0	0	2	16	2	48	0.98	0.02
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

OAA plus 2 km buffer	All behaviours						Flying						Sitting						
	Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00

Table B31.3 Auk/Shearwater species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-21	1	8	1	23	1.00	0.01	0	0	0	0	0	0	1	8	1	23	1.00	0.01
Aug-21	1	8	1	24	0.96	0.01	0	0	0	0	0	0	1	8	1	24	0.96	0.01
Sep-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jan-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
May-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Jul-(II)-22	2	16	2	48	0.97	0.01	0	0	0	0	0	0	2	16	2	48	0.97	0.01
Aug-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Nov-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0.00	0.00

Table B32.1 Gannet - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	74	582	417	764	0.15	0.85	18	142	79	213	0.25	0.21	56	439	283	614	0.19	0.64
May-21	27	214	134	300	0.20	0.31	16	126	63	189	0.26	0.18	11	87	39	150	0.33	0.13
Jun-21	35	278	191	373	0.17	0.41	11	88	40	143	0.30	0.13	24	191	119	270	0.20	0.28
Jul-21	9	68	23	123	0.35	0.10	7	53	15	100	0.38	0.08	2	15	2	38	0.71	0.02
Aug-21	315	2,542	726	5,970	0.61	3.72	244	1,972	339	5,042	0.77	2.88	71	571	258	1,129	0.40	0.84
Sep-21	51	390	268	529	0.17	0.57	35	266	184	360	0.17	0.39	16	124	38	238	0.40	0.18
Oct-21	42	337	241	449	0.16	0.49	31	249	160	345	0.19	0.36	11	88	40	144	0.30	0.13
Dec-21	2	16	2	48	0.99	0.02	2	16	2	48	0.99	0.02	0	0	0	0	0.00	0.00
Jan-22	2	16	2	40	0.67	0.02	2	16	2	40	0.67	0.02	0	0	0	0	0.00	0.00
Mar-22	5	40	5	111	0.70	0.06	5	40	5	111	0.70	0.06	0	0	0	0	0.00	0.00
Apr-22	9	71	24	126	0.38	0.10	7	55	16	110	0.43	0.08	2	16	2	39	0.73	0.02
May-22	49	390	279	517	0.15	0.57	28	222	135	310	0.20	0.32	21	168	96	255	0.24	0.25
Jul-(I)-22	9	70	24	127	0.37	0.10	5	38	8	80	0.53	0.06	4	32	8	64	0.49	0.05
Jul-(II)-22	12	96	48	151	0.28	0.14	6	48	16	88	0.39	0.07	6	48	16	88	0.41	0.07
Aug-22	15	117	62	186	0.29	0.17	7	54	16	101	0.44	0.08	8	63	23	116	0.39	0.09

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	52	414	211	731	0.35	0.61	17	138	73	203	0.24	0.20	35	276	89	593	0.51	0.40
Oct-22	15	118	63	181	0.25	0.17	11	86	39	142	0.30	0.13	4	32	8	63	0.51	0.05
Nov-(I)-22	5	40	8	78	0.44	0.06	3	24	3	55	0.56	0.04	2	16	2	39	0.71	0.02
Nov-(II)-22	3	25	3	57	0.58	0.04	2	17	2	48	0.70	0.02	1	8	1	24	0.98	0.01
Feb-(I)-23	1	8	1	24	0.97	0.01	1	8	1	24	0.97	0.01	0	0	0	0	0.00	0.00
Feb-(II)-23	2	16	2	40	0.72	0.02	2	16	2	40	0.72	0.02	0	0	0	0	0.00	0.00
Feb-(III)-23	6	48	8	94	0.46	0.07	6	48	8	94	0.46	0.07	0	0	0	0	0.00	0.00
Mar-(I)-23	1	8	1	24	0.97	0.01	1	8	1	24	0.97	0.01	0	0	0	0	0.00	0.00
Mar-(II)-23	7	55	24	95	0.37	0.08	4	32	8	71	0.49	0.05	3	24	3	55	0.58	0.04

Table B32.2 Gannet - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	98	772	584	979	0.14	0.84	32	252	142	379	0.23	0.27	66	521	363	710	0.17	0.57
May-21	30	237	158	331	0.19	0.26	18	143	79	221	0.24	0.16	12	93	39	158	0.32	0.10
Jun-21	44	348	248	455	0.15	0.38	15	120	64	184	0.27	0.13	29	229	144	320	0.19	0.25
Jul-21	16	123	62	200	0.29	0.13	9	69	31	115	0.34	0.08	7	53	8	115	0.52	0.06
Aug-21	332	2,724	859	5,980	0.57	2.96	260	2,140	462	5,267	0.73	2.33	72	583	259	1,118	0.38	0.63
Sep-21	74	570	423	746	0.14	0.62	45	348	246	454	0.15	0.38	29	222	123	346	0.26	0.24
Oct-21	55	442	322	572	0.14	0.48	41	329	226	451	0.17	0.36	14	113	56	177	0.28	0.12
Dec-21	2	17	2	48	0.98	0.02	2	17	2	48	0.98	0.02	0	0	0	0	0.00	0.00
Jan-22	2	16	2	40	0.70	0.02	2	16	2	40	0.70	0.02	0	0	0	0	0.00	0.00
Mar-22	8	63	8	135	0.53	0.07	8	63	8	135	0.53	0.07	0	0	0	0	0.00	0.00
Apr-22	75	615	75	1,647	0.84	0.67	8	64	24	119	0.38	0.07	67	550	67	1,560	0.93	0.60
May-22	65	520	399	654	0.13	0.57	37	297	207	399	0.17	0.32	28	224	144	327	0.21	0.24
Jul-(I)-22	16	129	56	208	0.29	0.14	8	64	16	128	0.45	0.07	8	65	24	112	0.37	0.07
Jul-(II)-22	16	127	64	200	0.26	0.14	8	63	24	120	0.39	0.07	8	63	24	112	0.36	0.07
Aug-22	24	186	117	272	0.22	0.20	10	78	31	132	0.34	0.08	14	108	54	171	0.29	0.12

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	65	526	301	855	0.28	0.57	21	172	106	252	0.22	0.19	44	354	155	676	0.41	0.38
Oct-22	21	165	103	237	0.21	0.18	12	94	47	150	0.28	0.10	9	71	32	118	0.34	0.08
Nov-(I)-22	10	79	32	126	0.33	0.09	5	40	8	79	0.47	0.04	5	39	8	71	0.44	0.04
Nov-(II)-22	4	33	8	73	0.52	0.04	3	25	3	57	0.60	0.03	1	8	1	24	1.00	0.01
Feb-(I)-23	1	8	1	24	0.97	0.01	1	8	1	24	0.97	0.01	0	0	0	0	0.00	0.00
Feb-(II)-23	8	65	8	177	0.78	0.07	2	16	2	40	0.68	0.02	6	50	6	145	1.00	0.05
Feb-(III)-23	8	63	24	118	0.40	0.07	8	63	24	118	0.40	0.07	0	0	0	0	0.00	0.00
Mar-(I)-23	2	16	2	40	0.74	0.02	2	16	2	40	0.74	0.02	0	0	0	0	0.00	0.00
Mar-(II)-23	10	81	32	135	0.32	0.09	6	48	16	87	0.40	0.05	4	32	8	71	0.50	0.03

Table B32.3 Gannet - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 4 km buffer

Survey	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	102	813	620	1,024	0.13	0.69	33	263	159	381	0.22	0.22	69	551	389	739	0.16	0.47
May-21	39	307	214	419	0.17	0.26	19	151	87	230	0.24	0.13	20	157	87	230	0.24	0.13
Jun-21	55	436	320	560	0.14	0.37	18	144	80	224	0.25	0.12	37	293	200	384	0.16	0.25
Jul-21	21	161	85	240	0.24	0.14	12	92	39	147	0.29	0.08	9	69	23	139	0.43	0.06
Aug-21	345	2,814	985	6,136	0.56	2.39	269	2,195	529	5,347	0.70	1.86	76	619	285	1,123	0.36	0.52
Sep-21	102	782	609	971	0.12	0.66	63	486	370	624	0.13	0.41	39	296	177	432	0.22	0.25
Oct-21	73	592	461	736	0.12	0.50	56	453	340	582	0.14	0.38	17	139	81	218	0.25	0.12
Dec-21	2	16	2	49	0.99	0.01	2	16	2	49	0.99	0.01	0	0	0	0	0.00	0.00
Jan-22	2	16	2	40	0.70	0.01	2	16	2	40	0.70	0.01	0	0	0	0	0.00	0.00
Mar-22	11	87	24	167	0.42	0.07	11	87	24	167	0.42	0.07	0	0	0	0	0.00	0.00
Apr-22	84	665	104	1,744	0.76	0.56	12	97	40	167	0.32	0.08	72	567	72	1,641	0.89	0.48
May-22	87	693	529	866	0.12	0.59	56	445	321	577	0.15	0.38	31	248	160	353	0.20	0.21
Jul-(I)-22	24	193	121	273	0.22	0.16	11	89	32	161	0.35	0.08	13	104	48	161	0.27	0.09
Jul-(II)-22	20	160	96	233	0.23	0.14	9	73	24	128	0.37	0.06	11	87	40	145	0.30	0.07
Aug-22	31	243	156	344	0.20	0.21	12	93	39	156	0.31	0.08	19	150	78	234	0.26	0.13

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	81	665	418	1,025	0.24	0.56	28	228	139	320	0.21	0.19	53	437	221	795	0.35	0.37
Oct-22	28	223	142	309	0.19	0.19	18	145	79	214	0.25	0.12	10	79	32	127	0.31	0.07
Nov-(I)-22	16	128	71	198	0.25	0.11	10	80	32	135	0.32	0.07	6	48	16	87	0.41	0.04
Nov-(II)-22	7	56	16	106	0.39	0.05	4	32	8	65	0.50	0.03	3	24	3	57	0.60	0.02
Feb-(I)-23	5	38	5	96	0.68	0.03	2	16	2	40	0.71	0.01	3	23	3	72	1.00	0.02
Feb-(II)-23	12	98	16	234	0.58	0.08	3	25	3	56	0.57	0.02	9	73	9	201	0.74	0.06
Feb-(III)-23	18	142	47	269	0.40	0.12	10	78	32	142	0.35	0.07	8	64	8	189	0.79	0.05
Mar-(I)-23	3	24	3	56	0.59	0.02	3	24	3	56	0.59	0.02	0	0	0	0	0.00	0.00
Mar-(II)-23	12	95	48	151	0.29	0.08	7	54	16	103	0.37	0.05	5	40	8	80	0.46	0.03

Table B33.1 Unidentified Bird species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0.00	0	0	0	0	0.0	0.00	0	0	0	0	0.00	0.00
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.0	0.00	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.0	0.00	0	0	0	0	0.00	0.00
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0.0	0.00	0	0	0	0	0.00	0.00
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.0	0.00	0	0	0	0	0.00	0.00
Sep-21	1	8	1	23	1.00	0.01	0	0	0	0	0.0	0.00	1	8	1	23	1.00	0.01
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.0	0.00	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.0	0.00	0	0	0	0	0.00	0.00
Jan-22	1	8	1	24	1.00	0.01	0	0	0	0	0.0	0.00	1	8	1	24	1.00	0.01
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.0	0.00	0	0	0	0	0.00	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.0	0.00	0	0	0	0	0.00	0.00
May-22	3	24	3	56	0.59	0.04	0	0	0	0	0.0	0.00	3	24	3	56	0.59	0.04
Jul-(I)-22	1	8	1	24	1.00	0.01	1	8	1	24	1.0	0.01	0	0	0	0	0.00	0.00
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.0	0.00	0	0	0	0	0.00	0.00
Aug-22	5	39	8	78	0.45	0.06	2	16	2	39	0.7	0.02	3	23	3	54	0.58	0.03

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	2	16	2	41	0.70	0.02	0	0	0	0	0.0	0.00	2	16	2	41	0.70	0.02
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.0	0.00	0	0	0	0	0.00	0.00
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.0	0.00	0	0	0	0	0.00	0.00
Nov-(II)-22	1	8	1	24	0.98	0.01	0	0	0	0	0.0	0.00	1	8	1	24	0.98	0.01
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.0	0.00	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.0	0.00	0	0	0	0	0.00	0.00
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.0	0.00	0	0	0	0	0.00	0.00
Mar-(I)-23	1	8	1	32	1.00	0.01	0	0	0	0	0.0	0.00	1	8	1	32	1.00	0.01
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.0	0.00	0	0	0	0	0.00	0.00

Table B33.2 Unidentified Bird species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	1	8	1	24	0.97	0.01	0	0	0	0	0.00	0.00	1	8	1	24	0.97	0.01
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Sep-21	1	8	1	31	1.00	0.01	0	0	0	0	0.00	0.00	1	8	1	31	1.00	0.01
Oct-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jan-22	2	16	2	40	0.73	0.02	0	0	0	0	0.00	0.00	2	16	2	40	0.73	0.02
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
May-22	3	24	3	56	0.57	0.03	0	0	0	0	0.00	0.00	3	24	3	56	0.57	0.03
Jul-(I)-22	2	16	2	40	0.71	0.02	1	8	1	24	0.98	0.01	1	8	1	24	1.00	0.01
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Aug-22	7	54	16	93	0.36	0.06	2	15	2	39	0.71	0.02	5	39	8	78	0.44	0.04

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	3	24	3	49	0.56	0.03	0	0	0	0	0.00	0.00	3	24	3	49	0.56	0.03
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Nov-(II)-22	1	8	1	24	1.00	0.01	0	0	0	0	0.00	0.00	1	8	1	24	1.00	0.01
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Mar-(I)-23	1	8	1	24	1.00	0.01	0	0	0	0	0.00	0.00	1	8	1	24	1.00	0.01
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00

Table B33.3 Unidentified Bird species - raw count, mean abundance estimates, lower and upper 95% confidence limit abundance estimates, precision (Coefficient of Variation, CV) and mean density estimate (prior to apportionment and correction) for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Apr-21	1	8	1	24	0.97	0.01	0	0	0	0	0.00	0.00	1	8	1	24	0.97	0.01
May-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jun-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jul-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Aug-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Sep-21	1	8	1	31	1.00	0.01	0	0	0	0	0.00	0.00	1	8	1	31	1.00	0.01
Oct-21	1	8	1	24	1.00	0.01	0	0	0	0	0.00	0.00	1	8	1	24	1.00	0.01
Dec-21	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Jan-22	2	16	2	40	0.71	0.01	0	0	0	0	0.00	0.00	2	16	2	40	0.71	0.01
Mar-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Apr-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
May-22	3	24	3	56	0.56	0.02	0	0	0	0	0.00	0.00	3	24	3	56	0.56	0.02
Jul-(I)-22	2	17	2	40	0.70	0.01	1	8	1	24	0.99	0.01	1	8	1	24	0.96	0.01
Jul-(II)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Aug-22	7	55	23	94	0.36	0.05	2	16	2	39	0.69	0.01	5	38	8	70	0.43	0.03

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)	Raw Count	Abundance	Lower Confidence Limit	Upper Confidence Limit	Precision (CV)	Density (birds/km ²)
Sep-22	3	25	3	57	0.56	0.02	0	0	0	0	0.00	0.00	3	25	3	57	0.56	0.02
Oct-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Nov-(I)-22	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Nov-(II)-22	1	8	1	24	1.00	0.01	0	0	0	0	0.00	0.00	1	8	1	24	1.00	0.01
Feb-(I)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Feb-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Feb-(III)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00
Mar-(I)-23	1	8	1	24	1.00	0.01	0	0	0	0	0.00	0.00	1	8	1	24	1.00	0.01
Mar-(II)-23	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00	0	0	0	0	0.00	0.00

Appendix C

Abundance and Behaviour Information for All Birds (Including Apportionment and Correction for Availability Bias)

Table C34.1 Whimbrel - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-22	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

Table C34.2 Whimbrel - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-22	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Survey															
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

Table C34.3 Whimbrel - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-22	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Survey															
Nov-(I)-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Survey															
Nov-(I)-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table C35.3 Ruff - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(II)-22	10	80	0	80	0.07	10	80	0	80	0.07	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Survey															
Nov-(I)-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table C36.2 Woodcock - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Nov-(I)-22	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

Table C36.3 Woodcock - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
	Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total
Nov-(I)-22	2	16	0	16	0.01	2	16	0	16	0.01	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

Table C37.1 Kittiwake - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	146	1,137	0	1,137	1.66	47	370	0	370	0.54	99	767	0	767	1.12
May-21	34	266	0	266	0.39	27	212	0	212	0.31	7	54	0	54	0.08
Jun-21	3	25	0	25	0.04	1	8	0	8	0.01	2	17	0	17	0.02
Jul-21	2	14	0	14	0.02	0	0	0	0	0.00	2	14	0	14	0.02
Aug-21	24	193	0	193	0.28	22	177	0	177	0.26	2	16	0	16	0.02
Sep-21	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0.00
Oct-21	6	48	0	48	0.07	6	48	0	48	0.07	0	0	0	0	0.00
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jan-22	8	62	0	62	0.09	5	39	0	39	0.06	3	23	0	23	0.03
Mar-22	11	87	0	87	0.13	7	56	0	56	0.08	4	31	0	31	0.05
Apr-22	1	8	0	8	0.01	0	0	0	0	0.00	1	8	0	8	0.01
May-22	12	95	0	95	0.14	10	79	0	79	0.12	2	16	0	16	0.02
Jul-(I)-22	1	8	0	8	0.01	0	0	0	0	0.00	1	8	0	8	0.01
Jul-(II)-22	156	1,230	0	1,230	1.80	35	278	0	278	0.41	121	952	0	952	1.39
Aug-22	11	86	0	86	0.13	8	63	0	63	0.09	3	22	0	22	0.03
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Oct-22	8	64	0	64	0.09	5	40	0	40	0.06	3	24	0	24	0.04

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Nov-(I)-22	7	55	0	55	0.08	7	55	0	55	0.08	0	0	0	0	0.00
Nov-(II)-22	13	105	0	105	0.15	12	97	0	97	0.14	1	8	0	8	0.01
Feb-(I)-23	3	24	0	24	0.04	2	16	0	16	0.02	1	8	0	8	0.01
Feb-(II)-23	20	161	0	161	0.24	17	137	0	137	0.20	3	24	0	24	0.04
Feb-(III)-23	4	32	0	32	0.05	4	32	0	32	0.05	0	0	0	0	0.00
Mar-(I)-23	7	56	0	56	0.08	7	56	0	56	0.08	0	0	0	0	0.00
Mar-(II)-23	9	70	0	70	0.10	8	62	0	62	0.09	1	8	0	8	0.01

Table C37.2 Kittiwake - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total
Apr-21	171	1,351	0	1,351	1.47	66	517	0	517	0.56	105	833	0	833	0.91
May-21	40	315	0	315	0.34	33	260	0	260	0.28	7	55	0	55	0.06
Jun-21	3	24	0	24	0.03	1	8	0	8	0.01	2	16	0	16	0.02
Jul-21	2	15	0	15	0.02	0	0	0	0	0.00	2	15	0	15	0.02
Aug-21	31	252	0	252	0.27	27	220	0	220	0.24	4	32	0	32	0.03
Sep-21	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0.00
Oct-21	7	58	8	66	0.07	7	58	8	66	0.07	0	0	0	0	0.00
Dec-21	3	24	0	24	0.03	2	16	0	16	0.02	1	8	0	8	0.01
Jan-22	12	98	0	98	0.11	8	66	0	66	0.07	4	32	0	32	0.03
Mar-22	14	111	0	111	0.12	8	64	0	64	0.07	6	47	0	47	0.05
Apr-22	16	124	0	124	0.13	3	23	0	23	0.03	13	100	0	100	0.11
May-22	14	112	0	112	0.12	12	96	0	96	0.10	2	16	0	16	0.02
Jul-(I)-22	1	8	0	8	0.01	0	0	0	0	0.00	1	8	0	8	0.01
Jul-(II)-22	185	1,479	0	1,479	1.61	47	377	0	377	0.41	138	1,102	0	1,102	1.20
Aug-22	16	124	0	124	0.13	11	86	0	86	0.09	5	39	0	39	0.04
Sep-22	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0.00
Oct-22	9	72	0	72	0.08	6	48	0	48	0.05	3	24	0	24	0.03

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total
Nov-(I)-22	11	87	0	87	0.09	11	87	0	87	0.09	0	0	0	0	0.00
Nov-(II)-22	19	153	1	154	0.17	18	144	1	145	0.16	1	9	0	9	0.01
Feb-(I)-23	5	40	0	40	0.04	4	32	0	32	0.03	1	8	0	8	0.01
Feb-(II)-23	22	177	0	177	0.19	19	152	0	152	0.17	3	25	0	25	0.03
Feb-(III)-23	14	111	0	111	0.12	13	103	0	103	0.11	1	8	0	8	0.01
Mar-(I)-23	10	81	0	81	0.09	10	81	0	81	0.09	0	0	0	0	0.00
Mar-(II)-23	11	88	0	88	0.10	10	80	0	80	0.09	1	8	0	8	0.01

Table C37.3 Kittiwake - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 4 km buffer

Survey	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	199	1,575	0	1,575	1.34	77	611	0	611	0.52	122	963	0	963	0.82
May-21	46	368	0	368	0.31	38	304	0	304	0.26	8	64	0	64	0.05
Jun-21	3	23	0	23	0.02	1	8	0	8	0.01	2	16	0	16	0.01
Jul-21	3	22	0	22	0.02	1	7	0	7	0.01	2	15	0	15	0.01
Aug-21	36	292	0	292	0.25	32	261	0	261	0.22	4	32	0	32	0.03
Sep-21	2	15	0	15	0.01	2	15	0	15	0.01	0	0	0	0	0.00
Oct-21	8	68	7	75	0.06	8	68	7	75	0.06	0	0	0	0	0.00
Dec-21	6	48	0	48	0.04	4	32	0	32	0.03	2	16	0	16	0.01
Jan-22	12	97	0	97	0.08	8	65	0	65	0.06	4	32	0	32	0.03
Mar-22	18	144	8	152	0.13	12	96	8	104	0.09	6	48	0	48	0.04
Apr-22	20	156	0	156	0.13	6	49	0	49	0.04	14	108	0	108	0.09
May-22	19	155	0	155	0.13	16	131	0	131	0.11	3	24	0	24	0.02
Jul-(I)-22	2	16	0	16	0.01	1	8	0	8	0.01	1	8	0	8	0.01
Jul-(II)-22	227	1,818	0	1,818	1.54	61	490	0	490	0.42	166	1,329	0	1,329	1.13
Aug-22	25	196	0	196	0.17	18	142	0	142	0.12	7	54	0	54	0.05
Sep-22	2	16	0	16	0.01	1	8	0	8	0.01	1	8	0	8	0.01
Oct-22	10	78	0	78	0.07	7	54	0	54	0.05	3	24	0	24	0.02

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
	Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total
Nov-(I)-22	16	125	0	125	0.11	16	125	0	125	0.11	0	0	0	0	0.00
Nov-(II)-22	19	155	1	156	0.13	18	147	1	148	0.13	1	8	0	8	0.01
Feb-(I)-23	7	57	0	57	0.05	6	49	0	49	0.04	1	8	0	8	0.01
Feb-(II)-23	31	251	0	251	0.21	24	194	0	194	0.16	7	57	0	57	0.05
Feb-(III)-23	15	118	0	118	0.10	14	110	0	110	0.09	1	8	0	8	0.01
Mar-(I)-23	11	88	0	88	0.07	11	88	0	88	0.07	0	0	0	0	0.00
Mar-(II)-23	12	96	0	96	0.08	11	88	0	88	0.07	1	8	0	8	0.01

Table C38.1 Common Gull - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-21	2	16	0	16	0.02	2	16	0	16	0.02	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

Table C38.2 Common Gull - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-21	2	15	0	15	0.02	2	15	0	15	0.02	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Survey															
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

Table C38.3 Common Gull - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-21	3	23	0	23	0.02	3	23	0	23	0.02	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

OAA plus 4 km buffer	All behaviours					Flying					Sitting					
	Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0

Table C39.1 Great Black-backed Gull - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	4	31	8	39	0.06	4	31	0	31	0.05	0	0	8	8	0.01
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Sep-21	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0.00
Oct-21	2	16	0	16	0.02	1	8	0	8	0.01	1	8	0	8	0.01
Dec-21	3	23	0	23	0.03	2	16	0	16	0.02	1	8	0	8	0.01
Jan-22	29	231	14	245	0.36	16	127	0	127	0.19	13	103	15	118	0.17
Mar-22	6	47	0	47	0.07	3	23	0	23	0.03	3	24	0	24	0.04
Apr-22	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0.00
May-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Aug-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Sep-22	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0.00
Oct-22	3	23	0	23	0.03	2	16	0	16	0.02	1	8	0	8	0.01

OAA	All behaviours					Flying					Sitting				
	Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total
Nov-(I)-22	6	47	0	47	0.07	2	15	0	15	0.02	4	31	0	31	0.05
Nov-(II)-22	6	50	4	54	0.08	4	33	0	33	0.05	2	17	3	20	0.03
Feb-(I)-23	7	57	0	57	0.08	3	24	0	24	0.04	4	33	0	33	0.05
Feb-(II)-23	5	39	0	39	0.06	2	16	0	16	0.02	3	24	0	24	0.04
Feb-(III)-23	5	39	0	39	0.06	1	8	0	8	0.01	4	31	0	31	0.05
Mar-(I)-23	3	24	0	24	0.04	2	16	0	16	0.02	1	8	0	8	0.01
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00

Table C39.2 Great Black-backed Gull - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	4	31	8	39	0.04	4	31	0	31	0.03	0	0	8	8	0.01
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Sep-21	2	16	0	16	0.02	1	8	0	8	0.01	1	8	0	8	0.01
Oct-21	2	16	0	16	0.02	1	8	0	8	0.01	1	8	0	8	0.01
Dec-21	4	32	0	32	0.03	3	25	0	25	0.03	1	8	0	8	0.01
Jan-22	38	305	15	320	0.35	19	152	0	152	0.17	19	153	15	168	0.18
Mar-22	6	48	0	48	0.05	3	23	0	23	0.03	3	25	0	25	0.03
Apr-22	11	89	23	112	0.12	1	8	0	8	0.01	10	81	23	104	0.11
May-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Aug-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Sep-22	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0.00
Oct-22	3	23	0	23	0.03	2	16	0	16	0.02	1	8	0	8	0.01

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Nov-(I)-22	10	79	3	82	0.09	2	16	0	16	0.02	8	63	3	66	0.07
Nov-(II)-22	10	81	14	95	0.10	5	40	0	40	0.04	5	41	13	54	0.06
Feb-(I)-23	10	81	0	81	0.09	4	33	0	33	0.04	6	48	0	48	0.05
Feb-(II)-23	8	66	0	66	0.07	3	25	0	25	0.03	5	41	0	41	0.04
Feb-(III)-23	5	40	0	40	0.04	1	8	0	8	0.01	4	32	0	32	0.03
Mar-(I)-23	3	24	0	24	0.03	2	16	0	16	0.02	1	8	0	8	0.01
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00

Table C39.3 Great Black-backed Gull - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Survey															
Apr-21	4	31	8	39	0.03	4	31	0	31	0.03	0	0	8	8	0.01
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Sep-21	2	16	0	16	0.01	1	8	0	8	0.01	1	8	0	8	0.01
Oct-21	2	16	0	16	0.01	1	8	0	8	0.01	1	8	0	8	0.01
Dec-21	5	41	0	41	0.03	4	33	0	33	0.03	1	8	0	8	0.01
Jan-22	45	363	15	378	0.32	23	184	0	184	0.16	22	179	15	194	0.16
Mar-22	6	48	0	48	0.04	3	24	0	24	0.02	3	24	0	24	0.02
Apr-22	12	93	24	117	0.10	1	8	0	8	0.01	11	86	24	110	0.09
May-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Aug-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Sep-22	3	25	0	25	0.02	3	25	0	25	0.02	0	0	0	0	0.00
Oct-22	5	39	0	39	0.03	3	24	0	24	0.02	2	16	0	16	0.01

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
	Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total
Nov-(I)-22	13	101	3	104	0.09	2	15	0	15	0.01	11	86	2	88	0.07
Nov-(II)-22	14	113	21	134	0.11	6	49	0	49	0.04	8	64	20	84	0.07
Feb-(I)-23	87	685	6	691	0.59	14	109	0	109	0.09	73	575	7	582	0.49
Feb-(II)-23	17	133	0	133	0.11	4	33	0	33	0.03	13	100	0	100	0.08
Feb-(III)-23	5	40	0	40	0.03	1	8	0	8	0.01	4	32	0	32	0.03
Mar-(I)-23	4	32	0	32	0.03	3	24	0	24	0.02	1	8	0	8	0.01
Mar-(II)-23	3	24	0	24	0.02	1	8	0	8	0.01	2	16	0	16	0.01

Table C40.1 Herring Gull - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	1	7	0	7	0.01	1	7	0	7	0.01	0	0	0	0	0.00
May-21	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0.00
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Dec-21	2	16	0	16	0.02	0	0	0	0	0.00	2	16	0	16	0.02
Jan-22	9	72	2	74	0.11	6	49	0	49	0.07	3	24	1	25	0.04
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
May-22	1	8	0	8	0.01	0	0	0	0	0.00	1	8	0	8	0.01
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Aug-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Nov-(I)-22	8	62	0	62	0.09	4	31	0	31	0.05	4	31	0	31	0.05
Nov-(II)-22	9	72	5	77	0.11	5	40	0	40	0.06	4	32	5	37	0.05
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(III)-23	1	8	0	8	0.01	0	0	0	0	0.00	1	8	0	8	0.01
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Mar-(II)-23	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0.00

Table C40.2 Herring Gull - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0.00
May-21	1	7	0	7	0.01	1	7	0	7	0.01	0	0	0	0	0.00
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Dec-21	3	24	0	24	0.03	1	8	0	8	0.01	2	16	0	16	0.02
Jan-22	10	81	1	82	0.09	7	57	0	57	0.06	3	24	1	25	0.03
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
May-22	1	8	0	8	0.01	0	0	0	0	0.00	1	8	0	8	0.01
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Aug-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total
Nov-(I)-22	15	118	4	122	0.13	4	32	0	32	0.03	11	86	4	90	0.10
Nov-(II)-22	10	81	4	85	0.09	6	49	0	49	0.05	4	32	4	36	0.04
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(III)-23	1	8	0	8	0.01	0	0	0	0	0.00	1	8	0	8	0.01
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Mar-(II)-23	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0.00

Table C40.3 Herring Gull - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	2	16	0	16	0.01	2	16	0	16	0.01	0	0	0	0	0.00
May-21	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0.00
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Oct-21	2	16	0	16	0.01	2	16	0	16	0.01	0	0	0	0	0.00
Dec-21	3	24	0	24	0.02	1	8	0	8	0.01	2	16	0	16	0.01
Jan-22	12	97	1	98	0.08	8	65	0	65	0.06	4	32	1	33	0.03
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
May-22	1	8	0	8	0.01	0	0	0	0	0.00	1	8	0	8	0.01
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Aug-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
	Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total
Nov-(I)-22	39	309	6	315	0.27	5	40	0	40	0.03	34	269	6	275	0.23
Nov-(II)-22	10	81	7	88	0.07	6	48	1	49	0.04	4	33	6	39	0.03
Feb-(I)-23	18	141	2	143	0.12	1	8	0	8	0.01	17	133	2	135	0.11
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(III)-23	2	16	0	16	0.01	1	8	0	8	0.01	1	8	0	8	0.01
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Mar-(II)-23	2	17	0	17	0.01	2	17	0	17	0.01	0	0	0	0	0.00

Table C41.1 Lesser Black-backed Gull - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Nov-(II)-22	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

Table C41.2 Lesser Black-backed Gull - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Survey															
Apr-21	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

OAA plus 2 km buffer	All behaviours					Flying					Sitting					
	Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0
Nov-(II)-22	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0

Table C41.3 Lesser Black-backed Gull - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Survey															
Apr-21	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

OAA plus 4 km buffer	All behaviours					Flying					Sitting					
	Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0
Nov-(II)-22	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0

Table C42.1 Arctic Tern - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-21	0	0	24	24	0.04	0	0	24	24	0.04	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-21	4	31	8	39	0.06	4	31	8	39	0.06	0	0	0	0	0
Aug-21	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-22	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-22	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

Table C42.2 Arctic Tern - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 2 km buffer

Survey	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-21	0	0	24	24	0.03	0	0	24	24	0.03	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-21	9	69	15	84	0.09	9	69	15	84	0.09	0	0	0	0	0
Aug-21	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-22	2	16	0	16	0.02	2	16	0	16	0.02	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-22	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Survey															
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

Table C42.3 Arctic Tern - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-21	0	0	24	24	0.02	0	0	24	24	0.02	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-21	11	85	39	124	0.11	11	85	39	124	0.11	0	0	0	0	0
Aug-21	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-22	3	24	0	24	0.02	3	24	0	24	0.02	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-22	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Survey															
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

Table C43.1 Great Skua - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Survey															
Apr-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-21	3	23	0	23	0.03	3	23	0	23	0.03	0	0	0	0	0.00
Aug-21	14	111	17	128	0.19	13	103	0	103	0.15	1	8	17	25	0.04
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jan-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
May-22	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0.00
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-(II)-22	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0.00
Aug-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Nov-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00

Table C43.2 Great Skua - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-21	6	46	0	46	0.05	5	39	0	39	0.04	1	8	0	8	0.01
Aug-21	14	115	16	131	0.14	13	106	0	106	0.12	1	8	17	25	0.03
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jan-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
May-22	2	16	0	16	0.02	2	16	0	16	0.02	0	0	0	0	0.00
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-(II)-22	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0.00
Aug-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Survey															
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Nov-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00

Table C43.3 Great Skua - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Survey															
Apr-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-21	7	54	0	54	0.05	6	46	0	46	0.04	1	8	0	8	0.01
Aug-21	15	122	17	139	0.12	14	115	0	115	0.10	1	8	16	24	0.02
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jan-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
May-22	2	17	0	17	0.01	2	17	0	17	0.01	0	0	0	0	0.00
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-(II)-22	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0.00
Aug-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
	Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Nov-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Survey															
Nov-(I)-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table C44.2 Arctic Skua - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-22	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Survey															
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

Table C44.3 Arctic Skua - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Aug-22	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

OAA plus 4 km buffer	All behaviours					Flying					Sitting					
	Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0	0

Table C46.1 European Storm Petrel - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jun-21	0	0	41	41	0.06	0	0	41	41	0.06	0	0	0	0	0
Jul-21	0	0	139	139	0.20	0	0	139	139	0.20	0	0	0	0	0
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(II)-22	0	0	8	8	0.01	0	0	8	8	0.01	0	0	0	0	0
Aug-22	10	78	0	78	0.11	10	78	0	78	0.11	0	0	0	0	0
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-22	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

Table C46.2 European Storm Petrel - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Survey															
Apr-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jun-21	0	0	39	39	0.04	0	0	39	39	0.04	0	0	0	0	0
Jul-21	0	0	283	283	0.31	0	0	283	283	0.31	0	0	0	0	0
Aug-21	0	0	16	16	0.02	0	0	16	16	0.02	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(II)-22	0	0	16	16	0.02	0	0	16	16	0.02	0	0	0	0	0
Aug-22	11	84	0	84	0.09	11	84	0	84	0.09	0	0	0	0	0
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-22	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Survey															
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

Table C46.3 European Storm Petrel - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jun-21	0	0	41	41	0.03	0	0	41	41	0.03	0	0	0	0	0
Jul-21	0	0	298	298	0.25	0	0	298	298	0.25	0	0	0	0	0
Aug-21	0	0	24	24	0.02	0	0	24	24	0.02	0	0	0	0	0
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jan-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
May-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Jul-(II)-22	0	0	23	23	0.02	0	0	23	23	0.02	0	0	0	0	0
Aug-22	11	85	0	85	0.07	11	85	0	85	0.07	0	0	0	0	0
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Oct-22	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0

Table C47.1 Fulmar - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	81	641	0	641	0.94	31	247	0	247	0.36	50	395	0	395	0.58
May-21	38	302	0	302	0.44	28	223	0	223	0.33	10	78	0	78	0.11
Jun-21	22	175	0	175	0.26	14	111	0	111	0.16	8	64	0	64	0.09
Jul-21	143	1,104	0	1,104	1.61	99	763	0	763	1.12	44	341	0	341	0.50
Aug-21	407	3,331	0	3,331	4.87	338	2,776	0	2,776	4.06	69	556	0	556	0.81
Sep-21	190	1,430	0	1,430	2.09	37	281	0	281	0.41	153	1,150	0	1,150	1.68
Oct-21	67	544	0	544	0.80	12	98	0	98	0.14	55	446	0	446	0.65
Dec-21	99	797	0	797	1.17	79	636	0	636	0.93	20	161	0	161	0.24
Jan-22	77	617	0	617	0.90	59	473	0	473	0.69	18	144	0	144	0.21
Mar-22	21	167	0	167	0.24	16	127	0	127	0.19	5	40	0	40	0.06
Apr-22	23	181	0	181	0.26	7	55	0	55	0.08	16	127	0	127	0.19
May-22	13	103	0	103	0.15	12	95	0	95	0.14	1	8	0	8	0.01
Jul-(I)-22	164	1,302	0	1,302	1.90	100	797	0	797	1.17	64	506	0	506	0.74
Jul-(II)-22	216	1,723	0	1,723	2.52	126	1,003	0	1,003	1.47	90	720	0	720	1.05
Aug-22	106	821	0	821	1.20	61	472	0	472	0.69	45	349	0	349	0.51
Sep-22	402	3,164	0	3,164	4.63	104	825	0	825	1.21	298	2,340	0	2,340	3.42
Oct-22	183	1,433	0	1,433	2.10	27	212	0	212	0.31	156	1,221	0	1,221	1.79

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Nov-(I)-22	163	1,282	0	1,282	1.87	91	716	0	716	1.05	72	566	0	566	0.83
Nov-(II)-22	270	2,181	31	2,212	3.24	123	993	7	1,000	1.46	147	1,188	24	1,212	1.77
Feb-(I)-23	54	430	0	430	0.63	36	286	0	286	0.42	18	144	0	144	0.21
Feb-(II)-23	55	442	0	442	0.65	36	288	0	288	0.42	19	153	0	153	0.22
Feb-(III)-23	91	712	0	712	1.04	54	422	0	422	0.62	37	290	0	290	0.42
Mar-(I)-23	83	662	8	670	0.98	47	371	0	371	0.54	36	291	7	298	0.44
Mar-(II)-23	42	333	0	333	0.49	26	207	0	207	0.30	16	126	0	126	0.18

Table C47.2 Fulmar - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total
Apr-21	92	720	0	720	0.78	37	295	0	295	0.32	55	425	0	425	0.46
May-21	54	424	0	424	0.46	35	275	0	275	0.30	19	149	0	149	0.16
Jun-21	28	223	0	223	0.24	17	136	0	136	0.15	11	87	0	87	0.09
Jul-21	211	1,627	0	1,627	1.77	146	1,125	0	1,125	1.22	65	501	0	501	0.54
Aug-21	447	3,702	0	3,702	4.03	358	2,982	0	2,982	3.24	89	720	0	720	0.78
Sep-21	243	1,865	0	1,865	2.03	54	415	0	415	0.45	189	1,451	0	1,451	1.58
Oct-21	86	705	0	705	0.77	24	195	0	195	0.21	62	510	0	510	0.55
Dec-21	125	1,007	0	1,007	1.10	103	829	0	829	0.90	22	179	0	179	0.19
Jan-22	98	784	0	784	0.85	78	623	0	623	0.68	20	161	0	161	0.18
Mar-22	29	227	0	227	0.25	22	172	0	172	0.19	7	56	0	56	0.06
Apr-22	32	253	0	253	0.28	7	56	0	56	0.06	25	198	0	198	0.22
May-22	25	199	0	199	0.22	22	175	0	175	0.19	3	24	0	24	0.03
Jul-(I)-22	312	2,518	0	2,518	2.74	152	1,217	0	1,217	1.32	160	1,301	0	1,301	1.41
Jul-(II)-22	312	2,482	0	2,482	2.70	167	1,330	0	1,330	1.45	145	1,152	0	1,152	1.25
Aug-22	151	1,174	0	1,174	1.28	86	669	0	669	0.73	65	505	0	505	0.55
Sep-22	423	3,425	0	3,425	3.72	107	850	0	850	0.92	316	2,575	0	2,575	2.80
Oct-22	231	1,822	0	1,822	1.98	34	268	0	268	0.29	197	1,554	0	1,554	1.69

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total
Nov-(I)-22	242	1,920	0	1,920	2.09	135	1,072	0	1,072	1.17	107	847	0	847	0.92
Nov-(II)-22	352	2,857	30	2,887	3.14	160	1,304	6	1,310	1.42	192	1,553	23	1,576	1.71
Feb-(I)-23	86	686	0	686	0.75	61	486	0	486	0.53	25	200	0	200	0.22
Feb-(II)-23	76	610	0	610	0.66	51	410	0	410	0.45	25	201	0	201	0.22
Feb-(III)-23	138	1,085	0	1,085	1.18	69	543	0	543	0.59	69	542	0	542	0.59
Mar-(I)-23	105	832	8	840	0.91	64	506	0	506	0.55	41	326	8	334	0.36
Mar-(II)-23	53	418	0	418	0.45	31	245	0	245	0.27	22	174	0	174	0.19

Table C47.3 Fulmar - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 4 km buffer

Survey	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	102	813	0	813	0.69	42	335	0	335	0.28	60	478	0	478	0.41
May-21	85	671	0	671	0.57	51	403	0	403	0.34	34	268	0	268	0.23
Jun-21	43	343	0	343	0.29	30	239	0	239	0.20	13	104	0	104	0.09
Jul-21	284	2,197	0	2,197	1.86	184	1,424	0	1,424	1.21	100	773	0	773	0.66
Aug-21	491	4,010	0	4,010	3.40	388	3,172	0	3,172	2.69	103	837	0	837	0.71
Sep-21	440	3,375	0	3,375	2.86	72	554	0	554	0.47	368	2,821	0	2,821	2.39
Oct-21	98	789	0	789	0.67	28	225	0	225	0.19	70	564	0	564	0.48
Dec-21	154	1,250	0	1,250	1.06	123	999	0	999	0.85	31	250	0	250	0.21
Jan-22	121	979	0	979	0.83	99	801	0	801	0.68	22	177	0	177	0.15
Mar-22	44	347	0	347	0.29	30	236	0	236	0.20	14	110	0	110	0.09
Apr-22	47	377	0	377	0.32	14	112	0	112	0.09	33	265	0	265	0.22
May-22	30	238	0	238	0.20	27	214	0	214	0.18	3	24	0	24	0.02
Jul-(I)-22	465	3,730	0	3,730	3.16	214	1,718	0	1,718	1.46	251	2,012	0	2,012	1.71
Jul-(II)-22	397	3,184	0	3,184	2.70	201	1,612	0	1,612	1.37	196	1,572	0	1,572	1.33
Aug-22	203	1,582	0	1,582	1.34	123	958	0	958	0.81	80	624	0	624	0.53
Sep-22	462	3,765	0	3,765	3.19	113	951	0	951	0.81	349	2,813	0	2,813	2.39
Oct-22	286	2,264	0	2,264	1.92	47	371	0	371	0.31	239	1,893	0	1,893	1.61

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Nov-(I)-22	367	2,906	0	2,906	2.46	205	1,618	0	1,618	1.37	162	1,288	0	1,288	1.09
Nov-(II)-22	440	3,586	39	3,625	3.07	210	1,718	7	1,725	1.46	230	1,868	32	1,900	1.61
Feb-(I)-23	139	1,124	0	1,124	0.95	84	677	0	677	0.57	55	446	0	446	0.38
Feb-(II)-23	121	980	0	980	0.83	82	664	0	664	0.56	39	316	0	316	0.27
Feb-(III)-23	188	1,485	7	1,492	1.27	90	709	0	709	0.60	98	776	7	783	0.66
Mar-(I)-23	145	1,151	8	1,159	0.98	81	646	0	646	0.55	64	506	8	514	0.44
Mar-(II)-23	63	505	0	505	0.43	35	283	0	283	0.24	28	222	0	222	0.19

Table C48.1 Manx Shearwater - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jan-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
May-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-(I)-22	2	15	0	15	0.02	2	15	0	15	0.02	0	0	0	0	0.00
Jul-(II)-22	1	8	0	8	0.01	0	0	0	0	0.00	1	8	0	8	0.01
Aug-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Survey															
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Nov-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00

Table C48.2 Manx Shearwater - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jan-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
May-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-(I)-22	2	16	0	16	0.02	2	16	0	16	0.02	0	0	0	0	0.00
Jul-(II)-22	1	8	0	8	0.01	0	0	0	0	0.00	1	8	0	8	0.01
Aug-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Nov-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00

Table C48.3 Manx Shearwater - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Sep-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jan-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
May-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-(I)-22	2	17	0	17	0.01	2	17	0	17	0.01	0	0	0	0	0.00
Jul-(II)-22	1	8	0	8	0.01	0	0	0	0	0.00	1	8	0	8	0.01
Aug-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Sep-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Nov-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Mar-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00

Table C49.1 Gannet - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	74	582	0	582	0.85	18	142	0	142	0.21	56	439	0	439	0.64
May-21	27	214	0	214	0.31	16	126	0	126	0.18	11	87	0	87	0.13
Jun-21	35	278	0	278	0.41	11	88	0	88	0.13	24	191	0	191	0.28
Jul-21	9	68	0	68	0.10	7	53	0	53	0.08	2	15	0	15	0.02
Aug-21	315	2,542	0	2,542	3.72	244	1,972	0	1,972	2.88	71	571	0	571	0.84
Sep-21	51	390	0	390	0.57	35	266	0	266	0.39	16	124	0	124	0.18
Oct-21	42	337	0	337	0.49	31	249	0	249	0.36	11	88	0	88	0.13
Dec-21	2	16	0	16	0.02	2	16	0	16	0.02	0	0	0	0	0.00
Jan-22	2	16	0	16	0.02	2	16	0	16	0.02	0	0	0	0	0.00
Mar-22	5	40	0	40	0.06	5	40	0	40	0.06	0	0	0	0	0.00
Apr-22	9	71	0	71	0.10	7	55	0	55	0.08	2	16	0	16	0.02
May-22	49	390	0	390	0.57	28	222	0	222	0.32	21	168	0	168	0.25
Jul-(I)-22	9	70	0	70	0.10	5	38	0	38	0.06	4	32	0	32	0.05
Jul-(II)-22	12	96	0	96	0.14	6	48	0	48	0.07	6	48	0	48	0.07
Aug-22	15	117	0	117	0.17	7	54	0	54	0.08	8	63	0	63	0.09
Sep-22	52	414	0	414	0.61	17	138	0	138	0.20	35	276	0	276	0.40
Oct-22	15	118	0	118	0.17	11	86	0	86	0.13	4	32	0	32	0.05

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Nov-(I)-22	5	40	0	40	0.06	3	24	0	24	0.04	2	16	0	16	0.02
Nov-(II)-22	3	25	0	25	0.04	2	17	0	17	0.02	1	8	0	8	0.01
Feb-(I)-23	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0.00
Feb-(II)-23	2	16	0	16	0.02	2	16	0	16	0.02	0	0	0	0	0.00
Feb-(III)-23	6	48	0	48	0.07	6	48	0	48	0.07	0	0	0	0	0.00
Mar-(I)-23	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0.00
Mar-(II)-23	7	55	0	55	0.08	4	32	0	32	0.05	3	24	0	24	0.04

Table C49.2 Gannet - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	98	772	0	772	0.84	32	252	0	252	0.27	66	521	0	521	0.57
May-21	30	237	0	237	0.26	18	143	0	143	0.16	12	93	0	93	0.10
Jun-21	44	348	0	348	0.38	15	120	0	120	0.13	29	229	0	229	0.25
Jul-21	16	123	0	123	0.13	9	69	0	69	0.08	7	53	0	53	0.06
Aug-21	332	2,724	0	2,724	2.96	260	2,140	0	2,140	2.33	72	583	0	583	0.63
Sep-21	74	570	0	570	0.62	45	348	0	348	0.38	29	222	0	222	0.24
Oct-21	55	442	0	442	0.48	41	329	0	329	0.36	14	113	0	113	0.12
Dec-21	2	17	0	17	0.02	2	17	0	17	0.02	0	0	0	0	0.00
Jan-22	2	16	0	16	0.02	2	16	0	16	0.02	0	0	0	0	0.00
Mar-22	8	63	0	63	0.07	8	63	0	63	0.07	0	0	0	0	0.00
Apr-22	75	615	0	615	0.67	8	64	0	64	0.07	67	550	0	550	0.60
May-22	65	520	0	520	0.57	37	297	0	297	0.32	28	224	0	224	0.24
Jul-(I)-22	16	129	0	129	0.14	8	64	0	64	0.07	8	65	0	65	0.07
Jul-(II)-22	16	127	0	127	0.14	8	63	0	63	0.07	8	63	0	63	0.07
Aug-22	24	186	0	186	0.20	10	78	0	78	0.08	14	108	0	108	0.12
Sep-22	65	526	0	526	0.57	21	172	0	172	0.19	44	354	0	354	0.38
Oct-22	21	165	0	165	0.18	12	94	0	94	0.10	9	71	0	71	0.08

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Nov-(I)-22	10	79	0	79	0.09	5	40	0	40	0.04	5	39	0	39	0.04
Nov-(II)-22	4	33	0	33	0.04	3	25	0	25	0.03	1	8	0	8	0.01
Feb-(I)-23	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0.00
Feb-(II)-23	8	65	0	65	0.07	2	16	0	16	0.02	6	50	0	50	0.05
Feb-(III)-23	8	63	0	63	0.07	8	63	0	63	0.07	0	0	0	0	0.00
Mar-(I)-23	2	16	0	16	0.02	2	16	0	16	0.02	0	0	0	0	0.00
Mar-(II)-23	10	81	0	81	0.09	6	48	0	48	0.05	4	32	0	32	0.03

Table C49.3 Gannet - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	102	813	0	813	0.69	33	263	0	263	0.22	69	551	0	551	0.47
May-21	39	307	0	307	0.26	19	151	0	151	0.13	20	157	0	157	0.13
Jun-21	55	436	0	436	0.37	18	144	0	144	0.12	37	293	0	293	0.25
Jul-21	21	161	0	161	0.14	12	92	0	92	0.08	9	69	0	69	0.06
Aug-21	345	2,814	0	2,814	2.39	269	2,195	0	2,195	1.86	76	619	0	619	0.52
Sep-21	102	782	0	782	0.66	63	486	0	486	0.41	39	296	0	296	0.25
Oct-21	73	592	0	592	0.50	56	453	0	453	0.38	17	139	0	139	0.12
Dec-21	2	16	0	16	0.01	2	16	0	16	0.01	0	0	0	0	0.00
Jan-22	2	16	0	16	0.01	2	16	0	16	0.01	0	0	0	0	0.00
Mar-22	11	87	0	87	0.07	11	87	0	87	0.07	0	0	0	0	0.00
Apr-22	84	665	0	665	0.56	12	97	0	97	0.08	72	567	0	567	0.48
May-22	87	693	0	693	0.59	56	445	0	445	0.38	31	248	0	248	0.21
Jul-(I)-22	24	193	0	193	0.16	11	89	0	89	0.08	13	104	0	104	0.09
Jul-(II)-22	20	160	0	160	0.14	9	73	0	73	0.06	11	87	0	87	0.07
Aug-22	31	243	0	243	0.21	12	93	0	93	0.08	19	150	0	150	0.13
Sep-22	81	665	0	665	0.56	28	228	0	228	0.19	53	437	0	437	0.37
Oct-22	28	223	0	223	0.19	18	145	0	145	0.12	10	79	0	79	0.07

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
	Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total
Nov-(I)-22	16	128	0	128	0.11	10	80	0	80	0.07	6	48	0	48	0.04
Nov-(II)-22	7	56	0	56	0.05	4	32	0	32	0.03	3	24	0	24	0.02
Feb-(I)-23	5	38	0	38	0.03	2	16	0	16	0.01	3	23	0	23	0.02
Feb-(II)-23	12	98	0	98	0.08	3	25	0	25	0.02	9	73	0	73	0.06
Feb-(III)-23	18	142	0	142	0.12	10	78	0	78	0.07	8	64	0	64	0.05
Mar-(I)-23	3	24	0	24	0.02	3	24	0	24	0.02	0	0	0	0	0.00
Mar-(II)-23	12	95	0	95	0.08	7	54	0	54	0.05	5	40	0	40	0.03

Table C50.1 Unidentified Bird species - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Survey															
Apr-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Sep-21	1	8	0	8	0.01	0	0	0	0	0.00	1	8	0	8	0.01
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jan-22	1	8	0	8	0.01	0	0	0	0	0.00	1	8	0	8	0.01
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
May-22	3	24	0	24	0.04	0	0	0	0	0.00	3	24	0	24	0.04
Jul-(I)-22	1	8	0	8	0.01	1	8	0	8	0.01	0	0	0	0	0.00
Jul-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Aug-22	5	39	0	39	0.06	2	16	0	16	0.02	3	23	0	23	0.03
Sep-22	2	16	0	16	0.02	0	0	0	0	0.00	2	16	0	16	0.02
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00

OAA	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Nov-(II)-22	1	8	0	8	0.01	0	0	0	0	0.00	1	8	0	8	0.01
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Mar-(I)-23	1	8	0	8	0.01	0	0	0	0	0.00	1	8	0	8	0.01
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00

Table C50.2 Unidentified Bird species - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Survey															
Apr-21	1	8	0	8	0.01	0	0	0	0	0.00	1	8	0	8	0.01
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Sep-21	1	8	0	8	0.01	0	0	0	0	0.00	1	8	0	8	0.01
Oct-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jan-22	2	16	0	16	0.02	0	0	0	0	0.00	2	16	0	16	0.02
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
May-22	3	24	0	24	0.03	0	0	0	0	0.00	3	24	0	24	0.03
Jul-(I)-22	2	16	0	16	0.02	1	8	0	8	0.01	1	8	0	8	0.01
Jul-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Aug-22	7	54	0	54	0.06	2	15	0	15	0.02	5	39	0	39	0.04
Sep-22	3	24	0	24	0.03	0	0	0	0	0.00	3	24	0	24	0.03
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00

OAA plus 2 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Nov-(II)-22	1	8	0	8	0.01	0	0	0	0	0.00	1	8	0	8	0.01
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Mar-(I)-23	1	8	0	8	0.01	0	0	0	0	0.00	1	8	0	8	0.01
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00

Table C50.3 Unidentified Bird species - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, and total density estimate including apportioned birds for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)
Apr-21	1	8	0	8	0.01	0	0	0	0	0.00	1	8	0	8	0.01
May-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jun-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jul-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Aug-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Sep-21	1	8	0	8	0.01	0	0	0	0	0.00	1	8	0	8	0.01
Oct-21	1	8	0	8	0.01	0	0	0	0	0.00	1	8	0	8	0.01
Dec-21	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Jan-22	2	16	0	16	0.01	0	0	0	0	0.00	2	16	0	16	0.01
Mar-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Apr-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
May-22	3	24	0	24	0.02	0	0	0	0	0.00	3	24	0	24	0.02
Jul-(I)-22	2	17	0	17	0.01	1	8	0	8	0.01	1	8	0	8	0.01
Jul-(II)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Aug-22	7	55	0	55	0.05	2	16	0	16	0.01	5	38	0	38	0.03
Sep-22	3	25	0	25	0.02	0	0	0	0	0.00	3	25	0	25	0.02
Oct-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00

OAA plus 4 km buffer	All behaviours					Flying					Sitting				
	Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total
Nov-(I)-22	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Nov-(II)-22	1	8	0	8	0.01	0	0	0	0	0.00	1	8	0	8	0.01
Feb-(I)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Feb-(III)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
Mar-(I)-23	1	8	0	8	0.01	0	0	0	0	0.00	1	8	0	8	0.01
Mar-(II)-23	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00

Table C51.1 Guillemot - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, abundance corrected for Availability Bias, and total density estimate after apportionment and correction for OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)
Apr-21	1,464	11,520	675	12,195	15,898	23.25	37	290	0	290	290	0.42	1,427	11,230	676	11,906	15,608	22.83
May-21	31	245	43	288	366	0.54	4	32	8	40	40	0.06	27	214	35	249	326	0.48
Jun-21	32	256	0	256	333	0.49	1	8	0	8	8	0.01	31	248	0	248	325	0.48
Jul-21	372	2,857	239	3,096	3,588	5.25	5	38	0	38	44	0.06	367	2,819	239	3,058	3,543	5.18
Aug-21	410	3,310	89	3,399	3,883	5.68	1	8	0	8	9	0.01	409	3,302	89	3,391	3,874	5.67
Sep-21	40	306	1,312	1,618	1,865	2.73	1	8	0	8	9	0.01	39	298	1,312	1,610	1,857	2.72
Oct-21	232	1,866	432	2,298	2,802	4.10	1	8	8	16	20	0.03	231	1,858	424	2,282	2,783	4.07
Dec-21	14	111	1,077	1,188	1,668	2.44	1	8	8	16	22	0.03	13	103	1,069	1,172	1,646	2.41
Jan-22	16	127	1,043	1,170	1,641	2.40	0	0	8	8	11	0.02	16	127	1,035	1,162	1,630	2.38
Mar-22	189	1,490	325	1,815	2,724	3.98	4	31	16	47	70	0.1	185	1,459	309	1,768	2,654	3.88
Apr-22	81	639	73	712	928	1.36	2	15	0	15	15	0.02	79	624	72	696	913	1.34
May-22	7	56	37	93	120	0.18	1	8	0	8	8	0.01	6	48	37	85	112	0.16
Jul-(I)-22	154	1,227	209	1,436	1,664	2.43	1	8	0	8	9	0.01	153	1,219	209	1,428	1,655	2.42
Jul-(II)-22	380	3,035	324	3,359	3,892	5.69	9	72	0	72	83	0.12	371	2,963	324	3,287	3,809	5.57
Aug-22	1,016	7,862	213	8,075	9,225	13.49	0	0	0	0	0	0.00	1,016	7,862	213	8,075	9,225	13.49
Sep-22	199	1,616	370	1,986	2,290	3.35	1	8	0	8	10	0.01	198	1,608	369	1,977	2,280	3.33

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)
Survey																		
Oct-22	134	1,051	241	1,292	1,576	2.30	0	0	0	0	0	0.00	134	1,051	241	1,292	1,576	2.30
Nov-(I)-22	153	1,204	513	1,717	2,247	3.29	7	53	0	53	70	0.1	146	1,151	512	1,663	2,177	3.18
Nov-(II)-22	373	3,008	862	3,870	5,065	7.41	1	8	0	8	10	0.01	372	3,000	862	3,862	5,055	7.39
Feb-(I)-23	76	606	101	707	1,021	1.49	1	8	0	8	11	0.02	75	598	101	699	1,010	1.48
Feb-(II)-23	132	1,060	158	1,218	1,759	2.57	12	97	17	114	165	0.24	120	963	141	1,104	1,594	2.33
Feb-(III)-23	99	771	23	794	1,147	1.68	6	47	0	47	68	0.1	93	725	23	748	1,079	1.58
Mar-(I)-23	89	705	63	768	1,152	1.68	10	78	0	78	118	0.17	79	626	63	689	1,035	1.51
Mar-(II)-23	51	399	15	414	622	0.91	12	92	8	100	150	0.22	39	307	7	314	472	0.69

Table C51.2 Guillemot - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, abundance corrected for Availability Bias, and total density estimate after apportionment and correction for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)
Apr-21	1,827	14,411	849	15,260	19,891	21.63	46	368	0	368	368	0.4	1,781	14,042	850	14,892	19,523	21.23
May-21	47	369	66	435	551	0.60	5	38	24	62	62	0.07	42	331	42	373	489	0.53
Jun-21	42	340	8	348	454	0.49	1	8	0	8	8	0.01	41	332	8	340	446	0.49
Jul-21	456	3,502	280	3,782	4,382	4.77	6	45	0	45	52	0.06	450	3,458	279	3,737	4,331	4.71
Aug-21	525	4,280	113	4,393	5,018	5.46	1	8	0	8	10	0.01	524	4,271	113	4,384	5,009	5.45
Sep-21	53	402	1,691	2,093	2,413	2.62	1	7	0	7	8	0.01	52	395	1,690	2,085	2,405	2.62
Oct-21	374	3,013	631	3,644	4,442	4.83	2	15	8	23	28	0.03	372	2,997	623	3,620	4,414	4.80
Dec-21	21	170	1,457	1,627	2,285	2.49	1	8	8	16	23	0.03	20	162	1,449	1,611	2,262	2.46
Jan-22	23	184	1,345	1,529	2,145	2.33	0	0	7	7	10	0.01	23	184	1,338	1,522	2,135	2.32
Mar-22	244	1,934	504	2,438	3,658	3.98	4	32	17	49	74	0.08	240	1,902	486	2,388	3,585	3.90
Apr-22	95	751	99	850	1,107	1.20	3	23	0	23	23	0.03	92	728	99	827	1,084	1.18
May-22	18	143	79	222	288	0.31	1	8	0	8	8	0.01	17	135	79	214	280	0.30
Jul-(I)-22	201	1,603	258	1,861	2,156	2.34	1	8	0	8	9	0.01	200	1,596	257	1,853	2,147	2.33
Jul-(II)-22	493	3,935	437	4,372	5,067	5.51	19	149	0	149	173	0.19	474	3,785	438	4,223	4,894	5.32
Aug-22	1,525	11,930	401	12,331	14,087	15.32	0	0	0	0	0	0.00	1,525	11,930	401	12,331	14,087	15.32
Sep-22	288	2,348	625	2,973	3,428	3.73	1	9	0	9	10	0.01	287	2,340	624	2,964	3,418	3.72

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)
Survey																		
Oct-22	240	1,888	618	2,506	3,055	3.32	1	8	0	8	9	0.01	239	1,880	618	2,498	3,046	3.31
Nov-(I)-22	210	1,653	664	2,317	3,033	3.30	7	56	6	62	81	0.09	203	1,597	658	2,255	2,952	3.21
Nov-(II)-22	433	3,502	1,106	4,608	6,031	6.56	2	16	0	16	21	0.02	431	3,486	1,106	4,592	6,010	6.54
Feb-(I)-23	95	757	143	900	1,299	1.41	3	24	0	24	34	0.04	92	733	143	876	1,265	1.38
Feb-(II)-23	174	1,402	215	1,617	2,335	2.54	17	136	24	160	231	0.25	157	1,266	191	1,457	2,104	2.29
Feb-(III)-23	129	1,015	31	1,046	1,510	1.64	6	47	0	47	68	0.07	123	968	31	999	1,442	1.57
Mar-(I)-23	120	958	87	1,045	1,568	1.71	10	80	0	80	120	0.13	110	878	87	965	1,448	1.57
Mar-(II)-23	86	682	24	706	1,059	1.15	29	231	8	239	358	0.39	57	452	15	467	701	0.76

Table C51.3 Guillemot - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, abundance corrected for Availability Bias, and total density estimate after apportionment and correction for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)
Apr-21	2,231	17,736	1,027	18,763	24,448	20.73	61	481	0	481	481	0.41	2,170	17,255	1,027	18,282	23,967	20.32
May-21	61	484	133	617	779	0.66	9	73	23	96	96	0.08	52	412	109	521	682	0.58
Jun-21	48	384	23	407	531	0.45	1	8	0	8	8	0.01	47	377	23	400	524	0.44
Jul-21	550	4,249	308	4,557	5,281	4.48	8	63	0	63	74	0.06	542	4,186	308	4,494	5,208	4.42
Aug-21	653	5,324	155	5,479	6,259	5.31	2	16	0	16	19	0.02	651	5,308	154	5,462	6,241	5.29
Sep-21	74	575	2,229	2,804	3,233	2.74	1	8	8	16	18	0.02	73	567	2,221	2,788	3,215	2.73
Oct-21	517	4,182	979	5,161	6,292	5.34	3	24	9	33	40	0.03	514	4,158	970	5,128	6,252	5.30
Dec-21	30	245	1,843	2,088	2,932	2.49	1	8	8	16	23	0.02	29	236	1,836	2,072	2,909	2.47
Jan-22	35	282	1,877	2,159	3,028	2.57	0	0	8	8	11	0.01	35	282	1,869	2,151	3,017	2.56
Mar-22	311	2,485	620	3,105	4,659	3.95	5	40	16	56	84	0.07	306	2,445	604	3,049	4,575	3.88
Apr-22	121	960	119	1,079	1,408	1.19	3	24	0	24	24	0.02	118	936	119	1,055	1,384	1.17
May-22	27	217	111	328	428	0.36	1	8	0	8	8	0.01	26	209	111	320	420	0.36
Jul-(I)-22	244	1,954	307	2,261	2,621	2.22	1	8	0	8	9	0.01	243	1,946	308	2,254	2,612	2.21
Jul-(II)-22	619	4,996	507	5,503	6,378	5.41	22	176	0	176	205	0.17	597	4,819	508	5,327	6,173	5.23
Aug-22	1,945	15,159	513	15,672	17,904	15.18	0	0	0	0	0	0.00	1,945	15,159	513	15,672	17,904	15.18
Sep-22	362	2,984	778	3,762	4,338	3.68	1	8	0	8	10	0.01	361	2,976	778	3,754	4,328	3.67

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)
Survey																		
Oct-22	382	3,027	704	3,731	4,549	3.86	2	17	0	17	20	0.02	380	3,010	705	3,715	4,529	3.84
Nov-(I)-22	252	1,997	796	2,793	3,656	3.10	8	62	6	68	89	0.08	244	1,935	790	2,725	3,566	3.02
Nov-(II)-22	497	4,053	1,299	5,352	7,005	5.94	3	24	0	24	32	0.03	494	4,029	1,299	5,328	6,973	5.91
Feb-(I)-23	111	896	191	1,087	1,569	1.33	4	32	0	32	46	0.04	107	864	191	1,055	1,523	1.29
Feb-(II)-23	225	1,815	278	2,093	3,021	2.56	25	203	24	227	327	0.28	200	1,612	254	1,866	2,694	2.28
Feb-(III)-23	198	1,566	53	1,619	2,338	1.98	6	47	0	47	68	0.06	192	1,519	53	1,572	2,269	1.92
Mar-(I)-23	166	1,326	110	1,436	2,155	1.83	15	118	8	126	190	0.16	151	1,208	101	1,309	1,965	1.67
Mar-(II)-23	109	864	32	896	1,344	1.14	35	277	9	286	429	0.36	74	587	23	610	915	0.78

Table C52.1 Razorbill - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, abundance corrected for Availability Bias, and total density estimate after apportionment and correction for OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)
Apr-21	18	142	8	150	180	0.26	1	8	0	8	8	0.01	17	134	9	143	173	0.25
May-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Jun-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Jul-21	5	38	3	41	44	0.06	0	0	0	0	0	0.00	5	38	3	41	44	0.06
Aug-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Sep-21	10	77	338	415	466	0.68	0	0	0	0	0	0.00	10	77	338	415	466	0.68
Oct-21	4	32	7	39	45	0.07	0	0	0	0	0	0.00	4	32	7	39	45	0.07
Dec-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Jan-22	1	8	64	72	88	0.13	0	0	0	0	0	0.00	1	8	64	72	88	0.13
Mar-22	5	40	8	48	59	0.09	0	0	0	0	0	0.00	5	40	8	48	59	0.09
Apr-22	5	40	2	42	48	0.07	2	16	0	16	16	0.02	3	23	3	26	31	0.05
May-22	5	41	30	71	86	0.13	0	0	0	0	0	0.00	5	41	30	71	86	0.13
Jul-(I)-22	7	55	9	64	70	0.10	0	0	0	0	0	0.00	7	55	9	64	70	0.10
Jul-(II)-22	38	306	34	340	370	0.54	0	0	0	0	0	0.00	38	306	34	340	370	0.54
Aug-22	2	16	0	16	18	0.03	0	0	0	0	0	0.00	2	16	0	16	18	0.03
Sep-22	15	121	28	149	167	0.24	0	0	0	0	0	0.00	15	121	28	149	167	0.24

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)
Survey																		
Oct-22	9	71	16	87	99	0.14	0	0	0	0	0	0.00	9	71	16	87	99	0.14
Nov-(I)-22	37	285	119	404	475	0.69	2	16	0	16	19	0.03	35	269	118	387	456	0.67
Nov-(II)-22	113	914	262	1,176	1,384	2.02	0	0	0	0	0	0.00	113	914	262	1,176	1,384	2.02
Feb-(I)-23	1	8	2	10	12	0.02	0	0	0	0	0	0.00	1	8	2	10	12	0.02
Feb-(II)-23	17	137	20	157	193	0.28	0	0	0	0	0	0.00	17	137	20	157	193	0.28
Feb-(III)-23	1	8	0	8	10	0.01	0	0	0	0	0	0.00	1	8	0	8	10	0.01
Mar-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Mar-(II)-23	3	24	0	24	30	0.04	0	0	0	0	0	0.00	3	24	0	24	30	0.04

Table C52.2 Razorbill - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, abundance corrected for Availability Bias, and total density estimate after apportionment and correction for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)
Apr-21	21	165	10	175	210	0.23	1	8	0	8	8	0.01	20	157	10	167	202	0.22
May-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Jun-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Jul-21	7	54	4	58	63	0.07	0	0	0	0	0	0.00	7	54	4	58	63	0.07
Aug-21	5	41	1	42	45	0.05	0	0	0	0	0	0.00	5	41	1	42	45	0.05
Sep-21	12	92	395	487	546	0.59	0	0	0	0	0	0.00	12	92	395	487	546	0.59
Oct-21	5	41	9	50	57	0.06	0	0	0	0	0	0.00	5	41	9	50	57	0.06
Dec-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Jan-22	3	24	173	197	242	0.26	0	0	0	0	0	0.00	3	24	173	197	242	0.26
Mar-22	7	56	14	70	86	0.09	0	0	0	0	0	0.00	7	56	14	70	86	0.09
Apr-22	5	38	3	41	46	0.05	2	15	0	15	15	0.02	3	22	3	25	31	0.03
May-22	8	64	36	100	122	0.13	0	0	0	0	0	0.00	8	64	36	100	122	0.13
Jul-(I)-22	11	88	14	102	111	0.12	0	0	0	0	0	0.00	11	88	14	102	111	0.12
Jul-(II)-22	52	416	44	460	501	0.54	5	39	0	39	42	0.05	47	378	43	421	459	0.50
Aug-22	9	70	2	72	78	0.08	0	0	0	0	0	0.00	9	70	2	72	78	0.08
Sep-22	20	164	44	208	234	0.25	0	0	0	0	0	0.00	20	164	44	208	234	0.25

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)
Survey																		
Oct-22	17	133	44	177	201	0.22	0	0	0	0	0	0.00	17	133	44	177	201	0.22
Nov-(I)-22	47	372	148	520	612	0.67	2	15	2	17	21	0.02	45	356	147	503	591	0.64
Nov-(II)-22	149	1,214	385	1,599	1,881	2.05	0	0	0	0	0	0.00	149	1,214	385	1,599	1,881	2.05
Feb-(I)-23	1	8	2	10	12	0.01	0	0	0	0	0	0.00	1	8	2	10	12	0.01
Feb-(II)-23	22	175	27	202	248	0.27	0	0	0	0	0	0.00	22	175	27	202	248	0.27
Feb-(III)-23	4	32	1	33	40	0.04	0	0	0	0	0	0.00	4	32	1	33	40	0.04
Mar-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Mar-(II)-23	3	23	1	24	30	0.03	0	0	0	0	0	0.00	3	23	1	24	30	0.03

Table C52.3 Razorbill - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, abundance corrected for Availability Bias, and total density estimate after apportionment and correction for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)
Apr-21	23	185	10	195	235	0.20	1	8	0	8	8	0.01	22	177	10	187	227	0.19
May-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Jun-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Jul-21	8	62	4	66	72	0.06	0	0	0	0	0	0.00	8	62	4	66	72	0.06
Aug-21	5	39	2	41	44	0.04	0	0	0	0	0	0.00	5	39	2	41	44	0.04
Sep-21	16	123	482	605	680	0.58	0	0	0	0	0	0.00	16	123	482	605	680	0.58
Oct-21	5	41	9	50	57	0.05	0	0	0	0	0	0.00	5	41	9	50	57	0.05
Dec-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Jan-22	3	25	166	191	234	0.20	0	0	0	0	0	0.00	3	25	166	191	234	0.20
Mar-22	8	64	16	80	98	0.08	0	0	0	0	0	0.00	8	64	16	80	98	0.08
Apr-22	5	40	3	43	48	0.04	2	16	0	16	16	0.01	3	23	3	26	32	0.03
May-22	9	72	38	110	133	0.11	0	0	0	0	0	0.00	9	72	38	110	133	0.11
Jul-(I)-22	13	105	16	121	132	0.11	0	0	0	0	0	0.00	13	105	16	121	132	0.11
Jul-(II)-22	73	583	58	641	698	0.59	5	42	0	42	46	0.04	68	541	57	598	652	0.55
Aug-22	9	71	2	73	79	0.07	0	0	0	0	0	0.00	9	71	2	73	79	0.07
Sep-22	24	197	52	249	279	0.24	0	0	0	0	0	0.00	24	197	52	249	279	0.24

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)
Survey																		
Oct-22	34	268	62	330	375	0.32	0	0	0	0	0	0.00	34	268	62	330	375	0.32
Nov-(I)-22	53	425	168	593	697	0.59	2	17	1	18	22	0.02	51	408	166	574	676	0.57
Nov-(II)-22	185	1,506	486	1,992	2,343	1.99	0	0	0	0	0	0.00	185	1,506	486	1,992	2,343	1.99
Feb-(I)-23	4	33	7	40	49	0.04	0	0	0	0	0	0.00	4	33	7	40	49	0.04
Feb-(II)-23	26	210	34	244	299	0.25	0	0	0	0	0	0.00	26	210	34	244	299	0.25
Feb-(III)-23	6	46	2	48	59	0.05	0	0	0	0	0	0.00	6	46	2	48	59	0.05
Mar-(I)-23	2	16	1	17	21	0.02	0	0	0	0	0	0.00	2	16	1	17	21	0.02
Mar-(II)-23	4	32	1	33	41	0.03	0	0	0	0	0	0.00	4	32	1	33	41	0.03

Table C53.1 Puffin - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, abundance corrected for Availability Bias, and total density estimate after apportionment and correction for OAA

OAA	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)
Apr-21	18	140	2	142	164	0.24	1	8	0	8	8	0.01	17	132	2	134	157	0.23
May-21	11	86	5	91	104	0.15	1	8	0	8	8	0.01	10	79	4	83	96	0.14
Jun-21	2	16	0	16	17	0.02	1	8	0	8	8	0.01	1	8	0	8	9	0.01
Jul-21	6	46	1	47	54	0.08	0	0	0	0	0	0.00	6	46	1	47	54	0.08
Aug-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Sep-21	2	15	1	16	19	0.03	0	0	0	0	0	0.00	2	15	1	16	19	0.03
Oct-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Dec-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Jan-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Mar-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Apr-22	20	157	3	160	186	0.27	0	0	0	0	0	0.00	20	157	3	160	186	0.27
May-22	66	526	20	546	635	0.93	1	8	0	8	8	0.01	65	518	20	538	627	0.92
Jul-(I)-22	32	257	12	269	313	0.46	0	0	0	0	0	0.00	32	257	12	269	313	0.46
Jul-(II)-22	33	264	8	272	317	0.46	0	0	0	0	0	0.00	33	264	8	272	317	0.46
Aug-22	54	420	0	420	474	0.69	0	0	0	0	0	0.00	54	420	0	420	474	0.69
Sep-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)
Oct-22	4	32	0	32	40	0.06	0	0	0	0	0	0.00	4	32	0	32	40	0.06
Nov-(I)-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Nov-(II)-22	5	39	2	41	52	0.08	0	0	0	0	0	0.00	5	39	2	41	52	0.08
Feb-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Feb-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Feb-(III)-23	1	8	0	8	10	0.01	0	0	0	0	0	0.00	1	8	0	8	10	0.01
Mar-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Mar-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00

Table C53.2 Puffin - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, abundance corrected for Availability Bias, and total density estimate after apportionment and correction for OAA plus 2 km buffer

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)
Apr-21	23	183	3	186	214	0.23	2	16	0	16	16	0.02	21	167	3	170	198	0.22
May-21	34	267	13	280	325	0.35	1	8	0	8	8	0.01	33	259	14	273	318	0.35
Jun-21	2	16	1	17	18	0.02	1	8	0	8	8	0.01	1	8	0	8	10	0.01
Jul-21	6	46	1	47	55	0.06	0	0	0	0	0	0.00	6	46	1	47	55	0.06
Aug-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Sep-21	3	22	3	25	29	0.03	0	0	0	0	0	0.00	3	22	3	25	29	0.03
Oct-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Dec-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Jan-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Mar-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Apr-22	25	199	9	208	242	0.26	0	0	0	0	0	0.00	25	199	9	208	242	0.26
May-22	80	636	36	672	782	0.85	1	8	0	8	8	0.01	79	628	36	664	774	0.84
Jul-(I)-22	42	337	15	352	410	0.45	0	0	0	0	0	0.00	42	337	15	352	410	0.45
Jul-(II)-22	49	393	11	404	471	0.51	0	0	0	0	0	0.00	49	393	11	404	471	0.51
Aug-22	71	551	2	553	625	0.68	0	0	0	0	0	0.00	71	551	2	553	625	0.68
Sep-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)
Survey																		
Oct-22	7	56	0	56	70	0.08	0	0	0	0	0	0.00	7	56	0	56	70	0.08
Nov-(I)-22	1	8	0	8	10	0.01	0	0	0	0	0	0.00	1	8	0	8	10	0.01
Nov-(II)-22	5	41	1	42	54	0.06	0	0	0	0	0	0.00	5	41	1	42	54	0.06
Feb-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Feb-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Feb-(III)-23	1	8	0	8	11	0.01	0	0	0	0	0	0.00	1	8	0	8	11	0.01
Mar-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Mar-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00

Table C53.3 Puffin - raw count, original abundance estimates, number of apportioned birds, total abundance estimate including apportioned birds, abundance corrected for Availability Bias, and total density estimate after apportionment and correction for OAA plus 4 km buffer

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)
Apr-21	23	186	2	188	217	0.18	2	16	0	16	16	0.01	21	170	2	172	201	0.17
May-21	55	435	44	479	554	0.47	3	24	0	24	24	0.02	52	411	44	455	530	0.45
Jun-21	3	23	1	24	25	0.02	2	16	0	16	16	0.01	1	8	0	8	9	0.01
Jul-21	9	68	2	70	81	0.07	0	0	0	0	0	0.00	9	68	2	70	81	0.07
Aug-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Sep-21	3	23	3	26	31	0.03	0	0	0	0	0	0.00	3	23	3	26	31	0.03
Oct-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Dec-21	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Jan-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Mar-22	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Apr-22	28	224	10	234	273	0.23	0	0	0	0	0	0.00	28	224	10	234	273	0.23
May-22	109	872	43	915	1,064	0.90	1	8	0	8	8	0.01	108	865	42	907	1,056	0.90
Jul-(I)-22	57	459	18	477	555	0.47	0	0	0	0	0	0.00	57	459	18	477	555	0.47
Jul-(II)-22	68	547	14	561	653	0.55	0	0	0	0	0	0.00	68	547	14	561	653	0.55
Aug-22	86	670	4	674	761	0.65	0	0	0	0	0	0.00	86	670	4	674	761	0.65
Sep-22	2	17	0	17	20	0.02	0	0	0	0	0	0.00	2	17	0	17	20	0.02

OAA plus 4 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)
Survey																		
Oct-22	10	80	0	80	100	0.08	0	0	0	0	0	0.00	10	80	0	80	100	0.08
Nov-(I)-22	1	8	0	8	10	0.01	0	0	0	0	0	0.00	1	8	0	8	10	0.01
Nov-(II)-22	5	40	1	41	53	0.04	0	0	0	0	0	0.00	5	40	1	41	53	0.04
Feb-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Feb-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
Feb-(III)-23	1	8	0	8	11	0.01	0	0	0	0	0	0.00	1	8	0	8	11	0.01
Mar-(I)-23	2	16	0	16	21	0.02	0	0	0	0	0	0.00	2	16	0	16	21	0.02
Mar-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00

OAA	All behaviours						Flying						Sitting					
Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)
Oct-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov-(I)-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov-(II)-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(I)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(II)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-(III)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-(I)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-(II)-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

OAA plus 2 km buffer	All behaviours						Flying						Sitting					
	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)
Survey																		
Oct-22	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00
Nov-(I)-22	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00
Nov-(II)-22	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00
Feb-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00
Feb-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00
Feb-(III)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00
Mar-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00
Mar-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0.00

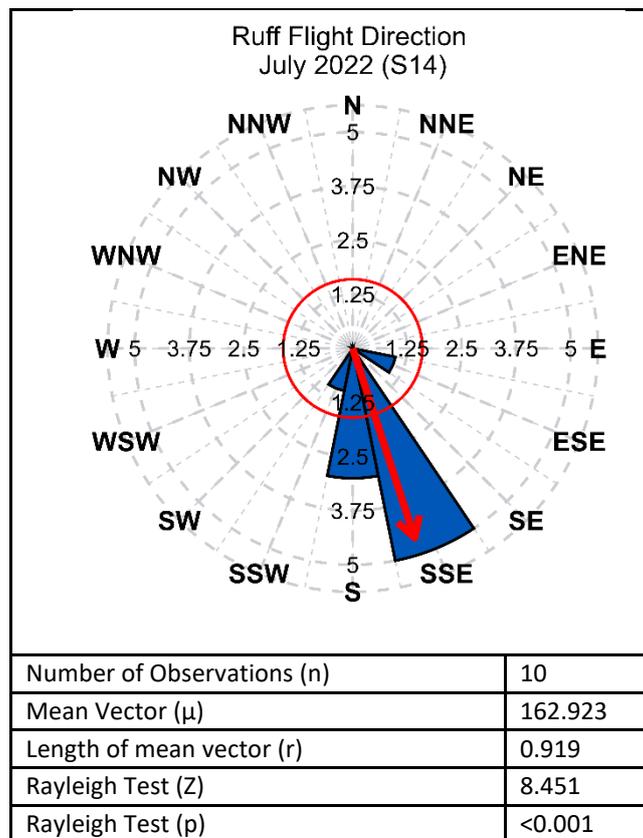
OAA plus 4 km buffer	All behaviours						Flying						Sitting						
Survey	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	Raw Count	Abundance	Apportionment	Apportioned Total	Corrected Abundance	Density (birds/km ²)	
Oct-22	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Nov-(I)-22	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Nov-(II)-22	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Feb-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Feb-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Feb-(III)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Mar-(I)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Mar-(II)-23	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0.00

Appendix D

Flight Directions and Rose Diagrams

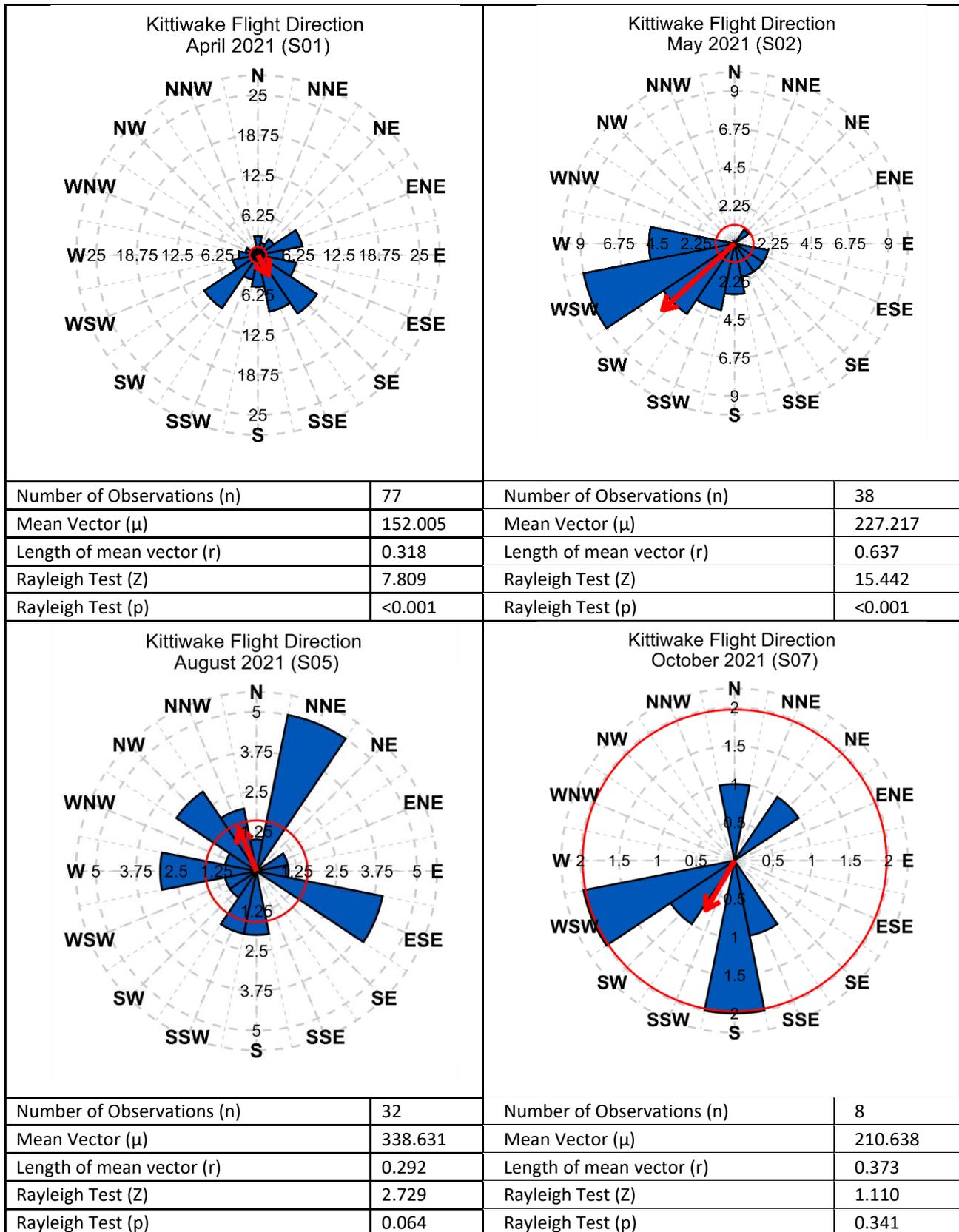
Ruff

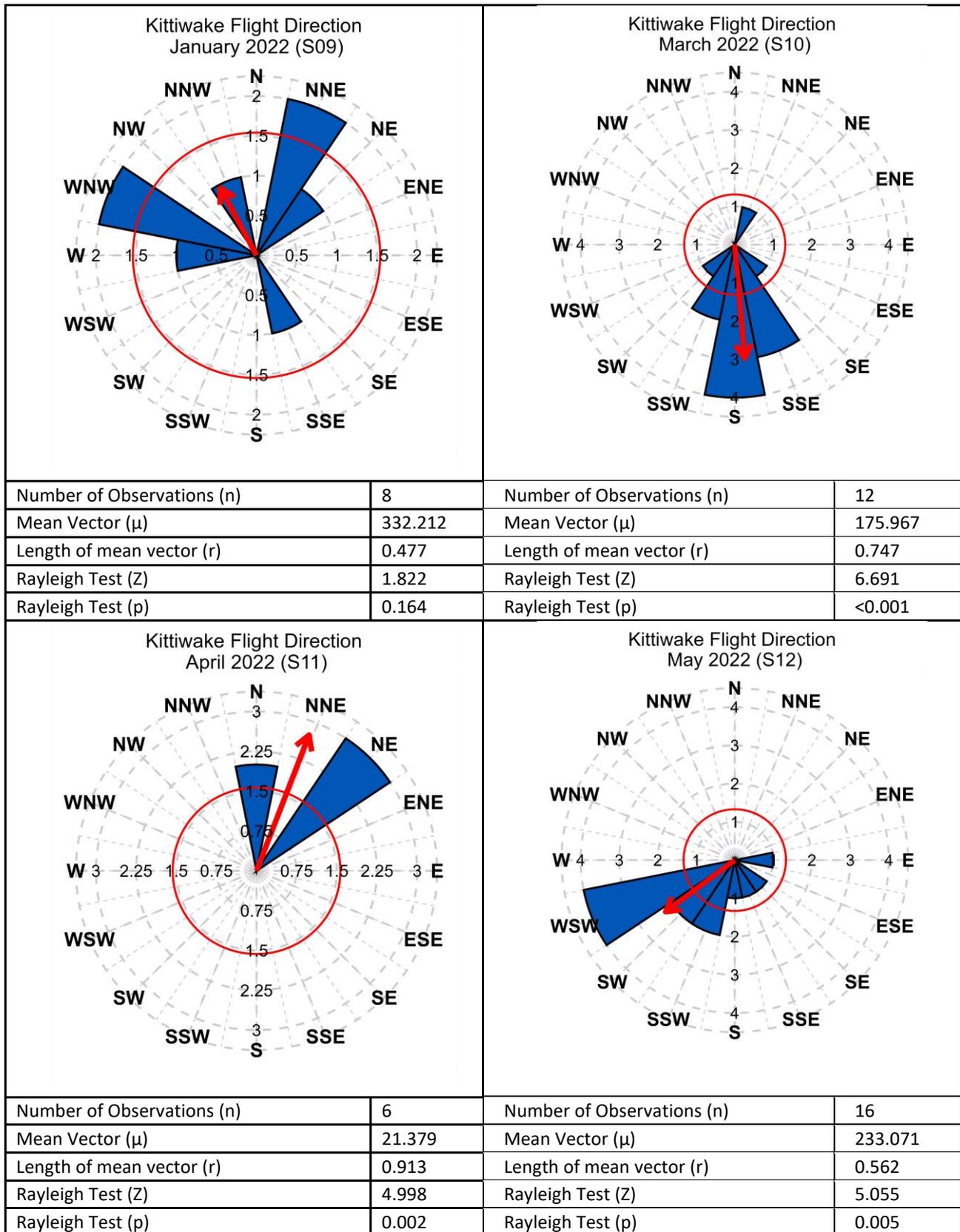
Plate D1 Flight directions of ruff during the survey period



Kittiwake

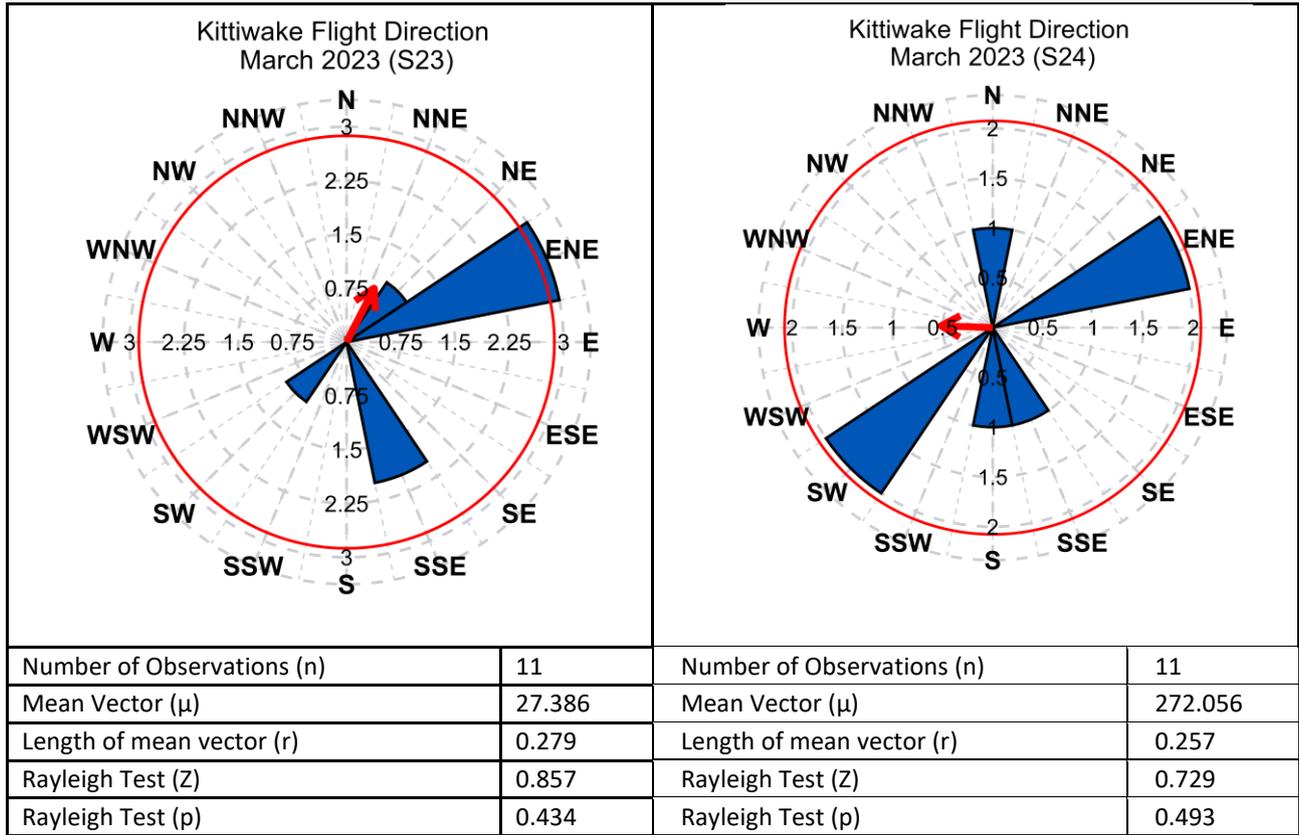
Plate D2 Flight directions of kittiwake during the survey period





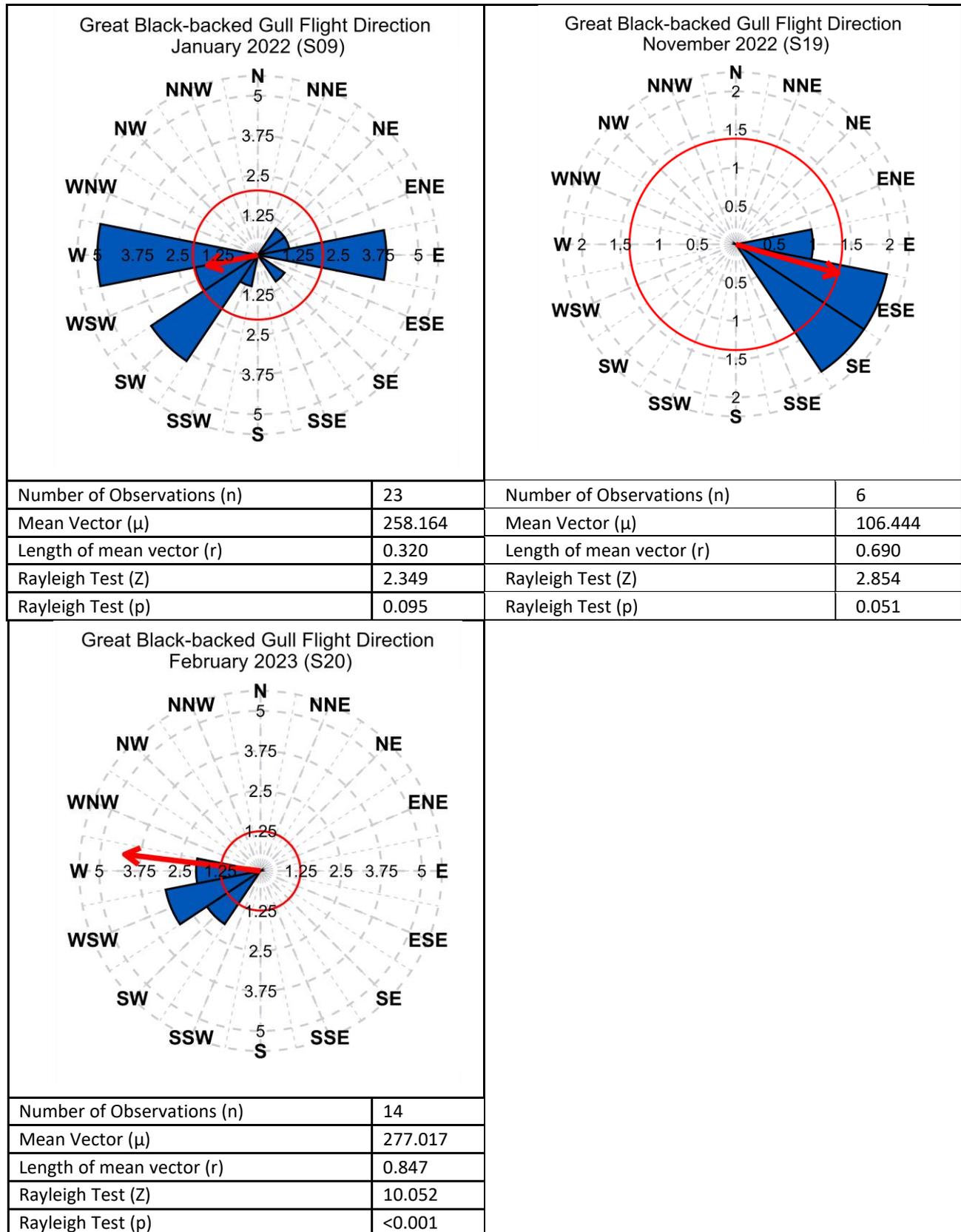
<p>Kittiwake Flight Direction July 2022 (S14)</p>		<p>Kittiwake Flight Direction August 2022 (S15)</p>	
Number of Observations (n)	61	Number of Observations (n)	18
Mean Vector (μ)	71.801	Mean Vector (μ)	99.310
Length of mean vector (r)	0.636	Length of mean vector (r)	0.460
Rayleigh Test (Z)	24.636	Rayleigh Test (Z)	3.804
Rayleigh Test (p)	<0.001	Rayleigh Test (p)	0.020
<p>Kittiwake Flight Direction October 2022 (S17)</p>		<p>Kittiwake Flight Direction November 2022 (S18)</p>	
Number of Observations (n)	7	Number of Observations (n)	16
Mean Vector (μ)	219.395	Mean Vector (μ)	189.620
Length of mean vector (r)	0.766	Length of mean vector (r)	0.769
Rayleigh Test (Z)	4.105	Rayleigh Test (Z)	9.469
Rayleigh Test (p)	0.011	Rayleigh Test (p)	<0.001

<p>Kittiwake Flight Direction November 2022 (S19)</p>		<p>Kittiwake Flight Direction February 2023 (S20)</p>	
Number of Observations (n)	18	Number of Observations (n)	6
Mean Vector (μ)	134.603	Mean Vector (μ)	248.910
Length of mean vector (r)	0.730	Length of mean vector (r)	0.689
Rayleigh Test (Z)	9.595	Rayleigh Test (Z)	2.847
Rayleigh Test (p)	<0.001	Rayleigh Test (p)	0.051
<p>Kittiwake Flight Direction February 2023 (S21)</p>		<p>Kittiwake Flight Direction February 2023 (S22)</p>	
Number of Observations (n)	24	Number of Observations (n)	14
Mean Vector (μ)	198.577	Mean Vector (μ)	13.405
Length of mean vector (r)	0.436	Length of mean vector (r)	0.439
Rayleigh Test (Z)	4.555	Rayleigh Test (Z)	2.697
Rayleigh Test (p)	0.009	Rayleigh Test (p)	0.065



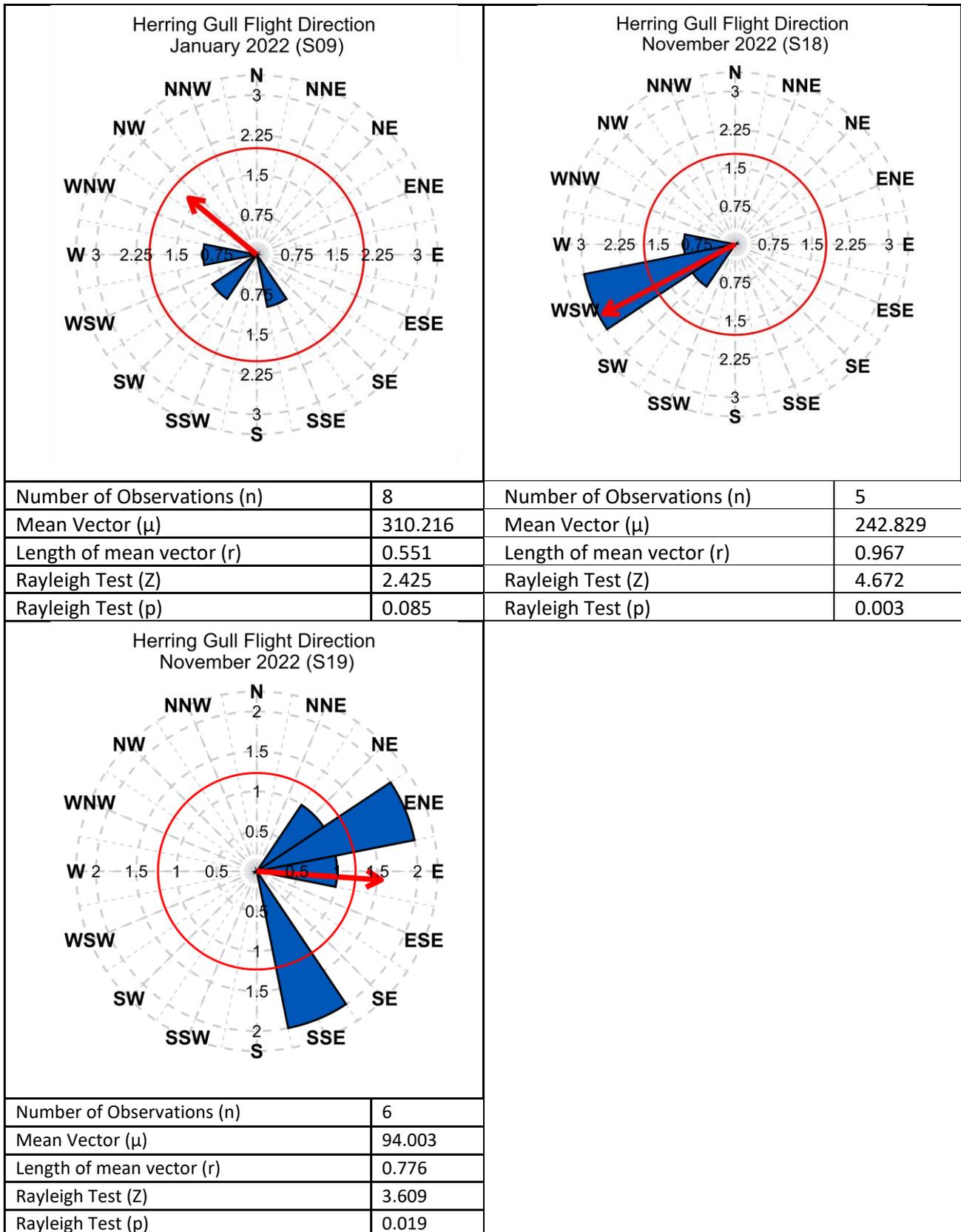
Great black-backed gull

Plate D3 Flight directions of great black-backed gull during the survey period



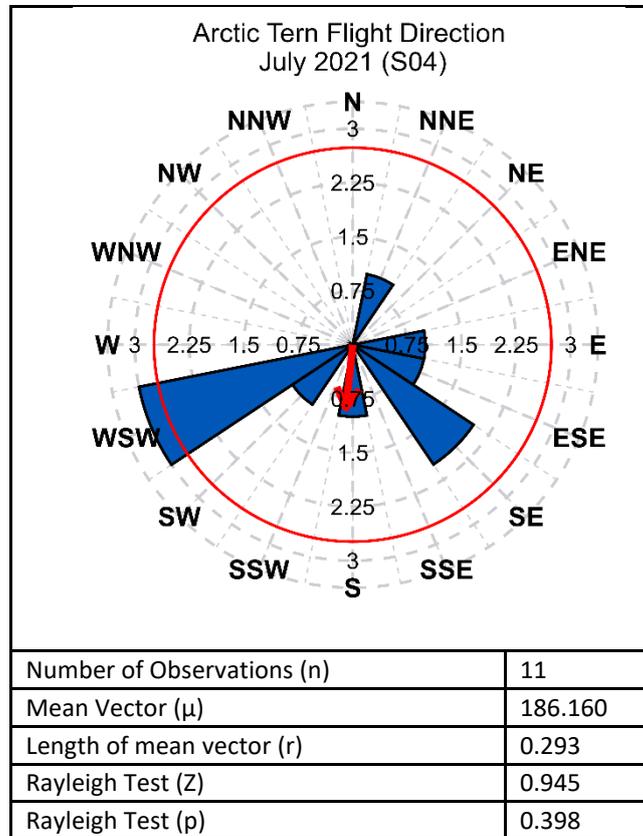
Herring gull

Plate D4 Flight directions of herring gull during the survey period



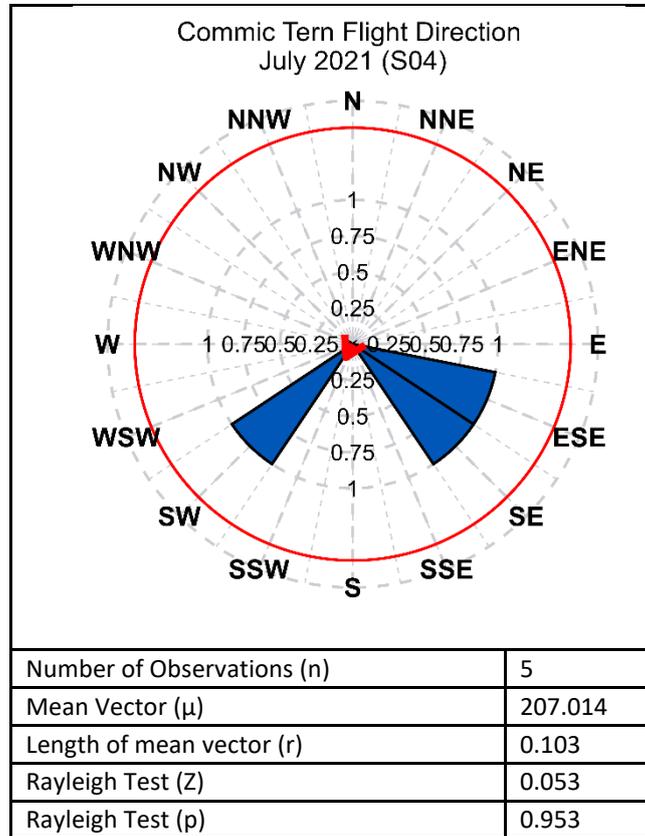
Arctic tern

Plate D5 Flight directions of Arctic tern during the survey period



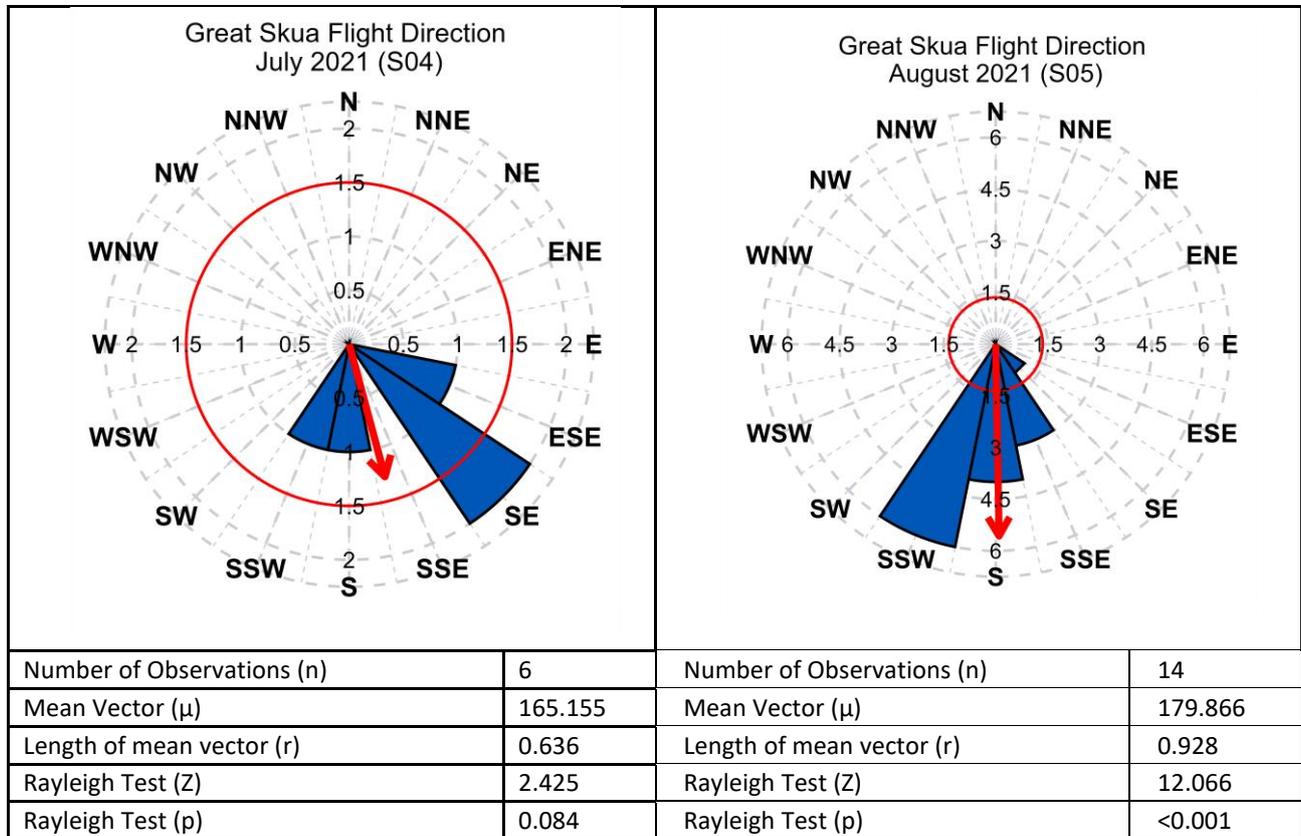
‘Commic’ tern

Plate D6 Flight directions of ‘commic’ tern during the survey period



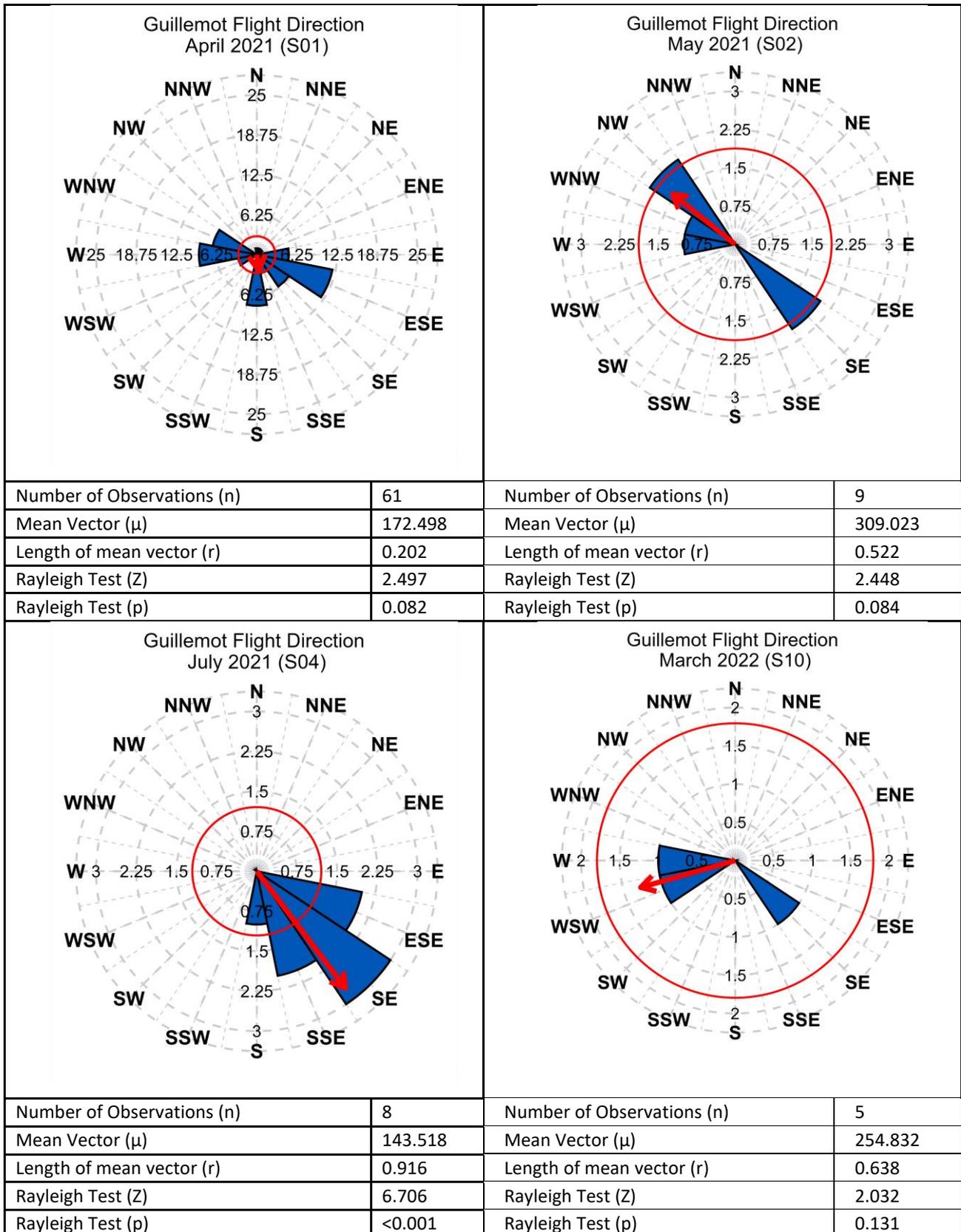
Great skua

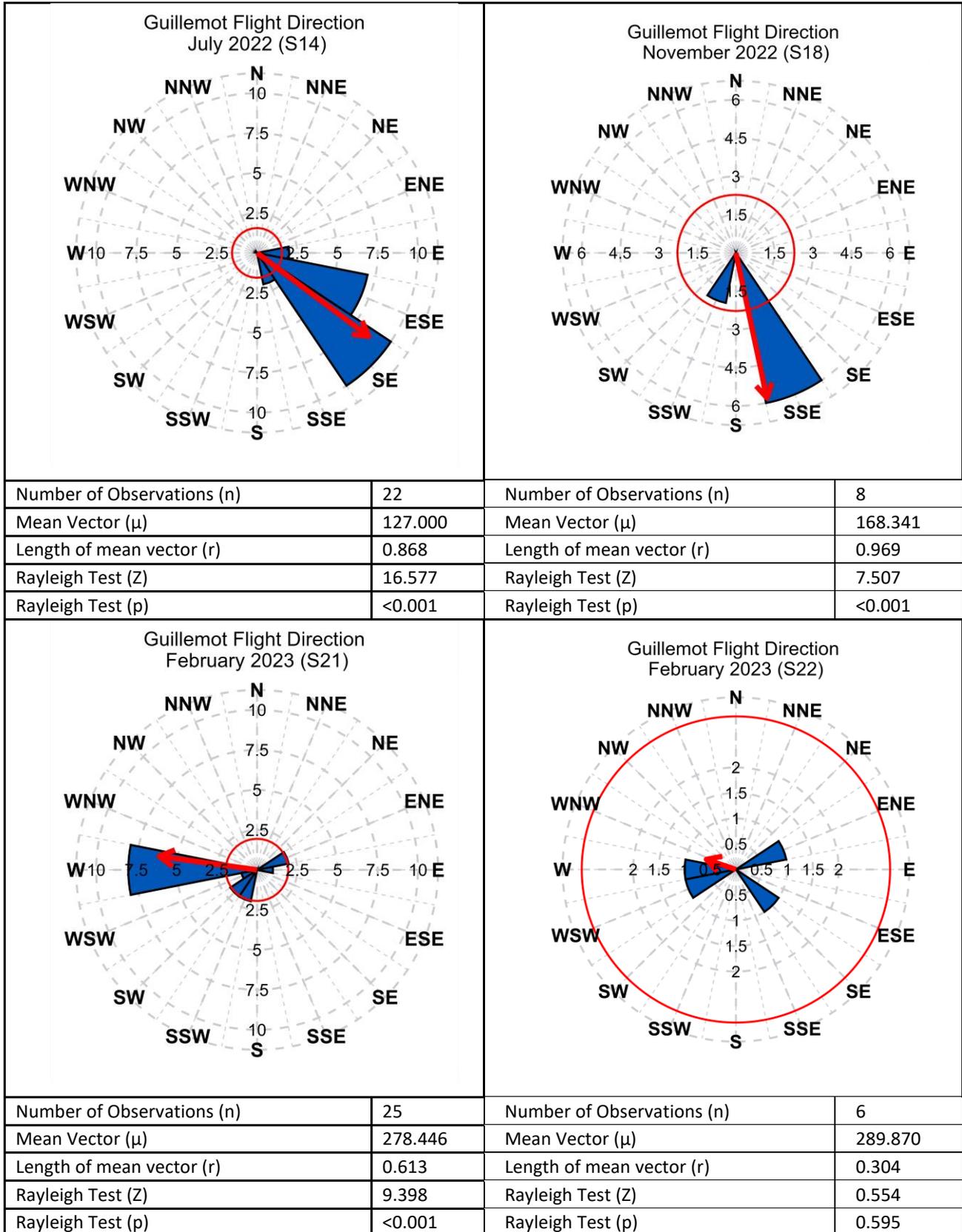
Plate D7 Flight directions of great skua during the survey period

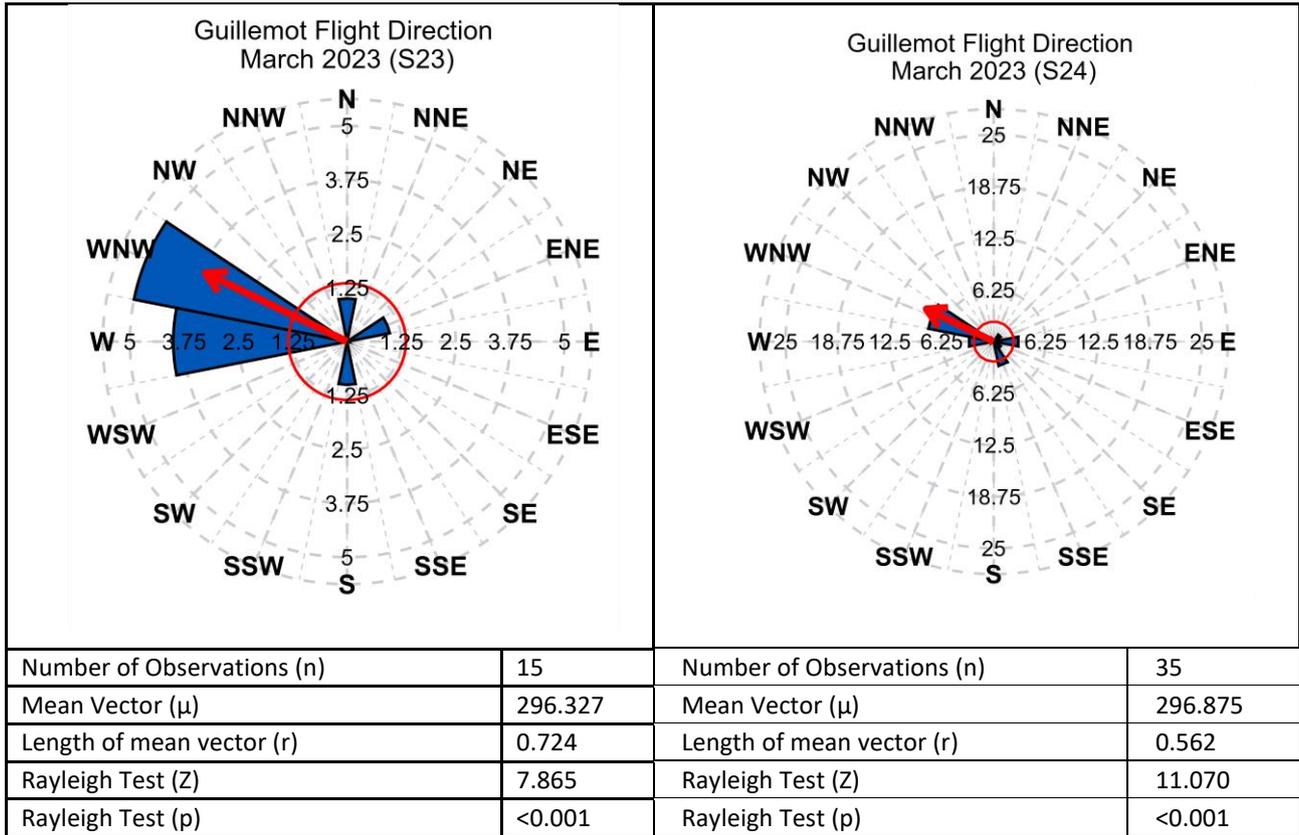


Guillemot

Plate D8 Flight directions of guillemot during the survey period

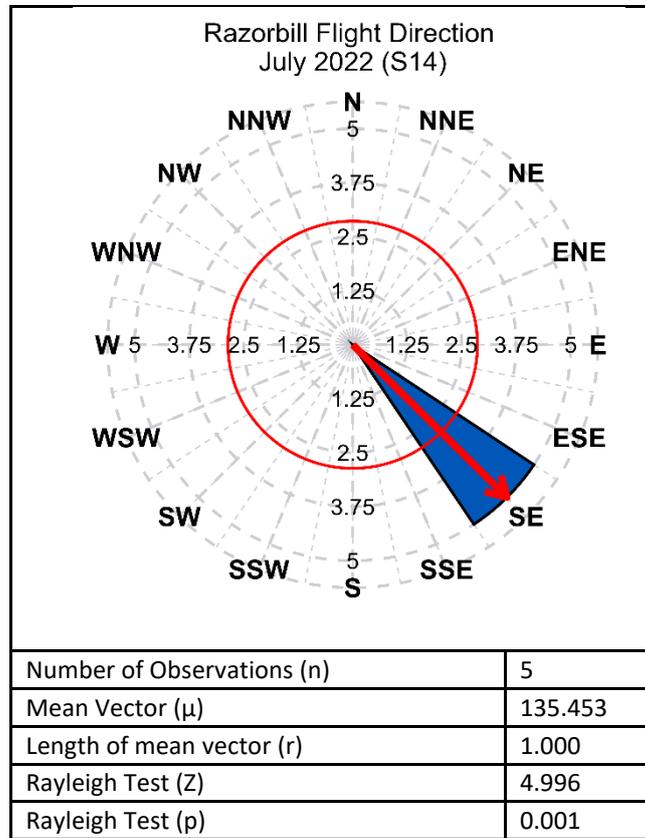






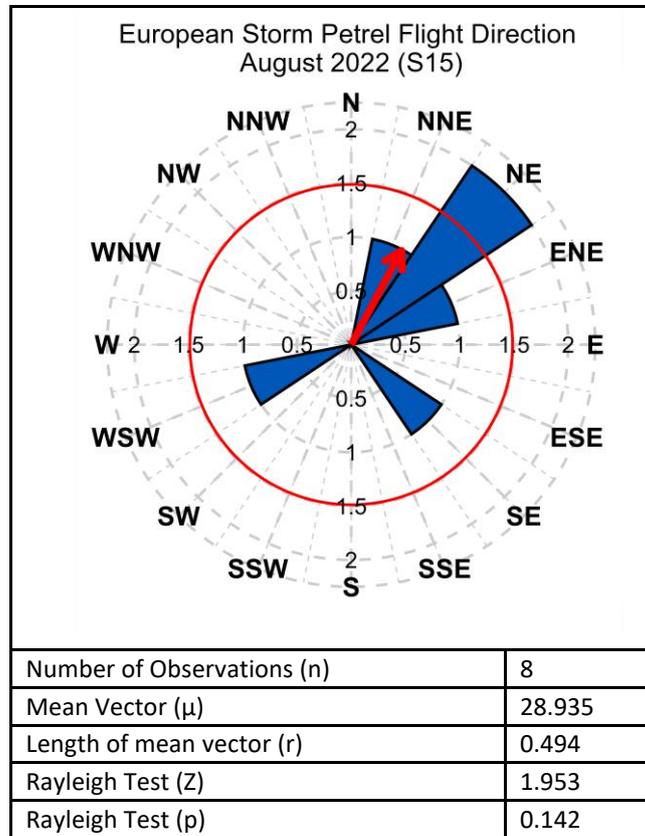
Razorbill

Plate D9 Flight directions of razorbill during the survey period



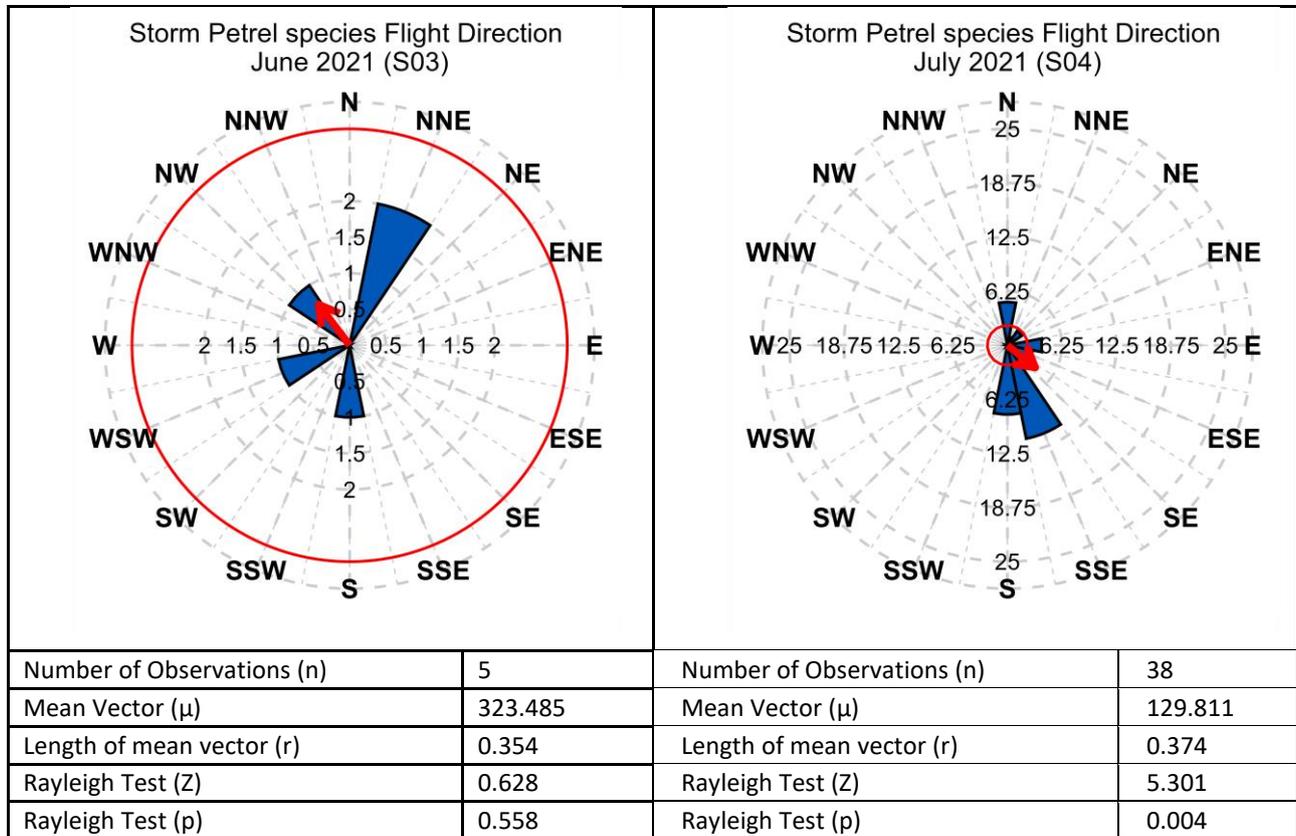
Storm petrel

Plate D10 Flight directions of storm petrel during the survey period



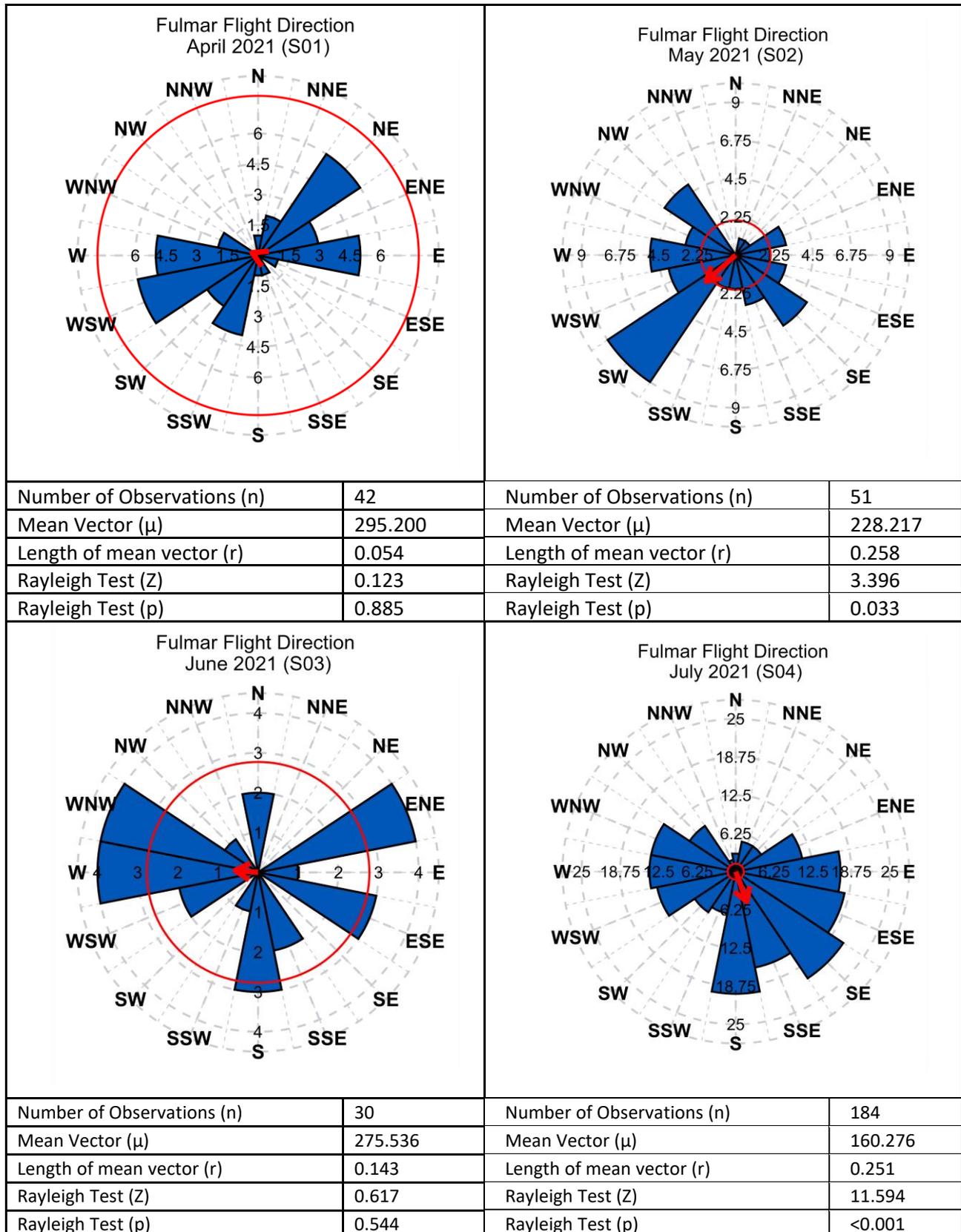
Storm petrel species

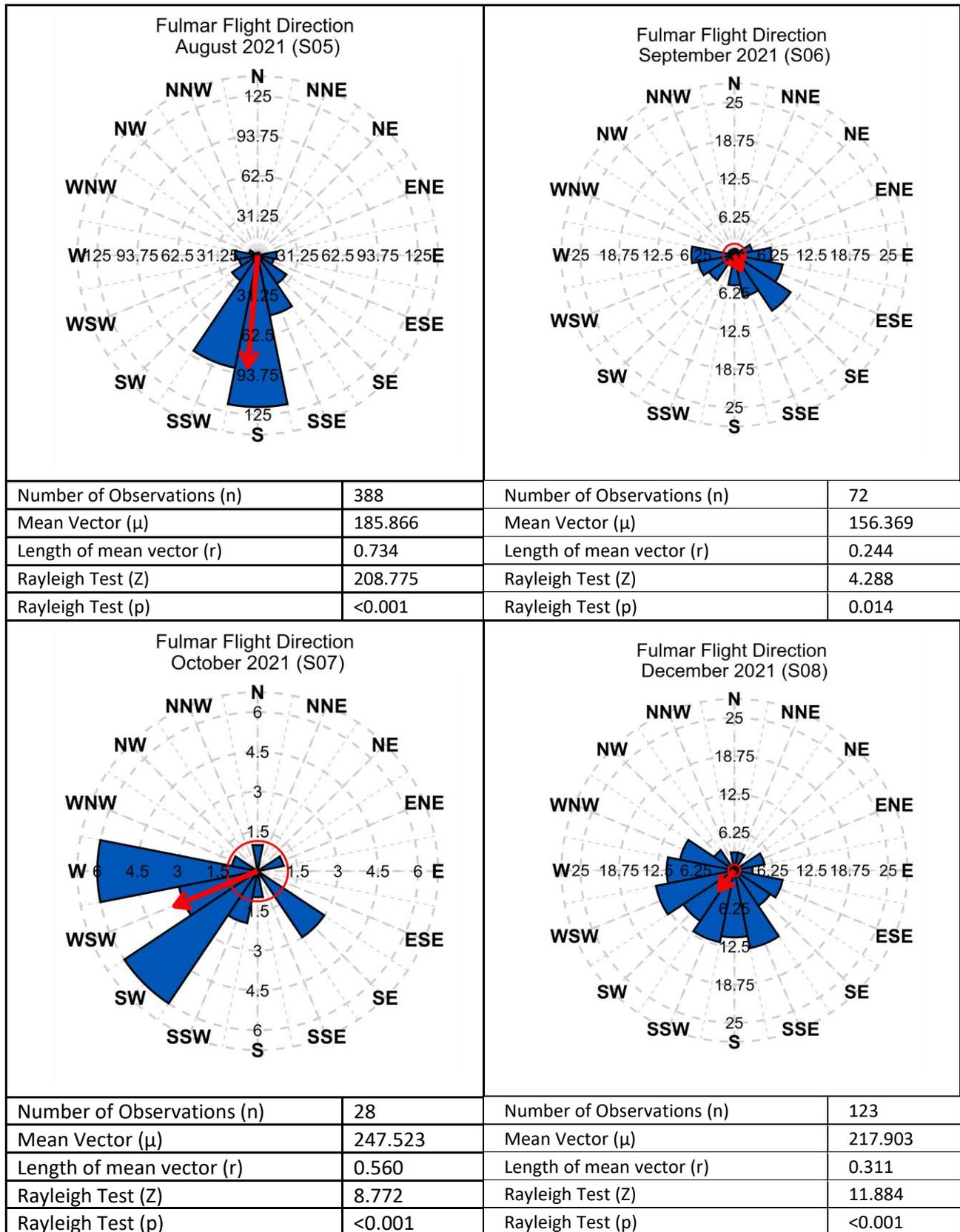
Plate D11 Flight directions of storm petrel species during the survey period

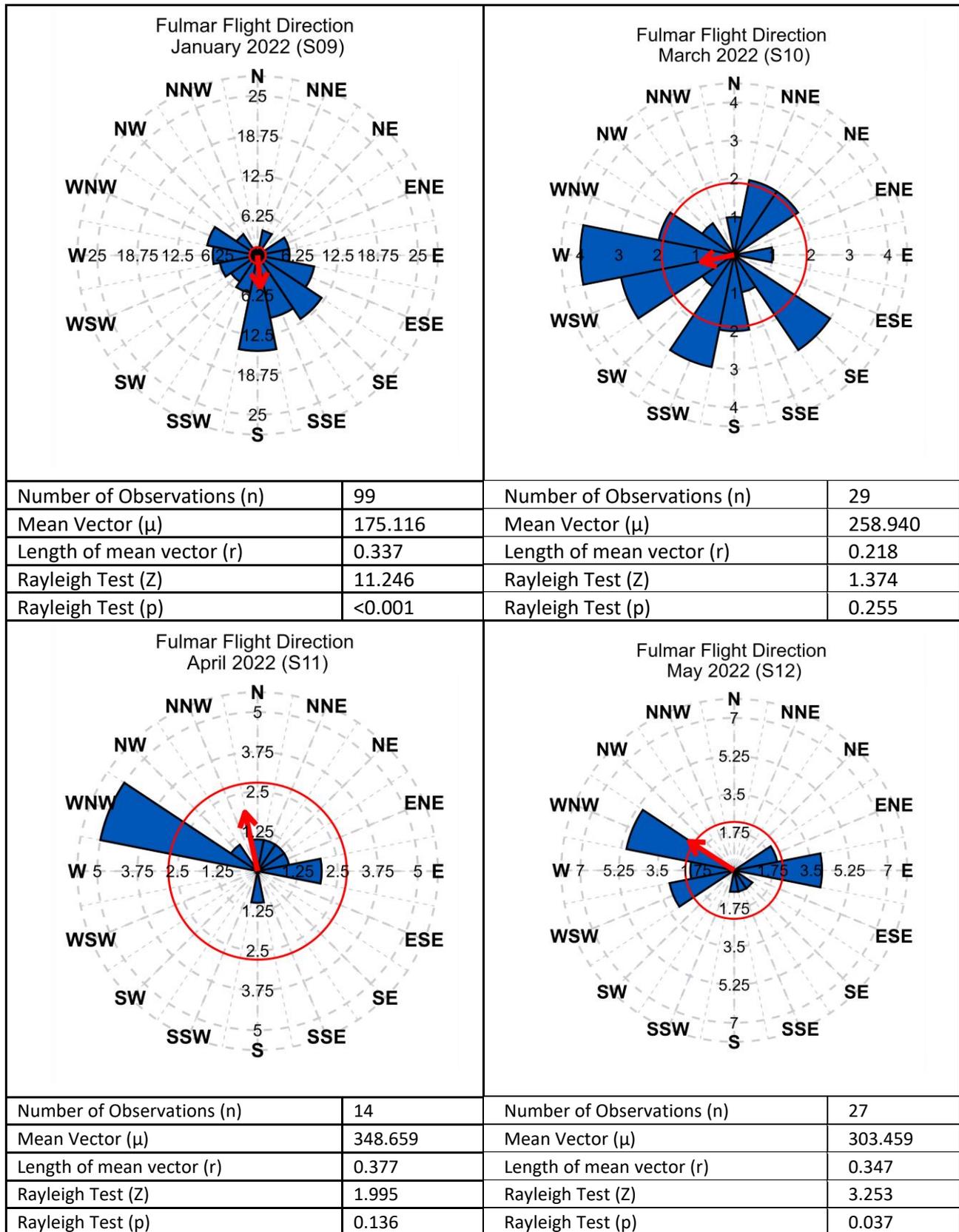


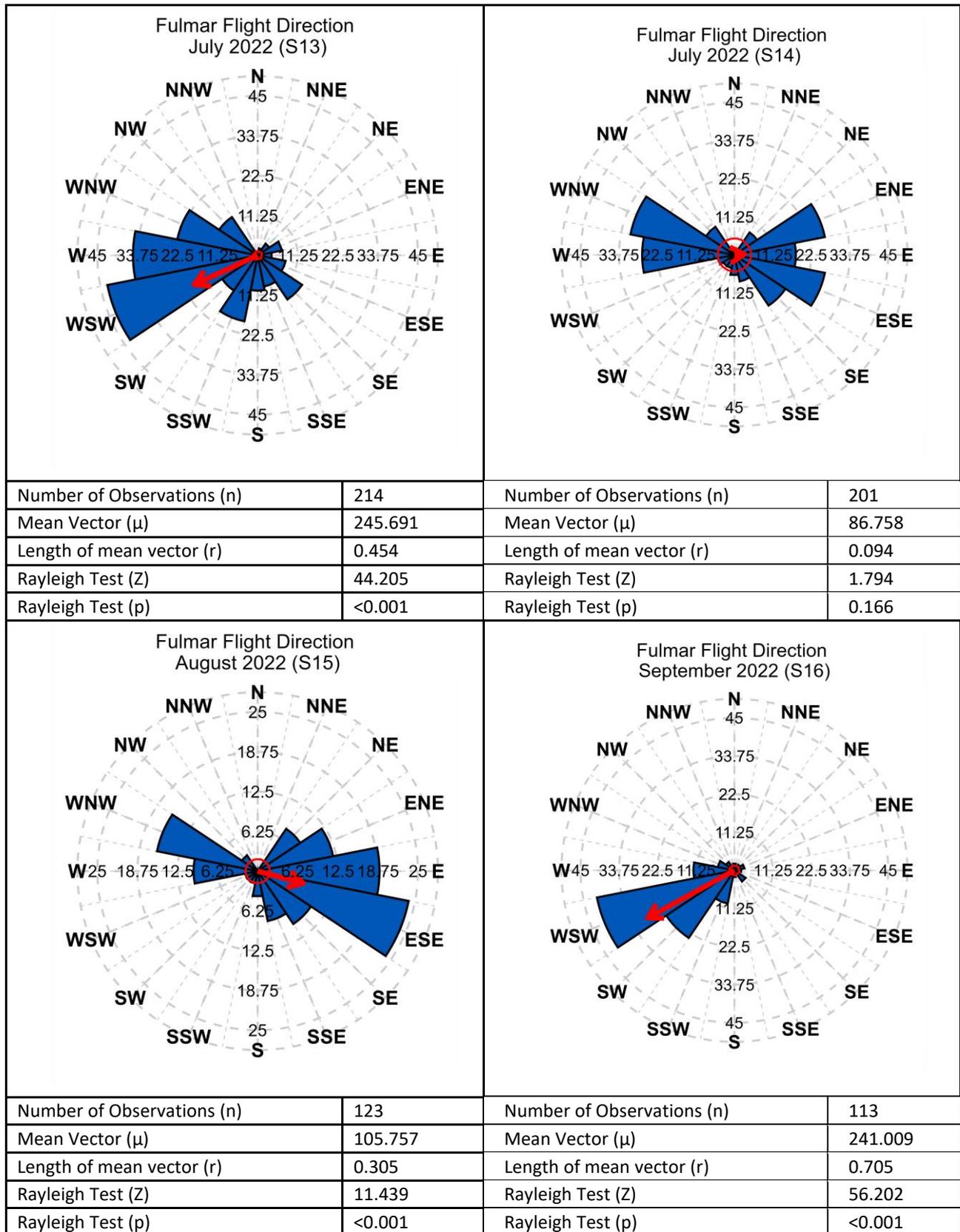
Fulmar

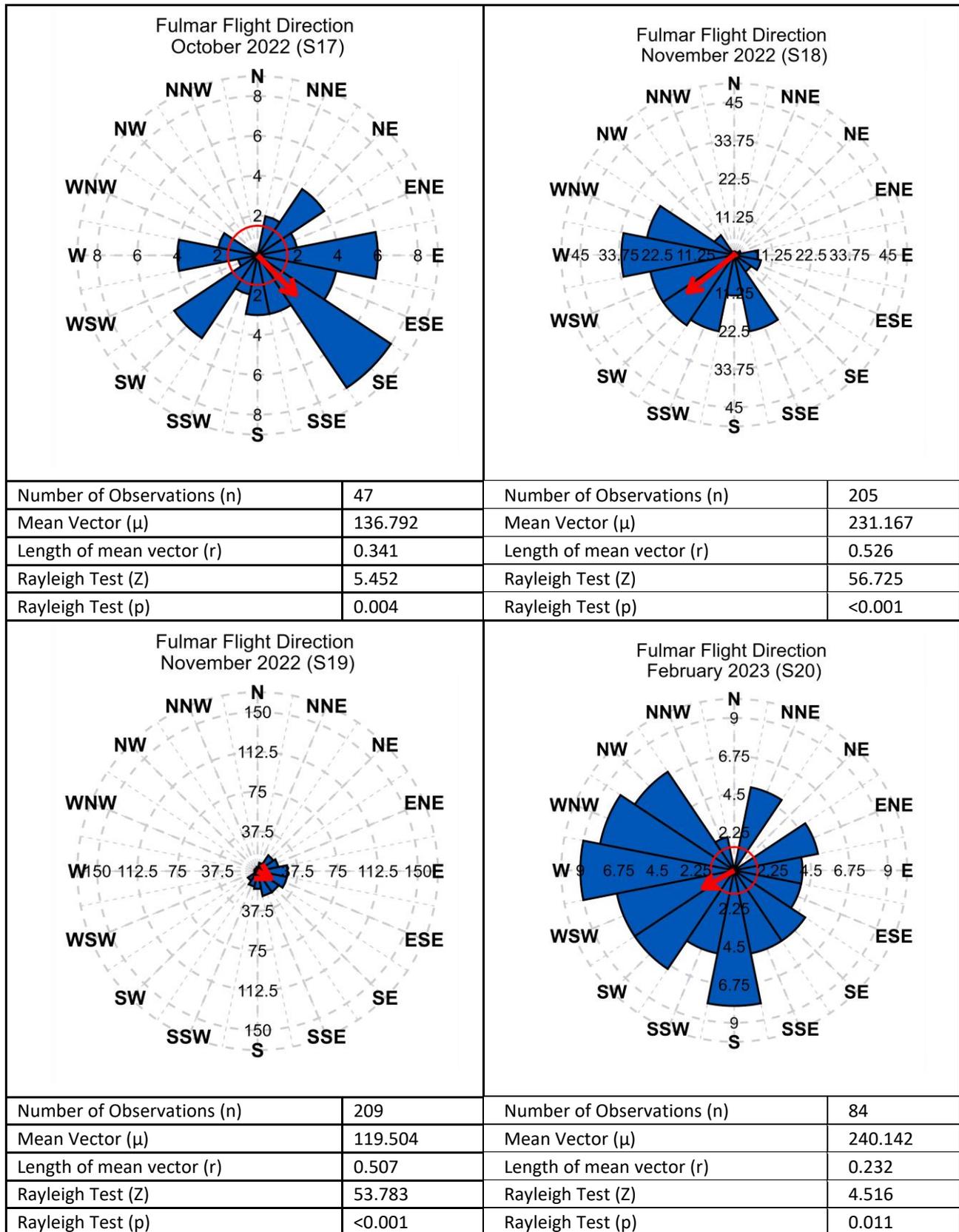
Plate D12 Flight directions of fulmar during the survey period

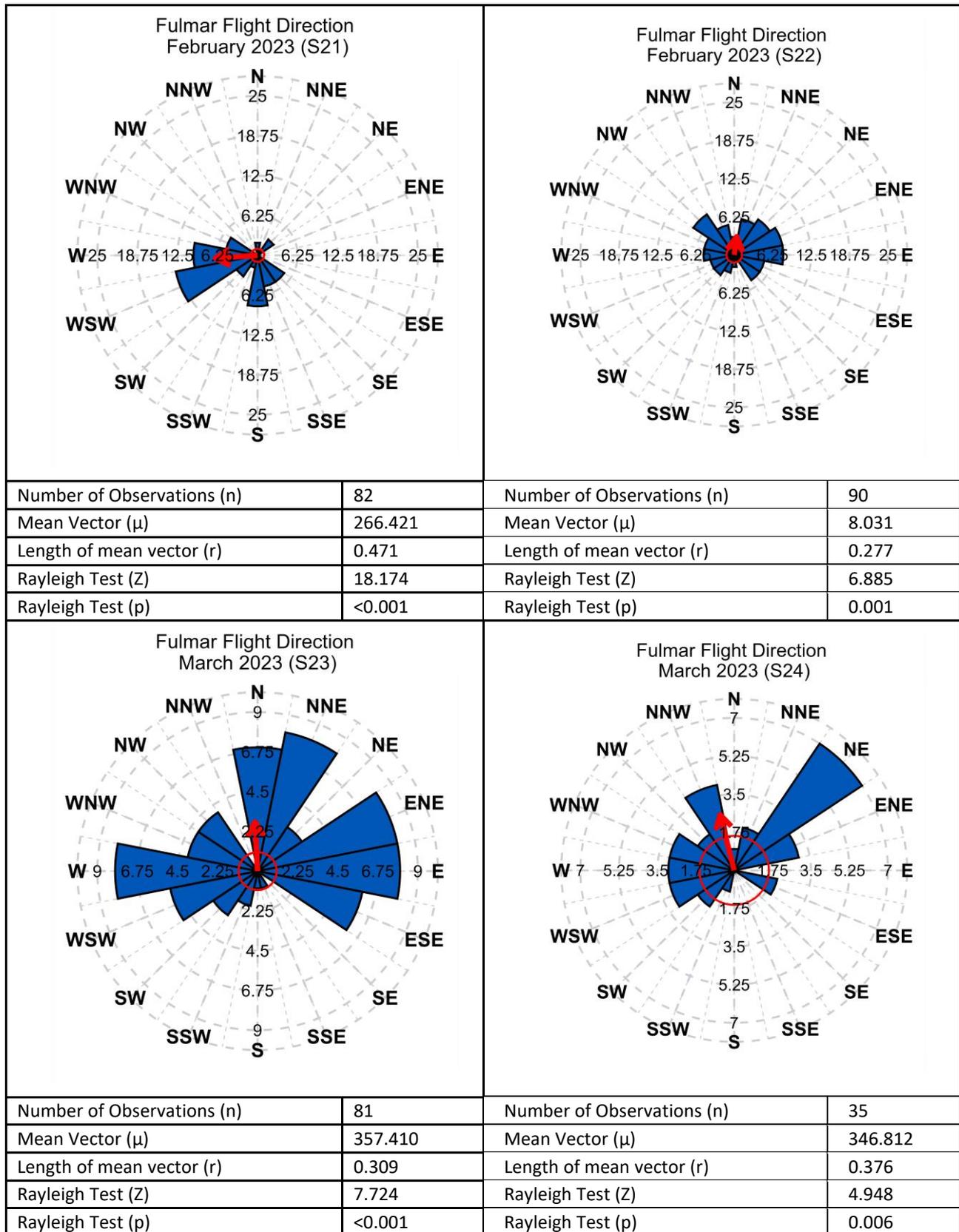






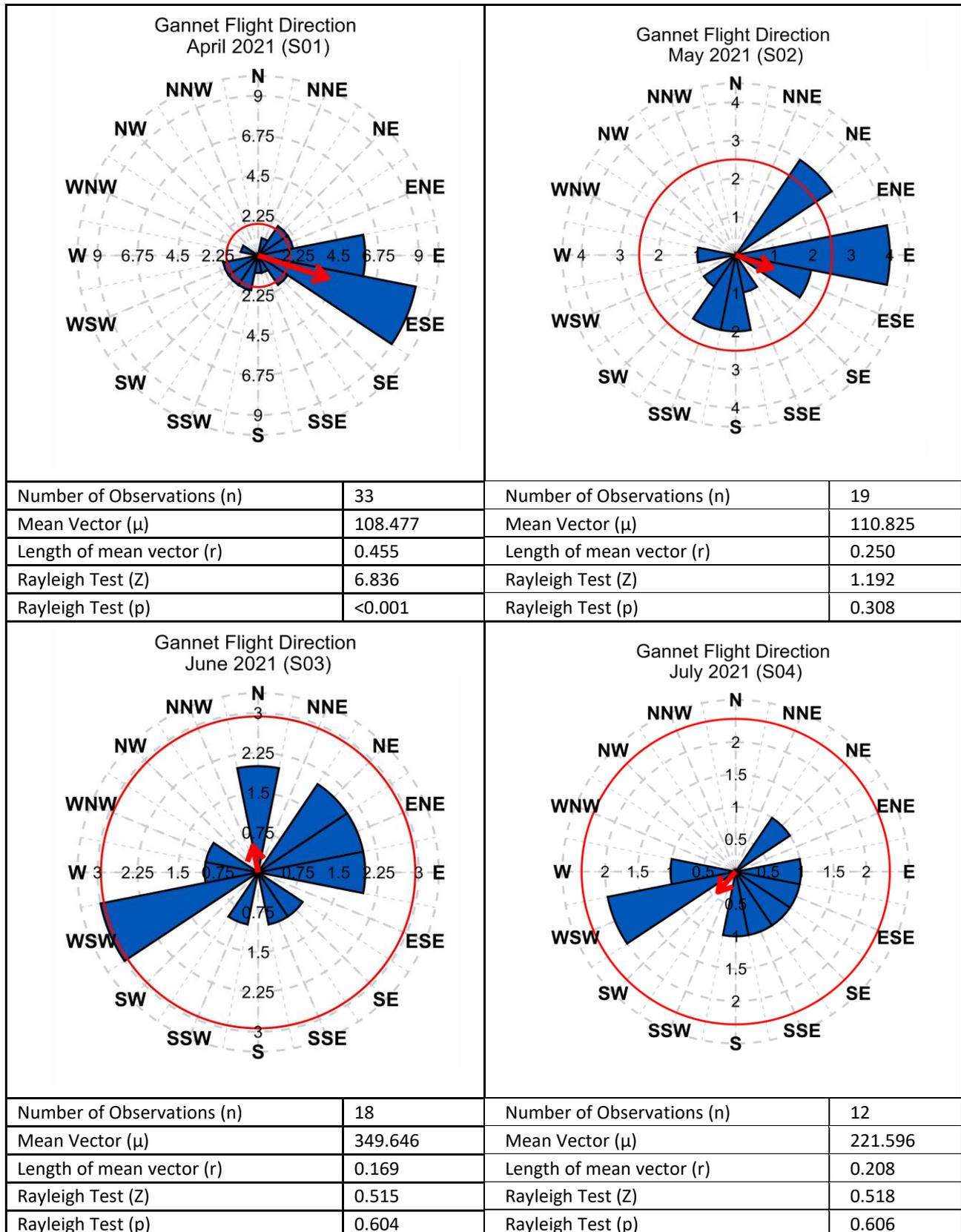


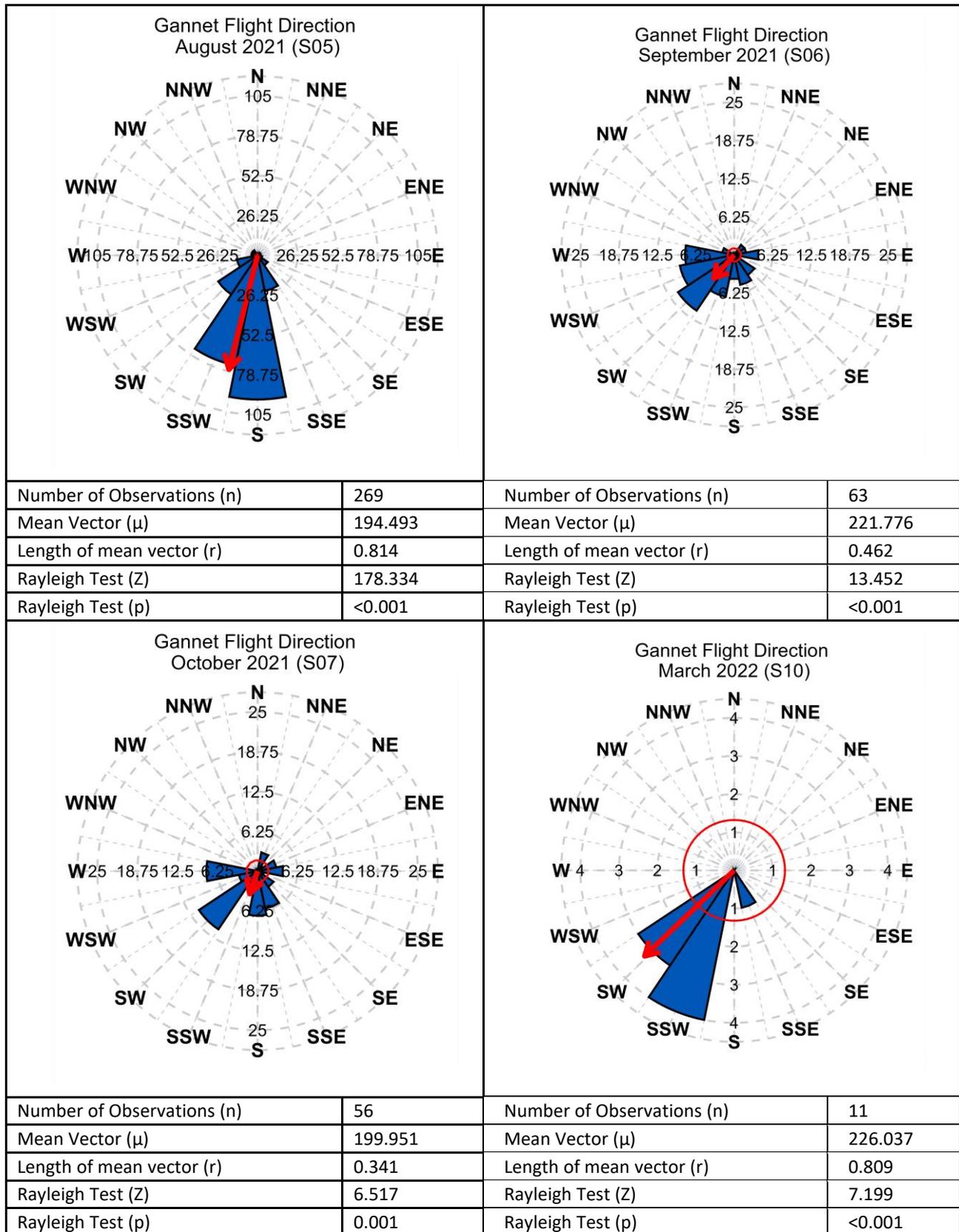


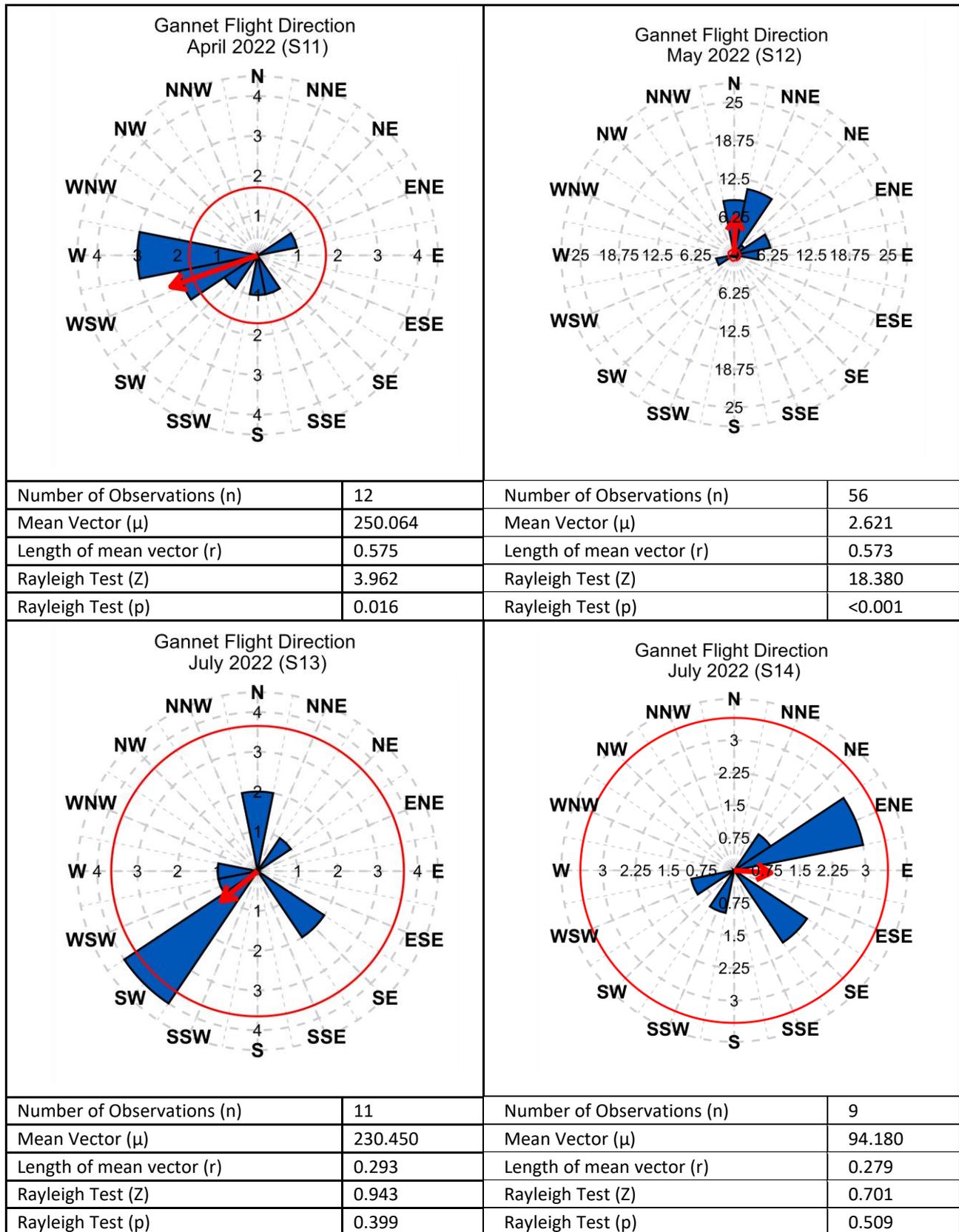


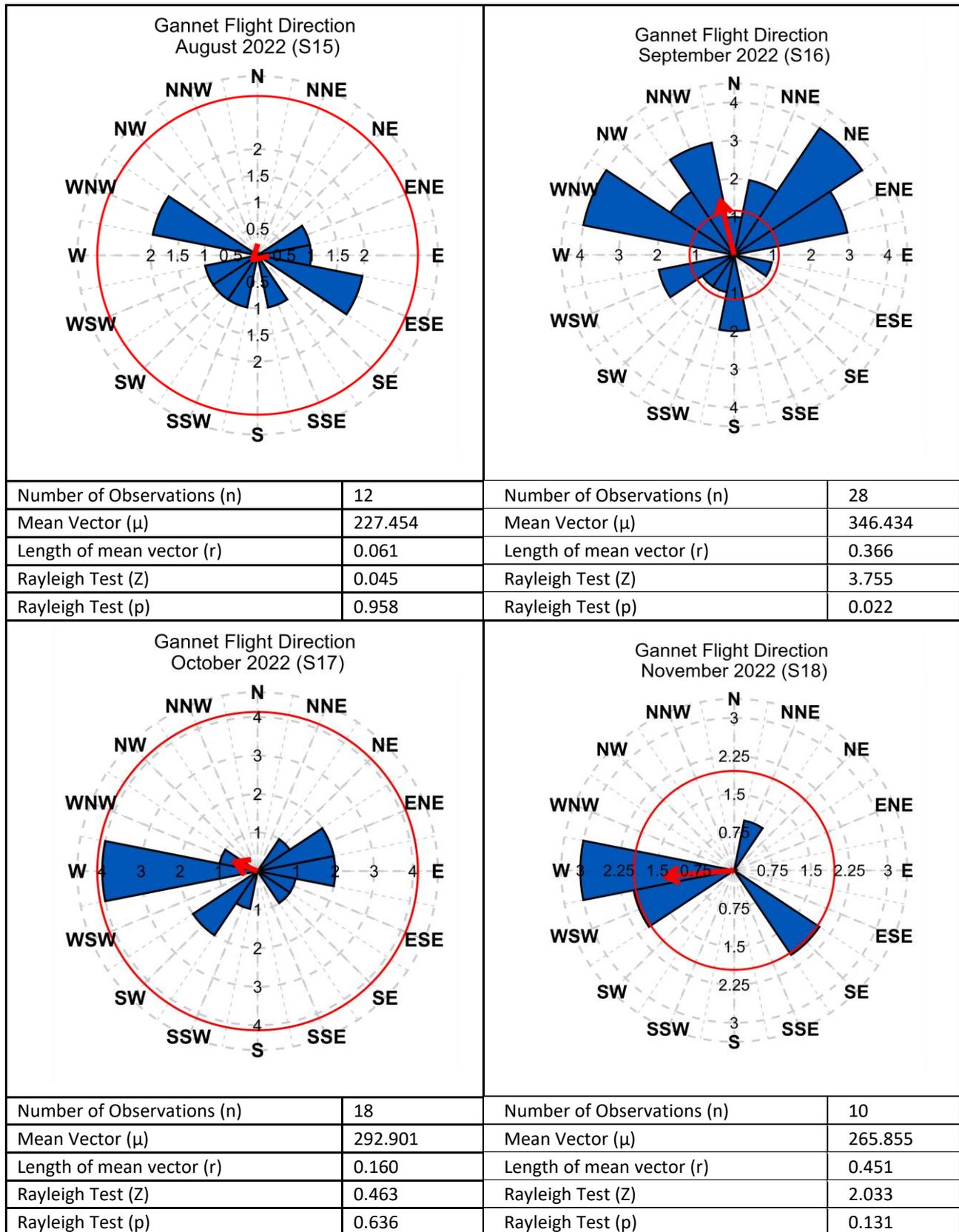
Gannet

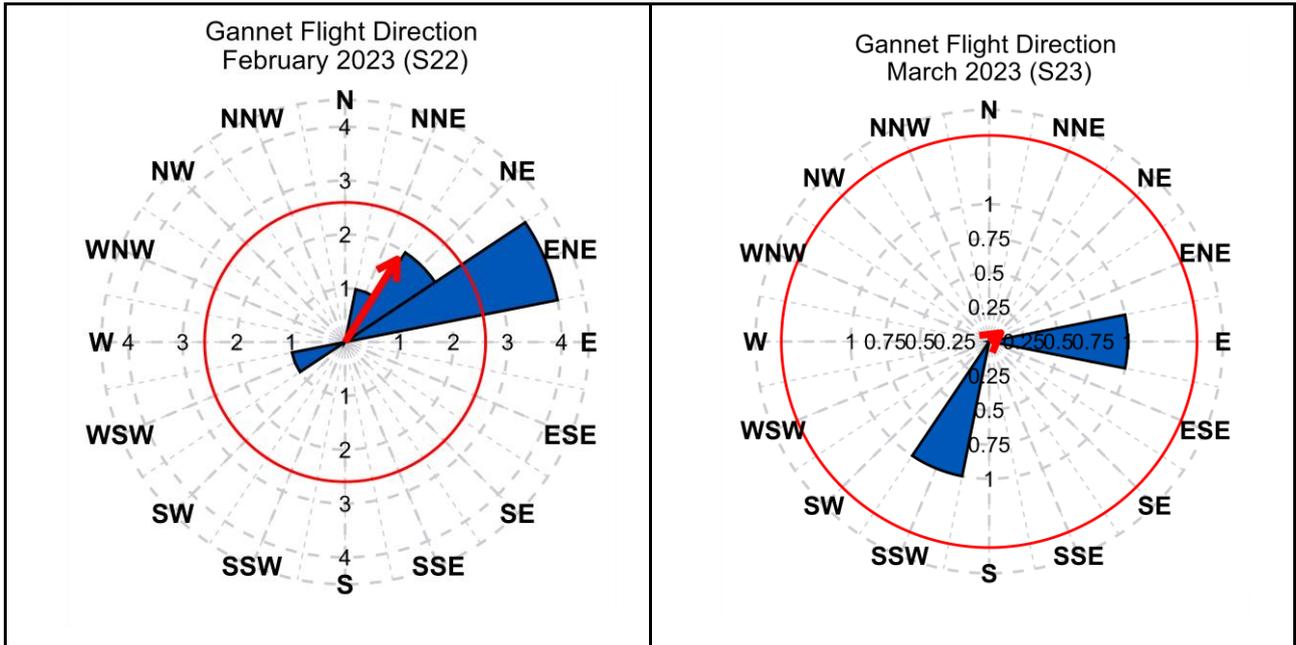
Plate D13 Flight directions of gannet during the survey period



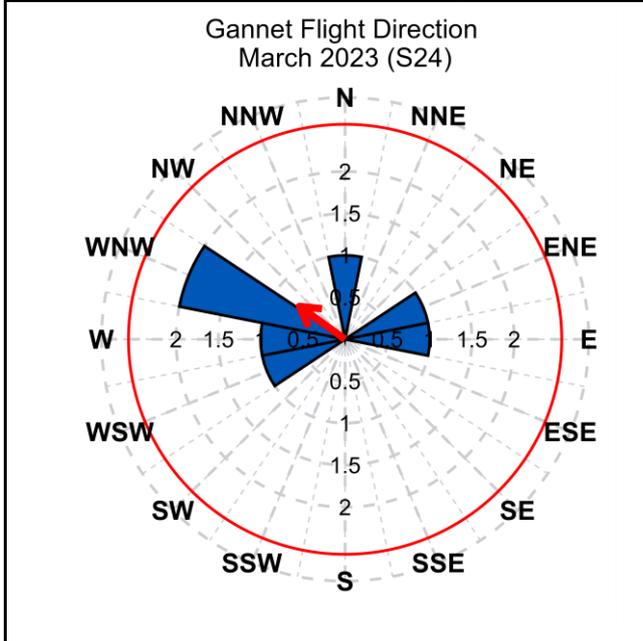








Number of Observations (n)	10	Number of Observations (n)	3
Mean Vector (μ)	32.830	Mean Vector (μ)	53.690
Length of mean vector (r)	0.453	Length of mean vector (r)	0.105
Rayleigh Test (Z)	2.054	Rayleigh Test (Z)	0.033
Rayleigh Test (p)	0.128	Rayleigh Test (p)	0.972



Number of Observations (n)	7
Mean Vector (μ)	306.758
Length of mean vector (r)	0.333
Rayleigh Test (Z)	0.778
Rayleigh Test (p)	0.476

MarramWind 