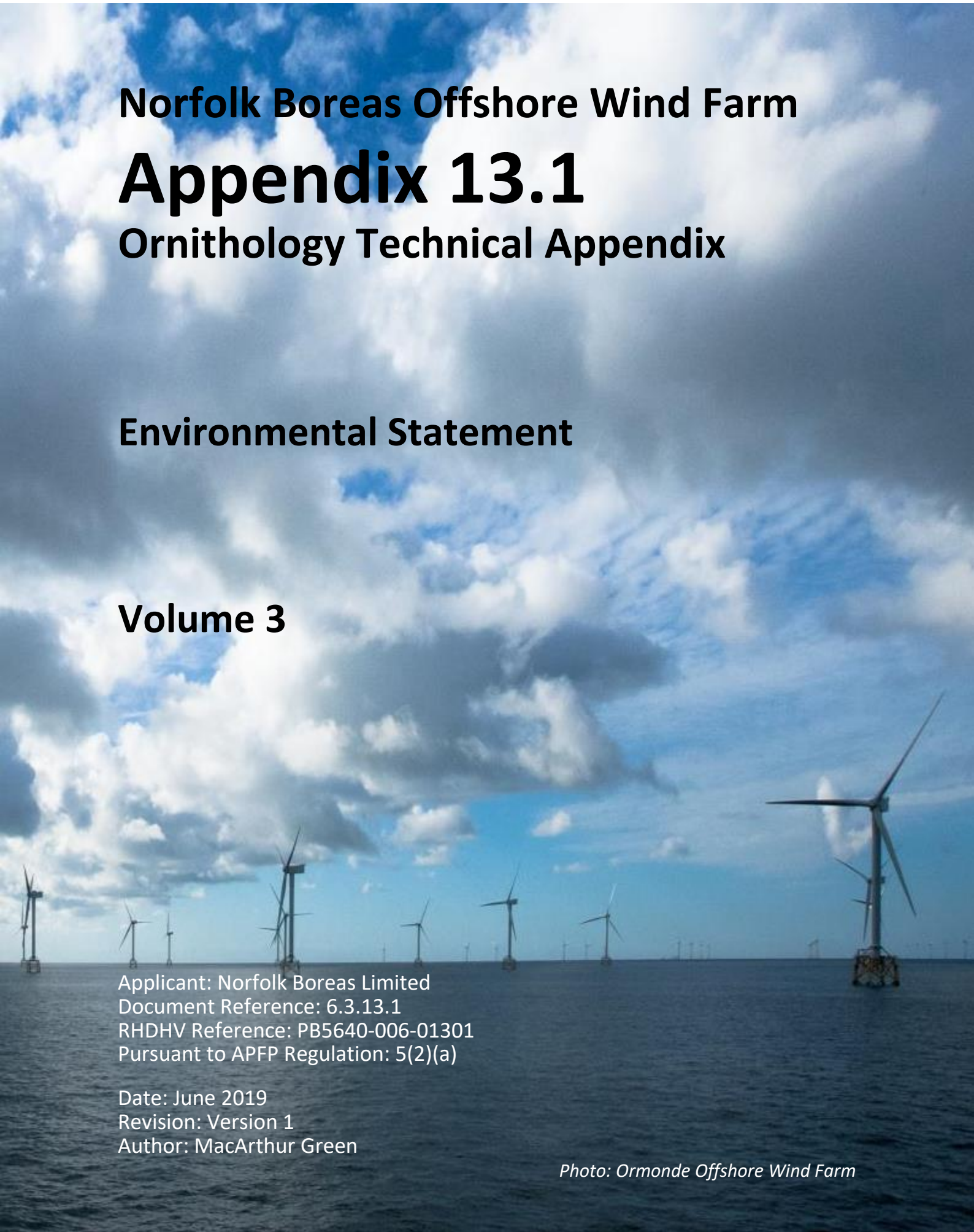
Norfolk Boreas Offshore Wind Farm

Appendix 13.1

Ornithology Technical Appendix

Environmental Statement

Volume 3



Applicant: Norfolk Boreas Limited
Document Reference: 6.3.13.1
RHDHV Reference: PB5640-006-01301
Pursuant to APFP Regulation: 5(2)(a)

Date: June 2019
Revision: Version 1
Author: MacArthur Green

Photo: Ormonde Offshore Wind Farm

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Norfolk Boreas Offshore Wind Farm

Appendix 13.1

Ornithology Technical Appendix

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Document Quality Record.

Version	Status	Person Responsible	Date
1	Draft	Nicola Goodship	20/02/2019
2	Reviewed	Mark Trinder	22/02/2019
3	Updated	Mark Trinder	22/02/2019
3.1	Updated	Nicola Goodship	27/03/2019
4	Internal Approval	Mark Trinder	30/03/2019

CONTENTS

1 INTRODUCTION

1. The proposed Norfolk Boreas project will comprise offshore wind turbines, offshore converter station, inter-array cables, interconnector cables and offshore and onshore export cables taking power to an onshore converter station. The Norfolk Boreas site covers an area of 725km^2 located approximately 73km offshore at the nearest point to the coast.

2. The offshore ornithological assessment is informed using baseline site characterisation data collected by digital aerial survey methods, conducted by APEM Ltd. Further details of the survey methods, analysis of the data collected and the results obtained are provided in relevant sections of this technical report.

3. The aim of this report is to present full details of the baseline information from the site-specific surveys which have been used to undertake the offshore ornithology Environmental Impact Assessment (EIA) and Habitats Regulations Assessment (HRA).

4. Sections on aerial survey methodology (section 3) and image analysis (section 4.1) were supplied by the aerial survey contractor (APEM).

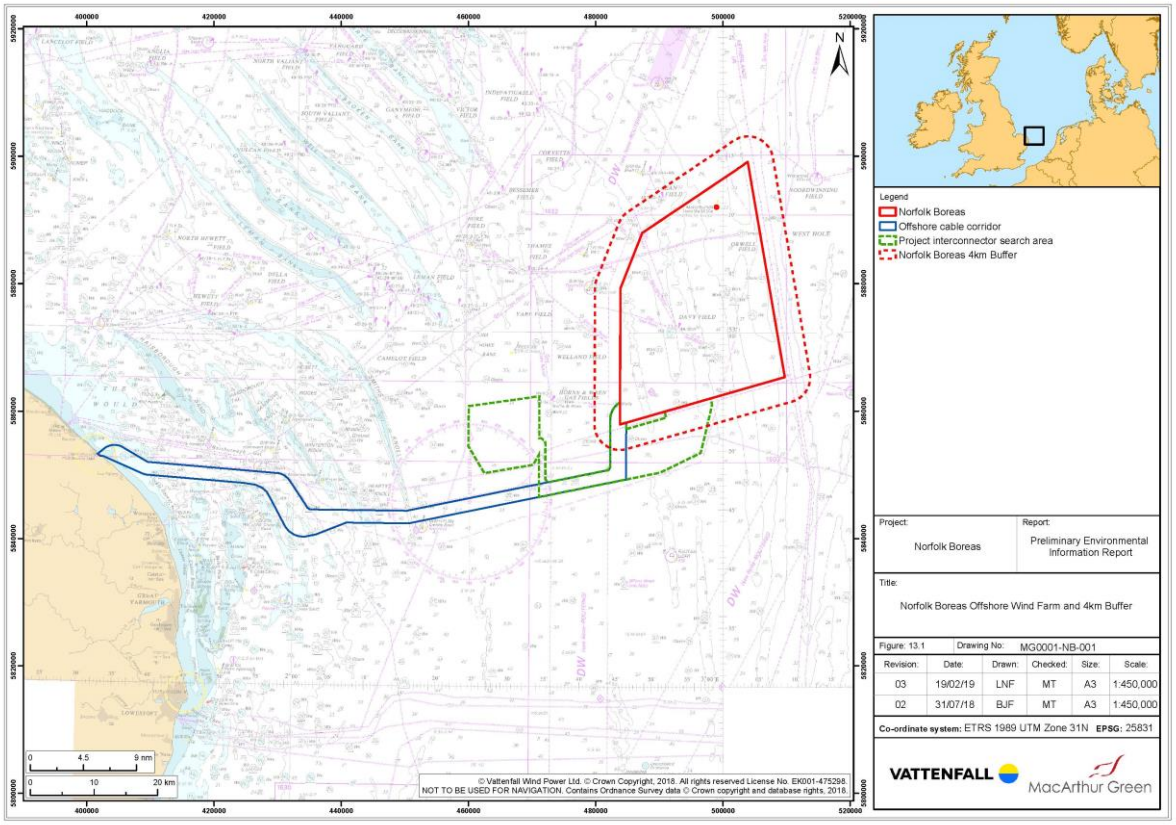

Figure 13.1. Location of the proposed Norfolk Boreas windfarm site boundary and 4km buffer that the aerial surveys were conducted over.

2 DATA SOURCES

5. APEM has undertaken monthly aerial surveys across the wind farm as detailed in Table 1. Surveys began in August 2016 and were completed in July 2018. The analysis presented in this Technical Appendix includes the complete dataset (24 months in total with each calendar month surveyed twice).

Table 1. Months when aerial surveys were conducted at Norfolk Boreas between August 2016 to July 2018.

Month	2016	2017	2018
Jan		X	X
Feb		X	X
Mar		X	X
Apr		X	X
May		X	X
Jun		X	X
Jul		X	X
Aug	X	X	
Sep	X	X	
Oct	X	X	
Nov	X	X	
Dec	X	X	

3 SURVEY METHODS

6. Aerial surveys were undertaken using either Vulcan Air P68 Observer or Britten-Norman Islander twin engine survey aircraft. These surveys involved digital still image collection using a GPS-linked bespoke flight management system.

7. Survey of the Norfolk Boreas site comprised High Resolution still images taken on a grid system with a resolution of 2 cm Ground Sampling Distance (GSD) to represent a high intensity sampling regime. The Survey Area incorporates the proposed Norfolk Boreas footprint plus a 4 km buffer.

8. Survey data comprised species, count (number of individual birds), sex (where possible), age (where possible), flight height, flight direction, position (longitude and latitude), date and time stamp of image collection.

9. Where identification to species level was not possible, reference was made to aerial data collected within the Survey Area where species were identified in order to apportion records at group level to species level (this process of apportionment is described in a later section).

3.1 Species Identification

10. There are occasions when it is not possible to identify a particular bird on the aerial survey image to species level and the image is therefore assigned to a higher level group e.g. ‘small gulls’ or ‘black-backed gulls’. Methods for assigning these unidentified birds to appropriate species categories are discussed in the data analysis section.

4 DATA ANALYSIS

4.1 Image Analysis

11. The images were analysed to enumerate birds to species level, where possible. Internal QA was carried out by APEM on each survey. Images were assessed in batches with a different staff member responsible for each batch. Each image containing birds and / or marine mammals was reviewed and checked by APEM's dedicated QA Manager, ensuring that 100% of birds recorded were subject to internal QA to ensure the species identification is correct. Images containing no birds and / or marine mammals were removed and kept separately for further internal QA. Of these 'blank' images, 10% were randomly selected for internal QA by a different staff member to that which initially analysed the imagery. If there was less than 90% agreement, the entire batch would be re-analysed as part of the QA procedures. Following internal QA, external QA was carried out by the British Trust for Ornithology (BTO), who provide an independent third party assessment of 10% of the birds recorded in each survey. Birds identified from the images were 'snagged' (i.e. located within the images) and categorised normally to species, but sometimes to standard JNCC categories.

4.2 Bird Abundance and Density Estimates

12. Raw data were supplied as plane GPS track logs, containing details for each image location and observation logs, containing details of all objects (seabird, marine mammal, vessel, etc.) recorded. The two datasets were merged using the image ID to obtain a single dataset. All non-bird records were removed prior to analysis. Analysis was conducted for each survey separately. Bird locations were assigned to the following sub-zones; wind farm, wind farm plus 2 km buffer and wind farm plus 4km buffer (note that each buffer width also included the wind farm data).

13. Density (birds/km^2) and abundance were estimated using design based methods, with the density estimated for the surveyed area (i.e. the sum of all the image footprints) and multiplied up to the total area to obtain an abundance estimate. This makes the assumption that the surveyed sample is representative of the unsurveyed region, thus the design of survey is important (hence 'design based').

14. Confidence intervals for each species were obtained using a bootstrap resampling method. For each survey, images were drawn randomly (with replacement) from the dataset until the same number of images as the original sample was obtained (e.g. if the survey for a particular month comprised 350 images, each resampled dataset also contained 350 images, drawn with replacement from the original dataset). This process was repeated 1,000 times and the density and abundance calculated for each resampled dataset. The upper and lower 95% confidence limits were calculated across the 1,000 samples to estimate sampling variation. The width of the confidence interval obtained using this method reflects the degree of aggregation in the species, with highly aggregated species estimated with lower precision (i.e. species observed frequently as individuals will have a small range of estimated densities, while species recorded in occasional large groups will have a wide range of estimated densities).

15. The bootstrap resampled values were also used to obtain representative density and abundance values for each calendar month. This was achieved by combining the bootstrap samples for each month (e.g. 1,000 samples for the first January survey and 1,000 samples for the second January survey, etc.) from which the overall median and 95% confidence intervals for that month were extracted. This ensured that the values for each month were derived from all of the data available. In addition to the overall monthly medians (and confidence intervals) calculated in this manner, a mean value for each month was also calculated as the average of the individual survey estimates for that month.

16. For the displacement and collision risk assessments the monthly mean values were used.

17. Birds were recorded as either sitting on the sea surface ('sitting') or in flight ('flying'). Analysis was conducted on each subset separately and also combined across both ('all birds'). The combined estimates have been used as the overall densities and abundances required for displacement analysis, while birds in flight have been used for the Collision Risk Modelling (CRM).

18. All data were analysed using R (R Development Core Team 2012) to provide the summary outputs (as described above).

4.3 Assignment of unidentified birds to species

19. To avoid underestimating species abundance due to the omission of birds which could not be positively identified to species level, the density of each unidentified bird grouping (e.g. large gulls, small gulls, etc.) was estimated (using the methods described above) and then added proportionately to each member species of that group. The proportions were calculated from the ratios of positively identified birds in that group. This was undertaken on a survey by survey basis, using the ratio from the largest area (i.e. within the 4km buffer) to ensure the largest possible sample size for estimation.

20. The unidentified groups and the species which they comprise are listed in Table 2.

Table 2. Bird species which could be included in relevant unidentified groups. Note that 'Black-backed gulls' were assigned to species before 'Large Gulls'.

Species	Unidentified Group
Red-throated diver	Divers
Black- throated diver	
Great northern diver	
Sabine's gull	Small gulls
Kittiwake	
Black-headed gull	
Little gull	
Common gull	
Great black-backed gull	Black-backed gulls
Lesser black-backed gull	
Great black-backed gull	Large gulls
Lesser black-backed gull	
Herring gull	

Species	Unidentified Group
Common tern	'Commic' Tern
Arctic tern	
Guillemot	Guillemot / Razorbill
Razorbill	

21. For common tern and Arctic tern no species-specific identification is possible (size and plumage features are so close that it is impossible to separate them) and as a result there is no information on which to apportion these two species. They remain grouped in the data as 'commic' tern.

22. Although apportioning of unidentified groups to species provides the best available approach to estimating numbers of each species, this method may introduce biases, for example if one species in a group is easier to identify to species than others in the same general group, then the apportioning may overestimate numbers of the easily identified species and correspondingly underestimate numbers of the less easily identified species. This needs to be considered when assessing densities of species for which a significant proportion of birds had to be assigned to an unidentified group.

23. Shearwater species was the only unidentified group in which there were no individuals positively identified to species level in any month. Density and abundance estimates were calculated for shearwater species as an unidentified group.

4.4 Availability Bias

24. Guillemots and razorbills spend a proportion of their time foraging beneath the water surface and therefore some individuals present in a given area will not be observable in aerial images. Density and abundance estimates need to be adjusted to allow for these unobserved individuals.

25. A fixed species specific correction factor was applied to the number of guillemots and razorbills recorded on the sea surface. The values used were those recommended by JNCC in its submission during the examination phase of East Anglia ONE (JNCC 2013), referred to as Method C, which stated that 24% of guillemots and 17% of razorbills are underwater at any time (these percentages do not include birds in flight).

26. Density and abundance for guillemot and razorbill are presented both with and without the application of this method, with the former being used in the assessment.

4.5 Spatial Distributions

27. Maps of the wind farm site and bird locations are provided in Appendix 13.1 Annex 8. For species recorded in low numbers these figures plot all the observations recorded for the family group (e.g. divers) onto one figure, while more commonly recorded species are plotted one species per map. In addition, for species recorded in low numbers, all observations are plotted while species with higher numbers are combined by season (using the definitions in Furness 2015). Note that for the latter, where months contain overlapping seasons (e.g. breeding and migration) these have been assigned to migration, since for almost all species the wind farms are located beyond foraging

range of breeding colonies. The exception to this is lesser black-backed gull for which birds breeding at colonies in East Anglia may be present. The seasons used are detailed in Table 3.

Table 3. Species specific seasonal definitions and biologically defined minimum population sizes (in brackets) have been taken from Furness (2015).

Species	Breeding	Migration-free breeding	Migration - autumn	Winter	Migration - spring	Non-breeding
Red-throated diver	Mar-Aug	May-Aug	Sep-Nov (13,277)	Dec-Jan (10,177)	Feb-Apr (13,277)	
Black-throated diver*	Apr-Aug	May-Aug				Aug-Apr
Great northern diver	-	-	Sep-Nov	Dec-Feb	Mar-May	Sep-May (200)
Fulmar	Jan-Aug	Apr-Aug	Sep-Oct (957,502)	Nov (568,736	Dec-Mar (957,502)	-
Gannet	Mar-Sep	Apr-Aug	Sep-Nov (456,298)	-	Dec-Mar (248,385)	-
Arctic skua	May-Jul	Jun-Jul	Aug-Oct (6,427)	-	Apr-May (1,227)	-
Great skua	May-Aug	May-Jul	Aug-Oct (19,556)	Nov-Feb (143)	Mar-Apr (8,485)	-
Puffin	Apr-Aug	May-Jun	Jul-Aug	Sep-Feb	Mar-Apr	Mid-Aug-Mar (231,957)
Razorbill	Apr-Jul	Apr-Jul	Aug-Oct (591,874)	Nov-Dec (218,622)	Jan-Mar (591,874)	-
Guillemot	Mar-Jul	Mar-Jun	Jul-Oct	Nov	Dec-Feb	Aug-Feb (1,617,306)
Commic tern**	May-Aug	Jun	Jul-Sep (308,841)	-	Apr-May (308,841)	-
Kittiwake	Mar-Aug	May-Jul	Aug-Dec (829,937)	-	Jan-Apr (627,816)	-
Little gull*	Apr-Jul	May-Jul	-	-	-	Aug-Apr
Lesser black-backed gull	Apr-Aug	May-Jul	Aug-Oct (209,007)	Nov-Feb (39,314)	Mar-Apr (197,483)	-
Herring gull	Mar-Aug	May-Jul	Aug-Nov	Dec	Jan-Apr	Sep-Feb (466,511)
Great black-backed gull	Mar-Aug	May-Jul	Aug-Nov	Dec	Jan-Apr	Sep-Mar (91,399)

* Not included in Furness (2015). Seasons taken from BWP.
** commic tern' is used to include common terns and Arctic terns, as these species are not readily identified to species from the survey data.

4.6 Flight Height

28. Where flying birds were captured in a suitable orientation, their dimensions (body length and wingspan) were estimated. Using these values the height of the bird above the sea surface was estimated by APEM by comparison with the length of museum specimens. Following a review of

their data collection and analysis methods, the aerial survey contractors advised Vattenfall that the flight height estimates were not reliable.

4.7 Collision Risk Modelling

29. CRM was conducted using the Band (2012) CRM Options 1 and 2. Following a review of their data collection and analysis methods, the aerial survey contractors advised Vattenfall that the flight height estimates were not sufficiently reliable for use in CRM. Consequently, and in agreement with Natural England, the collision mortalities used for impact assessment were those calculated using Option 2 of the Band model, with flight heights obtained from the BTO generic flight height dataset (Johnston et al. 2014a,b). Option 1 collision estimates using the aerial survey flight height data have also been calculated and are provided in this technical appendix for information.

30. Natural England advised that uncertainty in seabird density, flight height (derived from the seabird flight height data in Johnston et al. 2014a,b) and avoidance rates should be included in the collision mortality estimates. To do this the CRM was run using the mean values for each of the above list of parameters as well as using the upper and lower 95% confidence interval values. In addition, it is evident that the values for nocturnal activity used in the Band CRM for most species are a significant over-estimate (e.g. Furness et al. 2018). Therefore, uncertainty in this parameter has also been incorporated for gannet, kittiwake, lesser black-backed gull, great black-backed gull and herring gull.

31. Annual totals are calculated as the sum of the monthly estimates.

32. Recent advice from Natural England has suggested that CRM should use the following upper and lower nocturnal activity rates of 0% and 25% for gannet and 25% and 50% for kittiwake, lesser black-backed gull, great black-backed gull and herring gull. This is a revision to the previous guidance to use only the higher of each pair of values.

33. However, for gannet, a review of evidence from tracking studies has revealed that appropriate (and still precautionary) values for the breeding season and nonbreeding season respectively are 8% (SE 2.7%) and 4% (SE 0.4%) (Furness et al. 2018). Therefore, as the evidence based seasonal values for gannet represent a significant improvement over the previously categorical values applied, these have been used in the CRM.

34. The input parameters for the collision modelling are provided in Appendix 13.1 Annex 3 and the outputs are presented in full in Appendix 13.1 Annex 4.

5 ORNITHOLOGY BASELINE

5.1 Overview of Bird Species Recorded

35. The following bird species (Table 4) were recorded during surveys within the Norfolk Boreas wind farm site plus 4km buffer.

Table 4. Bird species recorded during surveys of the Norfolk Boreas site and the 4km buffer between August 2016 and July 2018. Groups in italics were those that could not be identified to species level. These have been apportioned to species for analysis (see text for methods).

Species	Site	
	Wind farm	4km buffer
Long-tailed duck		X
Red-throated diver	X	X
Great Northern diver	X	
Unidentified diver	*X*	
Fulmar	X	X
Gannet	X	X
Cormorant	X	X
Shag	X	
Unidentified Cormorant/Shag		*X*
Arctic skua	X	X
Great skua	X	X
Puffin	X	X
Razorbill	X	X
Guillemot	X	X
Commic tern	X	X
Sandwich tern	X	X
Black tern	X	X
Unidentified tern species	*X*	*X*
Kittiwake	X	X
Black-headed gull	X	X
Little gull	X	X
Mediterranean gull		X
Common gull	X	X
Unidentified small gull species	*X*	*X*
Lesser black-backed gull	X	X
Herring gull	X	X
Great black-backed gull	X	X
Unidentified black-backed gull species	*X*	*X*
Unidentified large gull species	*X*	*X*
Unidentified shearwater species	*X*	*X*

36. This Technical Appendix has nine annexes containing additional data and analyses.

37. Appendix 13.1 Annex 1 provides tables of the median, mean and 95% confidence intervals for seabird density and abundance calculated for each calendar month for each species recorded. For each species, density and abundance are presented for all individuals observed (i.e. in flight and on the sea) and also for birds in flight only and on the sea only. For guillemot and razorbill these tables include adjustment for availability bias (birds on the sea multiplied by species-specific correction factors) and for all species which were included in higher level groupings (e.g. large gulls) the unidentified individuals were added to the relevant species using the proportions of identified species.

38. Appendix 13.1 Annex 2 provides tables of density and abundance for each of the 24 individual surveys. For each species density and abundance are presented for all individuals observed (in flight and on the sea), in flight only and on the sea only. For guillemot and razorbill additional tables are provided with and without the inclusion of adjustment for availability bias (birds on the sea multiplied by a correction factor) and for species which were include in higher level groupings (e.g. large gulls, terns, etc.) tables are provided with and without the addition of unidentified individuals to the relevant species using the proportions of identified species.

39. Appendix 13.1 Annex 3 provides tables of the input parameters used for the CRM.

40. Appendix 13.1 Annex 4 provides the monthly collision mortality predictions (including upper and lower estimates). Collision estimates are those calculated for the worst case 10MW turbine option.

41. Appendix 13.1 Annex 5 provides line graphs of population abundance on Norfolk Boreas, with and without the 4km buffer and with design based confidence intervals. These are for all birds observed (i.e. both in flight and on the water) and include assignment of unidentified birds.

42. Appendix 13.1 Annex 6 provides additional information on lesser black-backed gull foraging ranges, flight directions and age ratios.

43. Appendix 13.1 Annex 7 provides a collision risk assessment for migrant non-seabird species which are considered to have the potential to cross the Norfolk Boreas offshore wind farm sites on migration.

44. Appendix 13.1 Annex 8 provides spatial distribution maps illustrating where birds were recorded on Norfolk Boreas during all aerial surveys combined.

45. Appendix 13.1 Annex 9 provides a list of survey dates and times of monthly aerial surveys conducted across the Norfolk Boreas site.

5.2 Summary species accounts

46. The following species accounts use the values in Technical Appendix 13.1 Annex 1 for birds recorded both in flight and on the sea surface and include unidentified birds apportioned as

detailed above and, for guillemot and razorbill, adjustment for birds expected to be underwater during the surveys.

5.2.1 Long-tailed duck

47. Long-tailed ducks were recorded in April in the Norfolk Boreas buffer (Annex 1, Table 1.1a) with an estimated mean peak population of 10. No individuals were recorded in the wind farm itself.

5.2.2 Red-throated diver

48. Red-throated divers were recorded between November and May in the Norfolk Boreas wind farm and were also recorded in the buffer in September and October (Annex 1 Table 2.1a). The estimated mean peak wind farm population estimate was 450 (March). Figure 13.8.1 provides locations for all diver species recorded.

5.2.3 Great Northern Diver

49. A single great northern diver was recorded in January in the Norfolk Boreas wind farm with an estimated mean population of 7 (Annex 1 Table 3.1a). Figure 13.8.1 provides locations for all diver species recorded.

5.2.4 Fulmar

50. Fulmars were recorded in all months within the Norfolk Boreas wind farm (Annex 1 Table 4.1a). The estimated mean peak wind farm population was 972 (September). Figure 13.8.2 provides locations for all fulmars recorded.

5.2.5 Gannet

51. Gannets were recorded in all months within the Norfolk Boreas wind farm (Annex 1 Table 5.1a). The estimated mean peak wind farm population was 1,204 (November). Figure 13.8.3 provides locations for all gannets recorded.

5.2.6 Cormorant

52. Cormorants were recorded in March, October and December in the Norfolk Boreas buffer and October and December in the wind farm (Annex 1 Table 6.1a). The estimated mean peak wind farm population was 36 (October).

5.2.7 Shag

53. Shags were only recorded in September in the Norfolk Boreas wind farm (Annex 1 Table 7.1a). The estimated mean peak wind farm population was 36 (September).

5.2.8 Arctic skua

54. Arctic skuas were recorded in the Norfolk Boreas wind farm in August and September (Annex 1 Table 8.1a). The estimated mean peak wind farm population was 14 (August). Figure 13.8.4 provides locations for all skuas recorded.

5.2.9 Great skua

55. Great skuas were recorded in September, October and December in the Norfolk Boreas wind farm (Annex 1 Table 9.1a). The estimated mean peak wind farm population was 58 (September). Figure 13.8.4 provides locations for all skua species recorded.

5.2.10 Puffin

56. Puffins were recorded in the Norfolk Boreas wind farm in March and also in the buffer in February, March and April (Annex 1 Table 10.1a). The estimated mean peak wind farm population was 22 (March). Figure 13.8.5 provides locations for all puffins recorded.

5.2.11 Razorbill

57. Razorbills were recorded in all months in the Norfolk Boreas wind farm (Table 11.1a). The estimated mean peak wind farm population, adjusting for availability bias, was 689 (December). Figure 13.8.6 provides locations for all razorbills recorded.

5.2.12 Guillemot

58. Guillemots were recorded in all months in the Norfolk Boreas wind farm (Annex 1 Table 12.1a). The estimated mean peak wind farm population, adjusting for availability bias, was 10,480 (December). Figure 13.8.7 provides locations for all guillemots recorded.

5.2.13 Black tern

59. Black terns were recorded in August in the Norfolk Boreas wind farm, with an estimated mean population of 14 (August) (Annex 1 Table 13.1a). Figure 13.8.8 provided locations for all tern species recorded.

5.2.14 Sandwich tern

60. Sandwich terns were recorded in March, May, June, July and September in the Norfolk Boreas wind farm, and also in August in the buffer (Annex 1 Table 14.1a). The estimated mean peak wind farm population was 14 (March & July). Figure 13.8.8 provided locations for all tern species recorded.

5.2.15 Commic tern

61. Commic terns (common tern and Arctic tern combined due to the difficulty of distinguishing between these two species) were recorded in May, July and August in the Norfolk Boreas wind farm and also within the buffer in April and June (Annex 1 Table 15.1a). The estimated mean peak wind farm population was 348 (May). Figure 13.8.8 provides locations for all tern species recorded.

5.2.16 Kittiwake

62. Kittiwakes were recorded in all months in the Norfolk Boreas wind farm (Annex 1 Table 16.1a). The estimated mean peak wind farm population, including unidentified birds, was 1,820 (December). Figure 13.8.9 provides locations for all kittiwakes recorded and Figure 13.8.14 provides locations for all unidentified gulls recorded.

5.2.17 Black-headed gull

63. Black-headed gulls were recorded in the Norfolk Boreas wind farm in January, March, July, September and December and also in August and October in the buffer (Annex 1 Table 17.1a). The estimated mean peak wind farm population, including unidentified birds, was 268 (March). Figure 13.9.10 provides locations for all black-headed gulls recorded and Figure 13.9.14 provides locations for all unidentified gulls recorded.

5.2.18 Little gull

64. Little gulls were recorded in March, April, May, October and November in the Norfolk Boreas wind farm and also in the buffer in September (Annex 1 Table 18.1a). The estimated mean peak wind farm population, including unidentified birds, was 203 (May). Figure 13.8.10 provides locations for all little gulls recorded and Figure 13.8.14 provides locations for all unidentified gulls recorded.

5.2.19 Mediterranean gull

65. Mediterranean gulls were recorded in July in the Norfolk Boreas buffer (Annex 1, Table 19.1a) with an estimated mean peak population of 12 (July). No individuals were recorded in the wind farm itself. Figure 13.8.10 provides locations for all Mediterranean gulls recorded and Figure 13.9.14 provides locations for all unidentified gulls recorded.

5.2.20 Common gull

66. Common gulls were recorded in all months except May and June in the Norfolk Boreas wind farm (Annex 1 Table 20.1a). The estimated mean peak wind farm population, including unidentified birds, was 80 (December). Figure 13.8.10 provides locations for all common gulls recorded and Figure 13.8.14 provides locations for all unidentified gulls recorded.

5.2.21 Lesser black-backed gull

67. Lesser black-backed gulls were recorded in all months in the Norfolk Boreas wind farm (Annex 1 Table 21.1a). The estimated mean peak wind farm population, including unidentified birds, was 1,683 (July). Figure 13.8.11 provides locations for all lesser black-backed gulls recorded and Figure 13.8.14 provides locations for all unidentified gulls recorded.

5.2.22 Herring gull

68. Herring gulls were recorded in all months in the Norfolk Boreas wind farm (Annex 1 Table 22.1a). The estimated mean peak wind farm population, including unidentified birds, was 486 (December). Figure 13.8.12 provides locations for all herring gulls recorded and Figure 13.8.14 provides locations for all unidentified gulls recorded.

5.2.23 Great black-backed gull

69. Great black-backed gulls were recorded in all months in the Norfolk Boreas wind farm (Annex 1 Table 23.1a). The estimated mean peak wind farm population, including unidentified birds, was 1,240 (September). Figure 13.8.13 provides locations for all great black-backed gulls recorded and Figure 13.8.14 provides locations for all unidentified gulls recorded.

5.2.24 Shearwater species

70. Unidentified shearwater species were recorded in July in the Norfolk Boreas wind farm (Annex 1 Table 24.1a). The estimated mean peak wind farm population was 7 (July).

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Norfolk Boreas Offshore Wind Farm

Appendix 13.1

Offshore Ornithology

Annex 1

Monthly seabird density and abundance

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Document Quality Record.

Version	Status	Person Responsible	Date
1	Draft	Nicola Goodship	20/02/2019
2	Reviewed	Mark Trinder	22/02/2019
3	Updated	Mark Trinder	22/02/2019
3.1	Revisions	Nicola Goodship	28/03/2019
4	Internal Approval	Mark Trinder	30/03/2019

1 INTRODUCTION

1. This appendix provides tables of seabird density and abundance in each calendar month for each species recorded on Norfolk Boreas.

2. The tables provide density and abundance estimates for species recorded on the Norfolk Boreas site and 4km buffer. These have been derived from the complete two year dataset including 24 surveyed months (August 2016 to July 2018).

3. For each species the tables follow a sequence of:

   #.1 all birds recorded,
   #.2 birds recorded in flight,
   #.3 birds recorded on the sea surface.
   For each table number there is a matched pair (a and b) providing abundance and density estimates respectively.

4. A key to the table numbering is provided in Table A1.

5. Monthly densities and abundances are summarised as the median, mean and 95% confidence range, derived from 1,000 nonparametric bootstrap samples. The median and confidence intervals were calculated by pooling all the bootstrap samples for each month. Thus, for all months these have been calculated from 2,000 samples in each month. The mean was calculated as the average of the individual monthly mean values (i.e. across two estimates).

6. For species groups which include unidentified individuals (e.g. large gulls, auks, etc.) these have been added to the contributory species (e.g. large gulls comprise herring gull, lesser black-backed gull and great black-backed gull) on the basis of the proportions of positively identified individuals in the same survey. For example, if a survey included individuals categorised as large gulls, and 35 positively identified herring gulls, 10 positively identified lesser black-backed gulls and 5 positively identified great black-backed gulls, then 70%, 20% and 10% of the large gulls would be assigned to each species respectively. If there were unidentified birds, but no positively identified birds recorded in a survey, the average species ratios from the months in which the species were recorded was used to apportion the unidentified records.

7. For guillemot and razorbill adjustment was made to account for availability bias, with birds recorded on the sea multiplied by a species-specific correction factor to account for individuals expected to be underwater when the image was taken. The values used were those advised by JNCC[1]; 1.316 and 1.204 for guillemot and razorbill respectively, to account for estimates that 24% and 17% of these species are underwater at any given time.

[1] Allen, S. (2013). JNCC expert statement on ornithological issues for written representations in respect of East Anglia One offshore windfarm. 30 July 2013.

Table A1. Key to species density and abundance tables. Each table is provided as 'a' and 'b' for abundance and density respectively.

Species	All birds	In Flight	On Sea
Long-tailed duck	1.1	1.2	1.3
Red-throated diver	2.1	2.2	2.3
Great northern diver	3.1	3.2	3.3
Fulmar	4.1	4.2	4.3
Gannet	5.1	5.2	5.3
Cormorant	6.1	6.2	6.3
Shag	7.1	7.2	7.3
Arctic skua	8.1	8.2	8.3
Great skua	9.1	9.2	9.3
Puffin	10.1	10.2	10.3
Razorbill	11.1	11.2	11.3
Guillemot	12.1	12.2	12.3
Black tern	13.1	13.2	13.3
Sandwich tern	14.1	14.2	14.3
Commic tern	15.1	15.2	15.3
Kittiwake	16.1	16.2	16.3
Black-headed gull	17.1	17.2	17.3
Little gull	18.1	18.2	18.3
Mediterranean gull	19.1	19.2	19.3
Common gull	20.1	20.2	20.3
Lesser black-backed gull	21.1	21.2	21.3
Herring gull	22.1	22.2	22.3
Great black-backed gull	23.1	23.2	23.3
Shearwater species	24.1	24.2	24.3

Table 1.1a. Long-tailed Duck design-based abundance estimates of birds in flight and on sea.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Feb	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Mar	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Apr	0	0	0-0	0	5.74	0-34.45	0	5.74	0-34.42
May	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Aug	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Sep	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Oct	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Nov	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Dec	0	0	0-0	0	0.00	0-0	0	0.00	0-0

Table 1.1b. Long-tailed Duck design-based density estimates of birds in flight and on sea.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0.00	0-0	0	0	0-0
Feb	0	0	0-0	0	0.00	0-0	0	0	0-0
Mar	0	0	0-0	0	0.00	0-0	0	0	0-0
Apr	0	0	0-0	0	0.01	0-0.04	0	0	0-0.03
May	0	0	0-0	0	0.00	0-0	0	0	0-0
Jun	0	0	0-0	0	0.00	0-0	0	0	0-0
Jul	0	0	0-0	0	0.00	0-0	0	0	0-0
Aug	0	0	0-0	0	0.00	0-0	0	0	0-0
Sep	0	0	0-0	0	0.00	0-0	0	0	0-0
Oct	0	0	0-0	0	0.00	0-0	0	0	0-0
Nov	0	0	0-0	0	0.00	0-0	0	0	0-0
Dec	0	0	0-0	0	0.00	0-0	0	0	0-0

Table 1.2a. Long-tailed Duck design-based abundance estimates of birds in flight.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0	0-0	0	0	0-0
Feb	0	0	0-0	0	0	0-0	0	0	0-0
Mar	0	0	0-0	0	0	0-0	0	0	0-0
Apr	0	0	0-0	0	0	0-0	0	0	0-0
May	0	0	0-0	0	0	0-0	0	0	0-0
Jun	0	0	0-0	0	0	0-0	0	0	0-0
Jul	0	0	0-0	0	0	0-0	0	0	0-0
Aug	0	0	0-0	0	0	0-0	0	0	0-0
Sep	0	0	0-0	0	0	0-0	0	0	0-0
Oct	0	0	0-0	0	0	0-0	0	0	0-0
Nov	0	0	0-0	0	0	0-0	0	0	0-0
Dec	0	0	0-0	0	0	0-0	0	0	0-0

Table 1.2b. Long-tailed Duck design-based density estimates of birds in flight.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0	0-0	0	0	0-0
Feb	0	0	0-0	0	0	0-0	0	0	0-0
Mar	0	0	0-0	0	0	0-0	0	0	0-0
Apr	0	0	0-0	0	0	0-0	0	0	0-0
May	0	0	0-0	0	0	0-0	0	0	0-0
Jun	0	0	0-0	0	0	0-0	0	0	0-0
Jul	0	0	0-0	0	0	0-0	0	0	0-0
Aug	0	0	0-0	0	0	0-0	0	0	0-0
Sep	0	0	0-0	0	0	0-0	0	0	0-0
Oct	0	0	0-0	0	0	0-0	0	0	0-0
Nov	0	0	0-0	0	0	0-0	0	0	0-0
Dec	0	0	0-0	0	0	0-0	0	0	0-0

Table 1.3a. Long-tailed Duck design-based abundance estimates of birds on the sea surface.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Feb	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Mar	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Apr	0	0	0-0	0	5.74	0-34.45	0	5.74	0-34.42
May	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Aug	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Sep	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Oct	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Nov	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Dec	0	0	0-0	0	0.00	0-0	0	0.00	0-0

Table 1.3b. Long-tailed Duck design-based density estimates of birds on the sea surface.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0.00	0-0	0	0	0-0
Feb	0	0	0-0	0	0.00	0-0	0	0	0-0
Mar	0	0	0-0	0	0.00	0-0	0	0	0-0
Apr	0	0	0-0	0	0.01	0-0.04	0	0	0-0.03
May	0	0	0-0	0	0.00	0-0	0	0	0-0
Jun	0	0	0-0	0	0.00	0-0	0	0	0-0
Jul	0	0	0-0	0	0.00	0-0	0	0	0-0
Aug	0	0	0-0	0	0.00	0-0	0	0	0-0
Sep	0	0	0-0	0	0.00	0-0	0	0	0-0
Oct	0	0	0-0	0	0.00	0-0	0	0	0-0
Nov	0	0	0-0	0	0.00	0-0	0	0	0-0
Dec	0	0	0-0	0	0.00	0-0	0	0	0-0

Table 2.1a. Red-throated Diver design-based abundance estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	80.84	81.44	23.1-152.08	114.84	115.42	45.93-197.02	150.37	155.52	69.4-252.6
Feb	92.39	109.75	0-265.61	103.35	143.30	0-343.84	126.49	160.49	23-355.13
Mar	335.22	450.94	0-1052.25	406.96	555.90	0-1272.23	476.60	620.04	0-1412.55
Apr	57.82	69.36	0-173.45	91.87	103.35	22.97-218.19	114.90	126.26	34.47-252.41
May	0.00	34.73	0-115.78	0.00	40.23	0-137.94	0.00	40.19	0-137.78
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Aug	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Sep	0.00	0.00	0-0	0.00	11.47	0-57.36	0.00	11.46	0-57.32
Oct	0.00	0.00	0-0	0.00	5.73	0-34.38	0.00	5.72	0-34.34
Nov	0.00	11.58	0-57.89	23.01	23.06	0-57.76	22.90	23.09	0-58.18
Dec	69.38	75.37	0-173.45	75.07	86.43	0-207.1	81.37	97.81	0-229.64

Table 2.1b. Red-throated Diver design-based density estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.11	0.11	0.03-0.21	0.12	0.12	0.05-0.2	0.12	0.13	0.06-0.21
Feb	0.13	0.15	0-0.37	0.11	0.15	0-0.36	0.10	0.13	0.02-0.29
Mar	0.46	0.62	0-1.45	0.42	0.58	0-1.32	0.39	0.51	0-1.15
Apr	0.08	0.10	0-0.24	0.10	0.11	0.02-0.23	0.09	0.10	0.03-0.21
May	0.00	0.05	0-0.16	0.00	0.04	0-0.14	0.00	0.03	0-0.11
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Aug	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Sep	0.00	0.00	0-0	0.00	0.01	0-0.06	0.00	0.01	0-0.05
Oct	0.00	0.00	0-0	0.00	0.01	0-0.04	0.00	0.00	0-0.03
Nov	0.00	0.02	0-0.08	0.02	0.02	0-0.06	0.02	0.02	0-0.05
Dec	0.10	0.10	0-0.24	0.08	0.09	0-0.22	0.07	0.08	0-0.19

Table 2.2a. Red-throated Diver design-based abundance estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	11.70	0-46.79	0.00	11.59	0-57.95	0.00	17.35	0-69.4
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	11.56	17.33	0-57.67	22.92	22.93	0-68.77	22.96	22.98	0-68.89
Apr	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
May	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Aug	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Sep	0.00	0.00	0-0	0.00	11.47	0-57.36	0.00	11.46	0-45.86
Oct	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Nov	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Dec	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0

Table 2.2b. Red-throated Diver design-based density estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.02	0-0.06	0.00	0.01	0-0.06	0.00	0.01	0-0.06
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	0.02	0.02	0-0.08	0.02	0.02	0-0.07	0.02	0.02	0-0.06
Apr	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
May	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Aug	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Sep	0.00	0.00	0-0	0.00	0.01	0-0.06	0.00	0.01	0-0.04
Oct	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Nov	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Dec	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0

Table 2.3a. Red-throated Diver design-based abundance estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	69.29	69.74	23.1-128.68	103.35	103.83	45.93-173.84	137.78	138.16	46.27-241.12
Feb	92.39	109.75	11.58-265.61	108.98	143.30	11.2-332.38	137.47	160.49	23-366.59
Mar	294.79	410.48	0-971.31	372.55	504.32	0-1180.53	419.15	562.62	0-1308.92
Apr	57.74	69.36	0-173.45	91.87	103.35	22.97-218.19	114.90	126.26	34.47-252.41
May	0.00	34.73	0-115.78	5.75	40.23	0-137.94	5.74	40.19	0-137.78
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Aug	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Sep	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Oct	0.00	0.00	0-0	0.00	5.73	0-34.38	0.00	5.72	0-34.34
Nov	0.00	11.58	0-57.89	23.01	23.06	0-57.76	22.90	23.09	0-58.18
Dec	69.38	75.37	11.7-173.74	69.60	86.43	11.31-207.1	80.87	97.81	11.33-229.64

Table 2.3b. Red-throated Diver design-based density estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.10	0.10	0.03-0.18	0.11	0.11	0.05-0.18	0.11	0.11	0.04-0.2
Feb	0.13	0.15	0.02-0.37	0.11	0.15	0.01-0.35	0.11	0.13	0.02-0.3
Mar	0.41	0.57	0-1.34	0.39	0.52	0-1.23	0.34	0.46	0-1.07
Apr	0.08	0.10	0-0.24	0.10	0.11	0.02-0.23	0.09	0.10	0.03-0.21
May	0.00	0.05	0-0.16	0.01	0.04	0-0.14	0.00	0.03	0-0.11
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Aug	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Sep	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Oct	0.00	0.00	0-0	0.00	0.01	0-0.04	0.00	0.00	0-0.03
Nov	0.00	0.02	0-0.08	0.02	0.02	0-0.06	0.02	0.02	0-0.05
Dec	0.10	0.10	0.02-0.24	0.07	0.09	0.01-0.22	0.07	0.08	0.01-0.19

Table 3.1a. Great Northern Diver design-based abundance estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	5.85	0-35.1	0	5.79	0-34.77	0	5.78	0-34.7
Feb	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Mar	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Apr	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
May	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Aug	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Sep	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Oct	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Nov	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Dec	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0

Table 3.1b. Great Northern Diver design-based density estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.01	0-0.05	0	0.01	0-0.04	0	0	0-0.03
Feb	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Mar	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Apr	0	0.00	0-0	0	0.00	0-0	0	0	0-0
May	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Jul	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Aug	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Sep	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Oct	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Nov	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Dec	0	0.00	0-0	0	0.00	0-0	0	0	0-0

Table 3.2a. Great Northern Diver design-based abundance estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0	0-0	0	0	0-0
Feb	0	0	0-0	0	0	0-0	0	0	0-0
Mar	0	0	0-0	0	0	0-0	0	0	0-0
Apr	0	0	0-0	0	0	0-0	0	0	0-0
May	0	0	0-0	0	0	0-0	0	0	0-0
Jun	0	0	0-0	0	0	0-0	0	0	0-0
Jul	0	0	0-0	0	0	0-0	0	0	0-0
Aug	0	0	0-0	0	0	0-0	0	0	0-0
Sep	0	0	0-0	0	0	0-0	0	0	0-0
Oct	0	0	0-0	0	0	0-0	0	0	0-0
Nov	0	0	0-0	0	0	0-0	0	0	0-0
Dec	0	0	0-0	0	0	0-0	0	0	0-0

Table 3.2b. Great Northern Diver design-based density estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0	0-0	0	0	0-0
Feb	0	0	0-0	0	0	0-0	0	0	0-0
Mar	0	0	0-0	0	0	0-0	0	0	0-0
Apr	0	0	0-0	0	0	0-0	0	0	0-0
May	0	0	0-0	0	0	0-0	0	0	0-0
Jun	0	0	0-0	0	0	0-0	0	0	0-0
Jul	0	0	0-0	0	0	0-0	0	0	0-0
Aug	0	0	0-0	0	0	0-0	0	0	0-0
Sep	0	0	0-0	0	0	0-0	0	0	0-0
Oct	0	0	0-0	0	0	0-0	0	0	0-0
Nov	0	0	0-0	0	0	0-0	0	0	0-0
Dec	0	0	0-0	0	0	0-0	0	0	0-0

Table 3.3a. Great Northern Diver design-based abundance estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	5.85	0-35.1	0	5.79	0-34.77	0	5.78	0-34.7
Feb	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Mar	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Apr	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
May	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Aug	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Sep	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Oct	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Nov	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Dec	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0

Table 3.3b. Great Northern Diver design-based density estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.01	0-0.05	0	0.01	0-0.04	0	0	0-0.03
Feb	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Mar	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Apr	0	0.00	0-0	0	0.00	0-0	0	0	0-0
May	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Jul	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Aug	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Sep	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Oct	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Nov	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Dec	0	0.00	0-0	0	0.00	0-0	0	0	0-0

Table 4.1a. Fulmar design-based abundance estimates of birds in flight and on sea.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	700.18	814.84	46.79-1743.81	937.34	1085.88	92.72-2274.03	1235.44	1476.05	104.1-3088.6
Feb	5.77	46.19	0-150.13	57.42	68.80	0-160.46	114.99	131.87	23-274.94
Mar	34.69	40.44	0-104.07	45.93	57.33	0-149	46.03	63.18	0-160.74
Apr	80.84	92.48	11.55-219.7	103.35	120.58	22.97-264.12	183.57	195.13	57.45-355.67
May	46.31	52.10	0-138.94	57.31	68.93	0-183.91	80.37	91.84	11.47-206.67
Jun	69.29	75.06	11.55-173.23	80.38	91.87	11.48-206.7	103.41	109.21	23.02-218.32
Jul	236.58	276.65	57.82-575.94	281.06	321.04	68.9-641.84	315.61	367.19	80.37-734.28
Aug	301.03	306.43	196.32-427.29	344.51	350.25	206.7-516.76	413.19	424.55	218.32-653.47
Sep	879.94	972.56	289.45-1759.87	1017.48	1097.09	380.79-1904.44	1175.47	1238.42	539.24-2029.21
Oct	347.34	359.17	116.08-648.37	435.54	447.31	218.19-710.61	492.23	498.37	263.88-766.96
Nov	46.31	46.47	0-104.78	69.03	75.02	0-184.85	125.94	144.89	22.9-302.53
Dec	163.83	168.64	81.92-257.45	218.61	219.46	127.61-324.82	244.12	248.36	151.12-360.36

Table 4.1b. Fulmar design-based density estimates of birds in flight and on sea.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.97	1.12	0.06-2.4	0.97	1.13	0.1-2.36	1.01	1.21	0.09-2.53
Feb	0.01	0.06	0-0.21	0.06	0.07	0-0.17	0.09	0.11	0.02-0.22
Mar	0.05	0.06	0-0.14	0.05	0.06	0-0.15	0.04	0.05	0-0.13
Apr	0.11	0.13	0.02-0.3	0.11	0.13	0.02-0.27	0.15	0.16	0.05-0.29
May	0.06	0.07	0-0.19	0.06	0.07	0-0.19	0.07	0.08	0.01-0.17
Jun	0.10	0.10	0.02-0.24	0.08	0.10	0.01-0.21	0.08	0.09	0.02-0.18
Jul	0.33	0.38	0.08-0.79	0.29	0.33	0.07-0.67	0.26	0.30	0.07-0.6
Aug	0.42	0.42	0.27-0.59	0.36	0.36	0.21-0.54	0.34	0.35	0.18-0.53
Sep	1.21	1.34	0.4-2.43	1.06	1.14	0.4-1.98	0.96	1.01	0.44-1.66
Oct	0.48	0.50	0.16-0.89	0.45	0.47	0.23-0.74	0.40	0.41	0.22-0.63
Nov	0.06	0.06	0-0.14	0.07	0.08	0-0.19	0.10	0.12	0.02-0.25
Dec	0.23	0.23	0.11-0.35	0.23	0.23	0.13-0.34	0.20	0.20	0.12-0.29

Table 4.2a. Fulmar design-based abundance estimates of birds in flight.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	301.16	398.72	11.7-912.32	379.75	459.61	11.59-1022.03	523.15	614.53	23.13-1343.37
Feb	0.00	40.42	0-127.32	45.93	57.33	0-149	80.19	91.71	11.5-217.66
Mar	23.07	28.89	0-92.51	34.45	45.86	0-126.08	34.52	51.68	0-149.26
Apr	34.65	34.67	0-80.94	57.42	63.16	11.48-137.8	91.78	97.56	22.98-206.52
May	23.16	23.16	0-57.89	34.38	34.45	0-91.96	45.89	45.91	0-103.34
Jun	23.10	23.10	0-57.74	34.45	34.45	0-80.38	34.52	40.25	0-92.06
Jul	34.69	40.40	0-80.94	45.85	45.90	0-103.35	57.41	63.13	11.48-126.3
Aug	34.73	46.28	0-115.78	57.42	74.64	0-195.22	80.43	97.49	11.49-229.58
Sep	115.78	121.57	34.73-231.56	138.47	149.44	46.16-275.34	206.36	206.43	114.73-309.54
Oct	0.00	28.95	0-104.2	45.85	51.60	0-126.36	57.37	63.00	0-148.81
Nov	0.00	17.37	0-69.47	23.01	23.03	0-69.03	45.80	46.08	0-103.04
Dec	93.62	98.70	23.4-196.57	127.61	138.50	46.4-253.12	151.12	155.72	58.12-275.56

Table 4.2b. Fulmar design-based density estimates of birds in flight.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.42	0.55	0.02-1.26	0.39	0.48	0.01-1.06	0.43	0.50	0.02-1.1
Feb	0.00	0.06	0-0.18	0.05	0.06	0-0.15	0.07	0.07	0.01-0.18
Mar	0.03	0.04	0-0.13	0.04	0.05	0-0.13	0.03	0.04	0-0.12
Apr	0.05	0.05	0-0.11	0.06	0.07	0.01-0.14	0.08	0.08	0.02-0.17
May	0.03	0.03	0-0.08	0.04	0.04	0-0.1	0.04	0.04	0-0.08
Jun	0.03	0.03	0-0.08	0.04	0.04	0-0.08	0.03	0.03	0-0.08
Jul	0.05	0.06	0-0.11	0.05	0.05	0-0.11	0.05	0.05	0.01-0.1
Aug	0.05	0.06	0-0.16	0.06	0.08	0-0.2	0.07	0.08	0.01-0.19
Sep	0.16	0.17	0.05-0.32	0.14	0.16	0.05-0.29	0.17	0.17	0.09-0.25
Oct	0.00	0.04	0-0.14	0.05	0.05	0-0.13	0.05	0.05	0-0.12
Nov	0.00	0.02	0-0.1	0.02	0.02	0-0.07	0.04	0.04	0-0.08
Dec	0.13	0.14	0.03-0.27	0.13	0.14	0.05-0.26	0.12	0.13	0.05-0.23

Table 4.3a. Fulmar design-based abundance estimates of birds on the sea surface.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	312.78	416.12	23.4-935.42	483.21	626.28	46.36-1343.86	758.82	861.52	46.27-1848.57
Feb	0.00	5.77	0-34.65	11.46	11.47	0-34.45	34.50	40.16	0-91.65
Mar	11.53	11.55	0-34.69	11.46	11.47	0-34.45	11.48	11.49	0-34.52
Apr	34.69	57.81	0-161.89	34.45	57.42	0-160.77	91.78	97.56	22.98-206.52
May	0.00	28.95	0-104.2	0.00	34.48	0-114.95	34.42	45.92	0-137.78
Jun	34.65	51.97	0-161.68	34.45	57.42	0-160.77	57.45	68.96	0-172.36
Jul	184.57	236.25	23.13-529.87	212.19	275.14	34.45-607.46	223.79	304.06	22.96-665.44
Aug	254.72	260.15	150.52-370.76	275.60	275.60	172.25-390.44	321.73	327.06	195.34-470.04
Sep	816.26	850.99	219.98-1597.78	862.20	947.65	300.01-1697.93	946.10	1031.98	367.14-1788.45
Oct	312.61	330.23	116.08-578.9	389.69	395.71	206.7-618.92	424.50	435.37	229.46-675.38
Nov	0.00	29.10	0-104.78	11.55	51.99	0-161.74	63.53	98.81	0-279.26
Dec	69.38	69.94	11.56-152.13	80.54	80.97	23.01-162.41	81.37	92.64	22.96-197.62

Table 4.3b. Fulmar design-based density estimates of birds on the sea surface.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.43	0.57	0.03-1.29	0.50	0.65	0.05-1.4	0.62	0.70	0.04-1.51
Feb	0.00	0.01	0-0.05	0.01	0.01	0-0.04	0.03	0.03	0-0.07
Mar	0.02	0.02	0-0.05	0.01	0.01	0-0.04	0.01	0.01	0-0.03
Apr	0.05	0.08	0-0.22	0.04	0.06	0-0.17	0.08	0.08	0.02-0.17
May	0.00	0.04	0-0.14	0.00	0.04	0-0.12	0.03	0.04	0-0.11
Jun	0.05	0.07	0-0.22	0.04	0.06	0-0.17	0.05	0.06	0-0.14
Jul	0.25	0.33	0.03-0.73	0.22	0.29	0.04-0.63	0.18	0.25	0.02-0.54
Aug	0.35	0.36	0.21-0.51	0.29	0.29	0.18-0.41	0.26	0.27	0.16-0.38
Sep	1.13	1.17	0.3-2.2	0.90	0.99	0.31-1.77	0.77	0.84	0.3-1.46
Oct	0.43	0.46	0.16-0.8	0.41	0.41	0.21-0.64	0.35	0.36	0.19-0.55
Nov	0.00	0.04	0-0.14	0.01	0.05	0-0.17	0.05	0.08	0-0.23
Dec	0.10	0.10	0.02-0.21	0.08	0.08	0.02-0.17	0.07	0.08	0.02-0.16

Table 5.1a. Gannet design-based abundance estimates of birds in flight and on sea.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	46.79	75.14	0-207.87	57.42	80.44	0-218.19	46.27	80.42	0-218.15
Feb	23.16	28.90	0-69.29	45.93	51.63	11.46-103.35	46.00	51.66	11.46-103.49
Mar	23.13	28.85	0-81.02	22.97	34.44	0-103.35	46.03	57.50	11.48-138.09
Apr	0.00	11.55	0-46.19	0.00	22.97	0-91.87	22.95	28.72	0-91.92
May	46.31	46.31	11.58-92.62	45.85	45.91	11.46-91.96	45.89	45.91	11.47-91.85
Jun	46.19	51.97	11.55-103.94	80.38	86.13	11.48-183.74	80.56	97.70	11.51-218.32
Jul	0.00	17.28	0-69.11	34.45	45.87	0-126.08	57.41	68.85	11.19-160.62
Aug	952.74	1172.16	0-2621.49	981.84	1228.74	0-2733.08	924.98	1246.72	0-2769.2
Sep	196.83	202.62	115.78-312.61	229.45	230.15	137.67-346.17	286.83	292.47	149.04-447.45
Oct	179.70	208.85	23.16-452.71	246.66	275.49	57.31-551.21	263.28	298.15	80.13-573.66
Nov	1180.97	1201.00	803.28-1644.09	1714.34	1723.31	1363.25-2117.33	2118.13	2134.06	1733.72-2541.75
Dec	393.15	395.44	269.15-531.91	522.03	526.07	322.16-765.64	732.35	752.46	390.38-1174.08

Table 5.1b. Gannet design-based density estimates of birds in flight and on sea.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.06	0.10	0-0.29	0.06	0.08	0-0.23	0.04	0.07	0-0.18
Feb	0.03	0.04	0-0.1	0.05	0.05	0.01-0.11	0.04	0.04	0.01-0.08
Mar	0.03	0.04	0-0.11	0.02	0.04	0-0.11	0.04	0.05	0.01-0.11
Apr	0.00	0.02	0-0.06	0.00	0.02	0-0.1	0.02	0.02	0-0.08
May	0.06	0.06	0.02-0.13	0.05	0.05	0.01-0.1	0.04	0.04	0.01-0.08
Jun	0.06	0.07	0.02-0.14	0.08	0.09	0.01-0.19	0.07	0.08	0.01-0.18
Jul	0.00	0.02	0-0.1	0.04	0.05	0-0.13	0.05	0.06	0.01-0.13
Aug	1.31	1.62	0-3.61	1.02	1.28	0-2.84	0.76	1.02	0-2.26
Sep	0.27	0.28	0.16-0.43	0.24	0.24	0.14-0.36	0.23	0.24	0.12-0.37
Oct	0.25	0.29	0.03-0.62	0.26	0.29	0.06-0.57	0.22	0.24	0.07-0.47
Nov	1.63	1.66	1.11-2.27	1.78	1.79	1.42-2.2	1.73	1.74	1.42-2.08
Dec	0.54	0.55	0.37-0.73	0.54	0.55	0.34-0.8	0.60	0.62	0.32-0.96

Table 5.2a. Gannet design-based abundance estimates of birds in flight.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	11.55	0-57.74	0.00	11.48	0-57.42	0.00	11.48	0-57.41
Feb	23.16	28.90	0-69.29	45.93	51.63	11.46-103.35	46.00	51.66	11.46-103.49
Mar	23.13	28.85	0-80.74	22.97	34.44	0-103.35	45.93	51.76	0-138.09
Apr	0.00	11.55	0-46.19	0.00	17.23	0-68.9	22.95	22.97	0-68.94
May	46.31	46.31	11.58-92.62	45.85	45.91	11.46-91.96	45.89	45.91	11.47-91.85
Jun	0.00	17.32	0-69.29	34.45	34.45	0-80.38	45.96	45.99	0-103.41
Jul	0.00	11.52	0-46.08	22.92	22.93	0-68.77	22.96	28.69	0-68.84
Aug	334.90	479.26	0-1143.29	373.21	533.98	0-1240.22	350.46	540.05	0-1275.44
Sep	81.05	92.62	23.16-196.83	114.73	114.99	46.16-206.51	160.62	166.30	80.31-252.41
Oct	104.34	127.63	11.58-301.81	149.29	166.45	22.92-355.99	160.62	189.20	45.79-378.61
Nov	671.53	701.87	384.18-1065.18	962.69	979.59	635.41-1369.17	1144.93	1151.83	698.14-1671.6
Dec	222.34	226.66	128.72-346.9	290.02	294.72	174.01-429.22	447.79	457.10	241.12-720.72

Table 5.2b. Gannet design-based density estimates of birds in flight.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.02	0-0.08	0.00	0.01	0-0.06	0.00	0.01	0-0.05
Feb	0.03	0.04	0-0.1	0.05	0.05	0.01-0.11	0.04	0.04	0.01-0.08
Mar	0.03	0.04	0-0.11	0.02	0.04	0-0.11	0.04	0.04	0-0.11
Apr	0.00	0.02	0-0.06	0.00	0.02	0-0.07	0.02	0.02	0-0.06
May	0.06	0.06	0.02-0.13	0.05	0.05	0.01-0.1	0.04	0.04	0.01-0.08
Jun	0.00	0.02	0-0.1	0.04	0.04	0-0.08	0.04	0.04	0-0.08
Jul	0.00	0.02	0-0.06	0.02	0.02	0-0.07	0.02	0.02	0-0.06
Aug	0.46	0.66	0-1.58	0.39	0.56	0-1.29	0.29	0.44	0-1.04
Sep	0.11	0.13	0.03-0.27	0.12	0.12	0.05-0.21	0.13	0.14	0.07-0.21
Oct	0.14	0.18	0.02-0.42	0.16	0.17	0.02-0.37	0.13	0.15	0.04-0.31
Nov	0.93	0.97	0.53-1.47	1.00	1.02	0.66-1.42	0.94	0.94	0.57-1.37
Dec	0.31	0.31	0.18-0.48	0.30	0.31	0.18-0.45	0.37	0.37	0.2-0.59

Table 5.3a. Gannet design-based abundance estimates of birds on the sea surface.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	46.19	63.59	0-184.77	46.36	68.95	0-195.22	45.93	68.93	0-183.71
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	0.00	0.00	0-0	0.00	0.00	0-0	0.00	5.74	0-34.45
Apr	0.00	0.00	0-0	0.00	5.74	0-34.45	0.00	5.75	0-34.47
May	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jun	23.10	34.65	0-103.94	34.45	51.68	0-149.29	34.52	51.72	0-149.38
Jul	0.00	5.76	0-34.56	22.92	22.93	0-68.77	34.42	40.16	0-115.02
Aug	508.13	692.90	0-1593.68	470.82	694.75	0-1596.21	499.84	706.66	0-1608.66
Sep	104.20	109.99	23.16-219.98	114.73	115.16	34.42-219.24	114.73	126.17	34.39-252.41
Oct	57.97	81.23	0-208.94	91.87	109.05	11.46-241.15	91.78	108.94	11.45-252.41
Nov	497.86	499.13	349.25-671.53	739.39	743.72	552.27-958.9	965.76	976.51	664.06-1314.83
Dec	163.83	168.78	80.94-269.15	220.41	231.35	92.05-406.02	267.36	295.36	103.34-534.73

Table 5.3b. Gannet design-based density estimates of birds on the sea surface.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.06	0.09	0-0.25	0.05	0.07	0-0.2	0.04	0.06	0-0.15
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0.03
Apr	0.00	0.00	0-0	0.00	0.01	0-0.04	0.00	0.00	0-0.03
May	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jun	0.03	0.05	0-0.14	0.04	0.05	0-0.16	0.03	0.04	0-0.12
Jul	0.00	0.01	0-0.05	0.02	0.02	0-0.07	0.03	0.03	0-0.09
Aug	0.70	0.96	0-2.2	0.49	0.72	0-1.66	0.41	0.58	0-1.32
Sep	0.14	0.15	0.03-0.3	0.12	0.12	0.04-0.23	0.09	0.10	0.03-0.21
Oct	0.08	0.11	0-0.29	0.10	0.11	0.01-0.25	0.08	0.09	0.01-0.21
Nov	0.69	0.69	0.48-0.93	0.77	0.77	0.57-1	0.79	0.80	0.54-1.08
Dec	0.23	0.23	0.11-0.37	0.23	0.24	0.1-0.42	0.22	0.24	0.08-0.44

Table 6.1a. Cormorant design-based abundance estimates of birds in flight and on sea.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Feb	0	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	0	0.00	0-0	0.00	5.73	0-34.38	0.00	5.74	0-34.45
Apr	0	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
May	0	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jun	0	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	0	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Aug	0	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Sep	0	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Oct	0	34.73	0-127.36	5.73	34.38	0-114.61	34.34	40.08	0-114.47
Nov	0	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Dec	0	5.85	0-35.11	0.00	11.60	0-46.4	0.00	11.62	0-58.12

Table 6.1b. Cormorant design-based density estimates of birds in flight and on sea.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Feb	0	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	0	0.00	0-0	0.00	0.01	0-0.04	0.00	0.00	0-0.03
Apr	0	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
May	0	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jun	0	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	0	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Aug	0	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Sep	0	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Oct	0	0.05	0-0.18	0.01	0.04	0-0.12	0.03	0.03	0-0.09
Nov	0	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Dec	0	0.01	0-0.05	0.00	0.01	0-0.05	0.00	0.01	0-0.05

Table 6.2a. Cormorant design-based abundance estimates of birds in flight.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Feb	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Mar	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Apr	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
May	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Aug	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Sep	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Oct	0	11.58	0-46.31	0	11.46	0-57.31	0	11.45	0-57.24
Nov	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Dec	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0

Table 6.2b. Cormorant design-based density estimates of birds in flight.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Feb	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Mar	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Apr	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
May	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Aug	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Sep	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Oct	0	0.02	0-0.06	0	0.01	0-0.06	0	0.01	0-0.05
Nov	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Dec	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0

Table 6.3a. Cormorant design-based abundance estimates of birds on the sea surface.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Feb	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Mar	0	0.00	0-0	0	5.73	0-34.38	0.00	5.74	0-34.45
Apr	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
May	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Jul	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Aug	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Sep	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Oct	0	23.16	0-92.62	0	22.92	0-91.69	22.95	28.63	0-91.58
Nov	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Dec	0	5.85	0-35.11	0	11.60	0-46.69	0.00	11.62	0-46.5

Table 6.3b. Cormorant design-based density estimates of birds on the sea surface.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Feb	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Mar	0	0.00	0-0	0	0.01	0-0.04	0.00	0.00	0-0.03
Apr	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
May	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Jul	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Aug	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Sep	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Oct	0	0.03	0-0.13	0	0.02	0-0.1	0.02	0.02	0-0.07
Nov	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Dec	0	0.01	0-0.05	0	0.01	0-0.05	0.00	0.01	0-0.04

Table 7.1a. Shag design-based abundance estimates of birds in flight and on sea.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Feb	0.00	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Mar	0.00	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Apr	0.00	0.00	0-0	0	0.00	0-0	0	0.00	0-0
May	0.00	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0.00	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0.00	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Aug	0.00	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Sep	5.79	34.73	0-115.78	0	34.42	0-114.73	0	34.39	0-114.64
Oct	0.00	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Nov	0.00	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Dec	0.00	0.00	0-0	0	0.00	0-0	0	0.00	0-0

Table 7.1b. Shag design-based density estimates of birds in flight and on sea.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Feb	0.00	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Mar	0.00	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Apr	0.00	0.00	0-0	0	0.00	0-0	0	0.00	0-0
May	0.00	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0.00	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0.00	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Aug	0.00	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Sep	0.01	0.05	0-0.16	0	0.04	0-0.12	0	0.03	0-0.09
Oct	0.00	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Nov	0.00	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Dec	0.00	0.00	0-0	0	0.00	0-0	0	0.00	0-0

Table 7.2a. Shag design-based abundance estimates of birds in flight.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Feb	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Mar	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Apr	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
May	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Aug	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Sep	0	34.73	0-115.78	0	34.42	0-114.73	0	34.39	0-114.64
Oct	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Nov	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Dec	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0

Table 7.2b. Shag design-based density estimates of birds in flight.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Feb	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Mar	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Apr	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
May	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Aug	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Sep	0	0.05	0-0.16	0	0.04	0-0.12	0	0.03	0-0.09
Oct	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Nov	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Dec	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0

Table 7.3a. Shag design-based abundance estimates of birds on the sea surface.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0	0-0	0	0	0-0
Feb	0	0	0-0	0	0	0-0	0	0	0-0
Mar	0	0	0-0	0	0	0-0	0	0	0-0
Apr	0	0	0-0	0	0	0-0	0	0	0-0
May	0	0	0-0	0	0	0-0	0	0	0-0
Jun	0	0	0-0	0	0	0-0	0	0	0-0
Jul	0	0	0-0	0	0	0-0	0	0	0-0
Aug	0	0	0-0	0	0	0-0	0	0	0-0
Sep	0	0	0-0	0	0	0-0	0	0	0-0
Oct	0	0	0-0	0	0	0-0	0	0	0-0
Nov	0	0	0-0	0	0	0-0	0	0	0-0
Dec	0	0	0-0	0	0	0-0	0	0	0-0

Table 7.3b. Shag design-based density estimates of birds on the sea surface.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0	0-0	0	0	0-0
Feb	0	0	0-0	0	0	0-0	0	0	0-0
Mar	0	0	0-0	0	0	0-0	0	0	0-0
Apr	0	0	0-0	0	0	0-0	0	0	0-0
May	0	0	0-0	0	0	0-0	0	0	0-0
Jun	0	0	0-0	0	0	0-0	0	0	0-0
Jul	0	0	0-0	0	0	0-0	0	0	0-0
Aug	0	0	0-0	0	0	0-0	0	0	0-0
Sep	0	0	0-0	0	0	0-0	0	0	0-0
Oct	0	0	0-0	0	0	0-0	0	0	0-0
Nov	0	0	0-0	0	0	0-0	0	0	0-0
Dec	0	0	0-0	0	0	0-0	0	0	0-0

Table 8.1a. Arctic Skua design-based abundance estimates of birds in flight and on sea.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Feb	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Mar	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Apr	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
May	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Jul	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Aug	0	17.37	0-69.47	0	17.23	0-68.9	0.00	22.93	0-91.72
Sep	0	5.79	0-34.73	0	11.54	0-57.7	22.93	28.68	0-91.78
Oct	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Nov	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Dec	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0

Table 8.1b. Arctic Skua design-based density estimates of birds in flight and on sea.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Feb	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Mar	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Apr	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
May	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Jul	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Aug	0	0.02	0-0.1	0	0.02	0-0.07	0.00	0.02	0-0.07
Sep	0	0.01	0-0.05	0	0.01	0-0.06	0.02	0.02	0-0.08
Oct	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Nov	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Dec	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0

Table 8.2a. Arctic Skua design-based abundance estimates of birds in flight.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Feb	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Mar	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Apr	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
May	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Jul	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Aug	0	17.37	0-69.47	0	17.23	0-68.9	0.00	22.93	0-91.72
Sep	0	5.79	0-34.73	0	11.54	0-57.7	22.93	28.68	0-80.31
Oct	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Nov	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Dec	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0

Table 8.2b. Arctic Skua design-based density estimates of birds in flight.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Feb	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Mar	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Apr	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
May	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Jul	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Aug	0	0.02	0-0.1	0	0.02	0-0.07	0.00	0.02	0-0.07
Sep	0	0.01	0-0.05	0	0.01	0-0.06	0.02	0.02	0-0.07
Oct	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Nov	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0
Dec	0	0.00	0-0	0	0.00	0-0	0.00	0.00	0-0

Table 8.3a. Arctic Skua design-based abundance estimates of birds on the sea surface.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0	0-0	0	0	0-0
Feb	0	0	0-0	0	0	0-0	0	0	0-0
Mar	0	0	0-0	0	0	0-0	0	0	0-0
Apr	0	0	0-0	0	0	0-0	0	0	0-0
May	0	0	0-0	0	0	0-0	0	0	0-0
Jun	0	0	0-0	0	0	0-0	0	0	0-0
Jul	0	0	0-0	0	0	0-0	0	0	0-0
Aug	0	0	0-0	0	0	0-0	0	0	0-0
Sep	0	0	0-0	0	0	0-0	0	0	0-0
Oct	0	0	0-0	0	0	0-0	0	0	0-0
Nov	0	0	0-0	0	0	0-0	0	0	0-0
Dec	0	0	0-0	0	0	0-0	0	0	0-0

Table 8.3b. Arctic Skua design-based density estimates of birds on the sea surface.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0	0-0	0	0	0-0
Feb	0	0	0-0	0	0	0-0	0	0	0-0
Mar	0	0	0-0	0	0	0-0	0	0	0-0
Apr	0	0	0-0	0	0	0-0	0	0	0-0
May	0	0	0-0	0	0	0-0	0	0	0-0
Jun	0	0	0-0	0	0	0-0	0	0	0-0
Jul	0	0	0-0	0	0	0-0	0	0	0-0
Aug	0	0	0-0	0	0	0-0	0	0	0-0
Sep	0	0	0-0	0	0	0-0	0	0	0-0
Oct	0	0	0-0	0	0	0-0	0	0	0-0
Nov	0	0	0-0	0	0	0-0	0	0	0-0
Dec	0	0	0-0	0	0	0-0	0	0	0-0

Table 9.1a. Great Skua design-based abundance estimates of birds in flight and on sea.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Apr	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
May	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Aug	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Sep	57.89	57.89	11.58-127.36	69.23	74.74	22.95-149.14	80.31	86.01	22.95-149.15
Oct	0.00	5.80	0-34.82	0.00	5.74	0-34.45	0.00	5.74	0-34.42
Nov	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Dec	0.00	5.85	0-35.11	0.00	5.80	0-34.8	0.00	11.62	0-58.12

Table 9.1b. Great Skua design-based density estimates of birds in flight and on sea.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Apr	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
May	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Aug	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Sep	0.08	0.08	0.02-0.18	0.07	0.08	0.02-0.16	0.07	0.07	0.02-0.12
Oct	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.00	0.00	0-0.03
Nov	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Dec	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.00	0.01	0-0.05

Table 9.2a. Great Skua design-based abundance estimates of birds in flight.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Apr	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
May	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Aug	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Sep	34.73	40.52	0-92.62	57.36	57.53	11.54-115.39	68.79	68.82	22.93-137.68
Oct	0.00	5.80	0-34.82	0.00	5.74	0-34.45	0.00	5.74	0-34.42
Nov	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Dec	0.00	5.85	0-35.11	0.00	5.80	0-34.8	0.00	11.62	0-58.12

Table 9.2b. Great Skua design-based density estimates of birds in flight.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Apr	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
May	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Aug	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Sep	0.05	0.06	0-0.13	0.06	0.06	0.01-0.12	0.06	0.06	0.02-0.11
Oct	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.00	0.00	0-0.03
Nov	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Dec	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.00	0.01	0-0.05

Table 9.3a. Great Skua design-based abundance estimates of birds on the sea surface.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0	0.00	0-0	0	0.0	0-0
Feb	0	0.00	0-0	0	0.00	0-0	0	0.0	0-0
Mar	0	0.00	0-0	0	0.00	0-0	0	0.0	0-0
Apr	0	0.00	0-0	0	0.00	0-0	0	0.0	0-0
May	0	0.00	0-0	0	0.00	0-0	0	0.0	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0	0.0	0-0
Jul	0	0.00	0-0	0	0.00	0-0	0	0.0	0-0
Aug	0	0.00	0-0	0	0.00	0-0	0	0.0	0-0
Sep	0	17.37	0-69.47	0	17.21	0-68.84	0	17.2	0-68.79
Oct	0	0.00	0-0	0	0.00	0-0	0	0.0	0-0
Nov	0	0.00	0-0	0	0.00	0-0	0	0.0	0-0
Dec	0	0.00	0-0	0	0.00	0-0	0	0.0	0-0

Table 9.3b. Great Skua design-based density estimates of birds on the sea surface.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Feb	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Mar	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Apr	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
May	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Aug	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Sep	0	0.02	0-0.1	0	0.02	0-0.07	0	0.01	0-0.06
Oct	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Nov	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Dec	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0

Table 10.1a. Puffin design-based abundance estimates of birds in flight and on sea.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Feb	0	0.00	0-0	0	5.74	0-34.45	0	23.00	0-91.99
Mar	0	23.13	0-80.94	0	22.92	0-91.69	0	22.96	0-80.37
Apr	0	0.00	0-0	0	0.00	0-0	0	5.74	0-34.42
May	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Aug	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Sep	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Oct	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Nov	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Dec	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0

Table 10.1b. Puffin design-based density estimates of birds in flight and on sea.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Feb	0	0.00	0-0	0	0.01	0-0.04	0	0.02	0-0.08
Mar	0	0.03	0-0.11	0	0.02	0-0.1	0	0.02	0-0.07
Apr	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0.03
May	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Aug	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Sep	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Oct	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Nov	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Dec	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0

Table 10.2a. Puffin design-based abundance estimates of birds in flight.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0	0-0	0	0	0-0
Feb	0	0	0-0	0	0	0-0	0	0	0-0
Mar	0	0	0-0	0	0	0-0	0	0	0-0
Apr	0	0	0-0	0	0	0-0	0	0	0-0
May	0	0	0-0	0	0	0-0	0	0	0-0
Jun	0	0	0-0	0	0	0-0	0	0	0-0
Jul	0	0	0-0	0	0	0-0	0	0	0-0
Aug	0	0	0-0	0	0	0-0	0	0	0-0
Sep	0	0	0-0	0	0	0-0	0	0	0-0
Oct	0	0	0-0	0	0	0-0	0	0	0-0
Nov	0	0	0-0	0	0	0-0	0	0	0-0
Dec	0	0	0-0	0	0	0-0	0	0	0-0

Table 10.2b. Puffin design-based density estimates of birds in flight.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0	0-0	0	0	0-0
Feb	0	0	0-0	0	0	0-0	0	0	0-0
Mar	0	0	0-0	0	0	0-0	0	0	0-0
Apr	0	0	0-0	0	0	0-0	0	0	0-0
May	0	0	0-0	0	0	0-0	0	0	0-0
Jun	0	0	0-0	0	0	0-0	0	0	0-0
Jul	0	0	0-0	0	0	0-0	0	0	0-0
Aug	0	0	0-0	0	0	0-0	0	0	0-0
Sep	0	0	0-0	0	0	0-0	0	0	0-0
Oct	0	0	0-0	0	0	0-0	0	0	0-0
Nov	0	0	0-0	0	0	0-0	0	0	0-0
Dec	0	0	0-0	0	0	0-0	0	0	0-0

Table 10.3a. Puffin design-based abundance estimates of birds on the sea surface.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Feb	0	0.00	0-0	0	5.74	0-34.45	0	23.00	0-91.99
Mar	0	23.13	0-80.94	0	22.92	0-80.23	0	22.96	0-91.85
Apr	0	0.00	0-0	0	0.00	0-0	0	5.74	0-34.42
May	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Aug	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Sep	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Oct	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Nov	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Dec	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0

Table 10.3b. Puffin design-based density estimates of birds on the sea surface.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Feb	0	0.00	0-0	0	0.01	0-0.04	0	0.02	0-0.08
Mar	0	0.03	0-0.11	0	0.02	0-0.08	0	0.02	0-0.08
Apr	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0.03
May	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Aug	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Sep	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Oct	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Nov	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Dec	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0

Table 11.1a. Razorbill design-based abundance estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions and accounting for availability bias.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	126.85	132.99	56.38-225.51	167.56	173.58	69.82-304.38	235.17	235.84	111.49-401.17
Feb	250.45	290.41	55.65-585.88	317.61	344.53	110.47-636.44	360.21	393.26	124.22-720.43
Mar	264.70	270.07	139.32-430.77	345.23	344.43	193.33-525.75	415.00	416.61	235.17-665.52
Apr	243.72	374.94	13.91-864.11	408.15	503.82	41.51-1079.52	574.05	664.76	193.82-1230.25
May	181.70	337.10	0-847.96	431.26	559.58	0-1308.83	715.45	869.60	0-1976.17
Jun	55.65	62.61	13.91-125.22	83.01	89.93	27.67-179.86	110.75	124.73	27.69-263.43
Jul	459.74	472.94	222.56-777.18	574.89	629.59	262.88-1049.49	927.04	1024.72	359.67-1799.45
Aug	237.14	250.88	83.48-460.33	249.04	262.88	110.68-442.74	263.03	276.47	110.75-469.63
Sep	111.60	118.57	41.85-209.24	152.93	166.51	55.29-319.76	207.19	228.03	55.25-442.34
Oct	69.75	69.82	13.99-139.5	96.85	103.67	41.43-180.2	110.33	110.46	41.38-193.52
Nov	278.99	285.88	97.65-532.99	346.56	379.99	124.76-695.96	654.51	715.82	206.92-1331.8
Dec	610.04	687.73	222.91-1283.01	1016.18	1065.17	526.77-1677.2	1549.35	1557.80	1134.34-2003.14

Table 11.1b. Razorbill design-based density estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions and accounting for availability bias.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.17	0.18	0.08-0.31	0.17	0.18	0.07-0.32	0.19	0.19	0.09-0.33
Feb	0.35	0.40	0.08-0.81	0.33	0.36	0.11-0.66	0.29	0.32	0.1-0.59
Mar	0.36	0.37	0.19-0.59	0.36	0.36	0.2-0.55	0.34	0.34	0.19-0.54
Apr	0.34	0.52	0.02-1.19	0.42	0.52	0.04-1.12	0.47	0.54	0.16-1.01
May	0.25	0.46	0-1.17	0.45	0.58	0-1.36	0.58	0.71	0-1.62
Jun	0.08	0.09	0.02-0.17	0.09	0.09	0.03-0.19	0.09	0.10	0.02-0.22
Jul	0.63	0.65	0.31-1.07	0.60	0.65	0.27-1.09	0.76	0.84	0.29-1.47
Aug	0.33	0.35	0.12-0.63	0.26	0.27	0.12-0.46	0.22	0.23	0.09-0.38
Sep	0.15	0.16	0.06-0.29	0.16	0.17	0.06-0.33	0.17	0.19	0.05-0.36
Oct	0.10	0.10	0.02-0.19	0.10	0.11	0.04-0.19	0.09	0.09	0.03-0.16
Nov	0.38	0.39	0.13-0.73	0.36	0.40	0.13-0.72	0.54	0.59	0.17-1.09
Dec	0.84	0.95	0.31-1.77	1.06	1.11	0.55-1.74	1.27	1.27	0.93-1.64

Table 11.2a. Razorbill design-based abundance estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Feb	0	5.77	0-34.65	0	5.73	0-34.38	0	5.73	0-34.37
Mar	0	5.77	0-34.6	0	5.74	0-34.45	0	23.02	0-80.56
Apr	0	5.77	0-34.65	0	5.74	0-34.45	0	28.73	0-103.41
May	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Aug	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Sep	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Oct	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Nov	0	5.82	0-34.93	0	5.78	0-34.66	0	17.45	0-69.81
Dec	0	5.85	0-35.11	0	5.80	0-34.8	0	11.62	0-46.5

Table 11.2b. Razorbill design-based density estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Feb	0	0.01	0-0.05	0	0.01	0-0.04	0	0.00	0-0.03
Mar	0	0.01	0-0.05	0	0.01	0-0.04	0	0.02	0-0.07
Apr	0	0.01	0-0.05	0	0.01	0-0.04	0	0.02	0-0.08
May	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Aug	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Sep	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Oct	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Nov	0	0.01	0-0.05	0	0.01	0-0.04	0	0.01	0-0.06
Dec	0	0.01	0-0.05	0	0.01	0-0.04	0	0.01	0-0.04

Table 11.3a. Razorbill design-based abundance estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions and accounting for availability bias.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	126.85	132.99	56.38-222.69	167.56	173.58	69.82-304.38	235.17	235.84	111.49-401.17
Feb	250.77	278.85	55.65-599.83	303.80	338.80	96.66-636.44	359.54	387.53	124.22-720.43
Mar	264.02	264.31	139.32-416.88	332.05	338.69	193.33-512.26	387.34	387.84	221.34-596.19
Apr	250.70	369.17	0-877.69	401.23	498.08	41.51-1079.18	560.17	636.04	152.28-1244.07
May	178.03	337.71	0-841.42	380.08	559.86	0-1304.63	679.34	865.35	0-1968.95
Jun	55.65	62.61	13.91-125.22	83.01	89.93	27.67-179.86	110.92	124.73	27.69-277.3
Jul	459.74	473.26	208.97-777.18	594.93	629.59	262.88-1064.2	963.46	1023.70	359.67-1817.19
Aug	237.14	250.88	97.4-460.33	262.88	262.88	110.68-442.74	263.03	276.47	110.75-483.44
Sep	111.60	118.57	41.85-209.24	152.93	166.51	55.29-319.76	207.35	228.03	69.06-442.34
Oct	69.75	69.82	13.99-139.5	96.85	103.67	41.43-179.86	110.33	110.46	41.38-193.52
Nov	265.04	280.06	83.7-504.94	347.98	368.43	124.76-682.04	570.62	698.36	206.92-1289.74
Dec	623.97	681.88	208.97-1254.81	1043.96	1059.37	540.63-1677.2	1535.51	1546.18	1120.51-1988.78

Table 11.3b. Razorbill design-based density estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions and accounting for availability bias.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.17	0.18	0.08-0.31	0.17	0.18	0.07-0.32	0.19	0.19	0.09-0.33
Feb	0.35	0.38	0.08-0.83	0.32	0.35	0.1-0.66	0.29	0.32	0.1-0.59
Mar	0.36	0.36	0.19-0.57	0.35	0.35	0.2-0.53	0.32	0.32	0.18-0.49
Apr	0.35	0.51	0-1.21	0.42	0.52	0.04-1.12	0.46	0.52	0.12-1.02
May	0.25	0.47	0-1.16	0.40	0.58	0-1.36	0.56	0.71	0-1.61
Jun	0.08	0.09	0.02-0.17	0.09	0.09	0.03-0.19	0.09	0.10	0.02-0.23
Jul	0.63	0.65	0.29-1.07	0.62	0.65	0.27-1.11	0.79	0.84	0.29-1.49
Aug	0.33	0.35	0.13-0.63	0.27	0.27	0.12-0.46	0.22	0.23	0.09-0.4
Sep	0.15	0.16	0.06-0.29	0.16	0.17	0.06-0.33	0.17	0.19	0.06-0.36
Oct	0.10	0.10	0.02-0.19	0.10	0.11	0.04-0.19	0.09	0.09	0.03-0.16
Nov	0.37	0.39	0.12-0.7	0.36	0.38	0.13-0.71	0.47	0.57	0.17-1.05
Dec	0.86	0.94	0.29-1.73	1.09	1.10	0.56-1.74	1.26	1.26	0.92-1.63

Table 12.1a. Guillemot design-based abundance estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions and accounting for availability bias.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	2204.70	2206.38	1109.25-3432.55	2748.20	2784.42	1631.87-4071.54	3428.23	3495.95	2205.71-4976.86
Feb	2887.10	2854.27	2483.2-3297.59	3845.63	3800.63	3287.64-4442.31	5134.66	5066.19	4039.68-6279.15
Mar	1306.54	1344.30	562.95-2246.02	1758.90	1784.42	814.37-2901.1	2360.08	2403.11	1042.42-3982.33
Apr	1748.68	1782.27	956.92-2966.88	2311.82	2257.42	1375-3520.61	2877.86	2791.44	1844.52-4151.45
May	837.50	1048.28	0-2391.08	1130.40	1408.20	0-3146.04	1311.82	1611.05	0-3550.86
Jun	227.93	250.72	45.59-531.83	294.64	347.53	75.55-725.28	317.73	385.65	75.71-786.19
Jul	6017.74	6292.34	1095.46-11864.91	7557.72	7767.45	1737.64-14249.48	9480.22	9925.31	2054.63-18277.49
Aug	2010.93	2035.55	1458.75-2666.01	2614.01	2636.68	1979.4-3339.67	3428.00	3476.50	2388.81-4646.12
Sep	1477.73	1652.93	304.69-3214.44	1766.40	2040.66	362.29-3962.74	2248.87	2392.47	573.22-4453.38
Oct	610.16	596.57	152.74-1158.19	656.48	786.58	181.32-1538.25	964.71	1071.95	271.73-2033.38
Nov	3273.54	3442.59	1005.47-6188.48	4768.31	5032.80	1650.15-8710.7	7266.70	7684.76	2576.1-13197.32
Dec	10351.52	10480.28	5538.18-15613.18	13620.86	13776.50	8159.93-19629.53	17147.08	17441.07	10484.68-24702.57

Table 12.1b. Guillemot design-based density estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions and accounting for availability bias.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	3.04	3.04	1.53-4.73	2.86	2.90	1.7-4.23	2.80	2.86	1.8-4.07
Feb	3.98	3.94	3.42-4.55	4.00	3.95	3.42-4.62	4.20	4.14	3.3-5.13
Mar	1.80	1.85	0.78-3.1	1.83	1.86	0.85-3.02	1.93	1.96	0.85-3.26
Apr	2.41	2.46	1.32-4.09	2.40	2.35	1.43-3.66	2.35	2.28	1.51-3.39
May	1.15	1.45	0-3.3	1.18	1.46	0-3.27	1.07	1.32	0-2.9
Jun	0.31	0.35	0.06-0.73	0.31	0.36	0.08-0.75	0.26	0.32	0.06-0.64
Jul	8.30	8.68	1.51-16.36	7.86	8.08	1.81-14.82	7.75	8.12	1.68-14.94
Aug	2.77	2.81	2.01-3.68	2.72	2.74	2.06-3.47	2.80	2.84	1.95-3.8
Sep	2.04	2.28	0.42-4.43	1.84	2.12	0.38-4.12	1.84	1.96	0.47-3.64
Oct	0.84	0.82	0.21-1.6	0.68	0.82	0.19-1.6	0.79	0.88	0.22-1.66
Nov	4.51	4.75	1.39-8.53	4.96	5.23	1.72-9.06	5.94	6.28	2.11-10.79
Dec	14.27	14.45	7.64-21.53	14.17	14.33	8.49-20.41	14.02	14.26	8.57-20.2

Table 12.2a. Guillemot design-based abundance estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	23.10	23.17	0-69.29	23.18	34.50	0-103.35	34.45	45.97	0-126.3
Feb	92.62	115.54	11.58-254.06	120.46	143.31	11.48-320.92	114.99	149.01	11.5-343.67
Mar	0.00	23.07	0-80.74	0.00	34.45	0-115.12	5.75	57.54	0-172.91
Apr	254.11	352.23	0-831.49	327.28	453.60	0-1056.48	384.89	505.57	0-1183.52
May	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Aug	0.00	5.77	0-34.65	0.00	5.74	0-34.45	0.00	5.75	0-34.47
Sep	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Oct	0.00	17.41	0-69.65	0.00	17.23	0-68.9	0.00	17.21	0-68.84
Nov	17.46	93.13	0-256.12	23.11	109.75	0-311.93	75.63	121.99	0-314.16
Dec	0.00	5.78	0-34.69	23.01	23.11	0-58	23.25	28.92	0-69.75

Table 12.2b. Guillemot design-based density estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.03	0.03	0-0.1	0.02	0.04	0-0.11	0.03	0.04	0-0.1
Feb	0.13	0.16	0.02-0.35	0.13	0.15	0.01-0.33	0.09	0.12	0.01-0.28
Mar	0.00	0.03	0-0.11	0.00	0.04	0-0.12	0.00	0.05	0-0.14
Apr	0.35	0.49	0-1.15	0.34	0.47	0-1.1	0.31	0.41	0-0.97
May	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Aug	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.00	0.00	0-0.03
Sep	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Oct	0.00	0.02	0-0.1	0.00	0.02	0-0.07	0.00	0.01	0-0.06
Nov	0.02	0.13	0-0.35	0.02	0.11	0-0.32	0.06	0.10	0-0.26
Dec	0.00	0.01	0-0.05	0.02	0.02	0-0.06	0.02	0.02	0-0.06

Table 12.3a. Guillemot design-based abundance estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions and accounting for availability bias.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	2120.53	2177.36	1063.67-3417.54	2657.89	2744.12	1571.05-4041.04	3421.01	3438.42	2069.74-4915.98
Feb	2742.18	2738.72	2355.27-3138.27	3641.49	3645.85	3000.72-4336.54	4945.96	4917.18	3723.14-6188.36
Mar	1245.86	1321.23	562.95-2185.32	1698.49	1744.22	814.37-2810.44	2291.96	2345.58	1027.32-3815.77
Apr	1254.89	1430.03	151.95-2936.45	1616.76	1798.08	317.31-3505.5	2197.51	2280.13	619.88-4166.55
May	820.65	1051.78	0-2379.87	1137.94	1402.73	0-3126.36	1285.23	1609.24	0-3564.34
Jun	205.14	250.72	45.59-516.64	309.75	347.53	60.44-710.17	332.86	385.65	75.71-786.19
Jul	5906.37	6292.02	1095.46-11849.71	7263.92	7745.47	1722.53-14235.39	9443.09	9924.28	2039.53-18233.55
Aug	1990.58	2024.00	1428.36-2681.24	2629.12	2636.68	1994.51-3354.4	3420.49	3465.02	2403.93-4631.03
Sep	1409.18	1652.93	289.45-3214.44	1804.53	2040.66	362.29-3962.74	2113.07	2392.47	558.14-4438.28
Oct	503.20	579.16	106.92-1173.04	656.43	769.36	151.1-1553.33	896.84	1054.74	226.44-2018.32
Nov	3166.39	3343.64	990.23-5882.12	4593.43	4928.83	1650.15-8451.9	7106.56	7562.87	2530.9-12891.12
Dec	10374.43	10480.28	5553.39-15582.38	13559.43	13747.60	8114.52-19568.47	17230.74	17406.41	10424.25-24595.5

Table 12.3b. Guillemot design-based density estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions and accounting for availability bias.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	2.92	3.00	1.47-4.71	2.76	2.85	1.63-4.2	2.80	2.81	1.69-4.02
Feb	3.78	3.78	3.25-4.33	3.79	3.79	3.12-4.51	4.04	4.02	3.04-5.06
Mar	1.72	1.82	0.78-3.01	1.77	1.81	0.85-2.92	1.87	1.92	0.84-3.12
Apr	1.73	1.97	0.21-4.05	1.68	1.87	0.33-3.65	1.80	1.86	0.51-3.41
May	1.13	1.45	0-3.28	1.18	1.46	0-3.25	1.05	1.32	0-2.91
Jun	0.28	0.35	0.06-0.71	0.32	0.36	0.06-0.74	0.27	0.32	0.06-0.64
Jul	8.14	8.68	1.51-16.34	7.55	8.06	1.79-14.8	7.72	8.11	1.67-14.91
Aug	2.74	2.79	1.97-3.7	2.73	2.74	2.07-3.49	2.80	2.83	1.97-3.79
Sep	1.94	2.28	0.4-4.43	1.88	2.12	0.38-4.12	1.73	1.96	0.46-3.63
Oct	0.69	0.80	0.15-1.62	0.68	0.80	0.16-1.62	0.73	0.86	0.19-1.65
Nov	4.37	4.61	1.37-8.11	4.78	5.13	1.72-8.79	5.81	6.18	2.07-10.54
Dec	14.30	14.45	7.66-21.49	14.10	14.30	8.44-20.35	14.09	14.23	8.52-20.11

Table 13.1a. Black Tern design-based abundance estimates of birds in flight and on sea.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Feb	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Mar	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Apr	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
May	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Aug	0	11.58	0-57.89	0	22.97	0-80.38	0	22.93	0-80.54
Sep	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Oct	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Nov	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Dec	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0

Table 13.1b. Black Tern design-based density estimates of birds in flight and on sea.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Feb	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Mar	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Apr	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
May	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Aug	0	0.02	0-0.08	0	0.02	0-0.08	0	0.02	0-0.07
Sep	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Oct	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Nov	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Dec	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0

Table 13.2a. Black Tern design-based abundance estimates of birds in flight.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Feb	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Mar	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Apr	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
May	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Aug	0	11.58	0-57.89	0	22.97	0-80.67	0	22.93	0-91.72
Sep	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Oct	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Nov	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Dec	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0

Table 13.2b. Black Tern design-based density estimates of birds in flight.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Feb	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Mar	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Apr	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
May	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Aug	0	0.02	0-0.08	0	0.02	0-0.08	0	0.02	0-0.07
Sep	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Oct	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Nov	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Dec	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0

Table 13.3a. Black Tern design-based abundance estimates of birds on the sea surface.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0	0-0	0	0	0-0
Feb	0	0	0-0	0	0	0-0	0	0	0-0
Mar	0	0	0-0	0	0	0-0	0	0	0-0
Apr	0	0	0-0	0	0	0-0	0	0	0-0
May	0	0	0-0	0	0	0-0	0	0	0-0
Jun	0	0	0-0	0	0	0-0	0	0	0-0
Jul	0	0	0-0	0	0	0-0	0	0	0-0
Aug	0	0	0-0	0	0	0-0	0	0	0-0
Sep	0	0	0-0	0	0	0-0	0	0	0-0
Oct	0	0	0-0	0	0	0-0	0	0	0-0
Nov	0	0	0-0	0	0	0-0	0	0	0-0
Dec	0	0	0-0	0	0	0-0	0	0	0-0

Table 13.3b. Black Tern design-based density estimates of birds on the sea surface.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0	0-0	0	0	0-0
Feb	0	0	0-0	0	0	0-0	0	0	0-0
Mar	0	0	0-0	0	0	0-0	0	0	0-0
Apr	0	0	0-0	0	0	0-0	0	0	0-0
May	0	0	0-0	0	0	0-0	0	0	0-0
Jun	0	0	0-0	0	0	0-0	0	0	0-0
Jul	0	0	0-0	0	0	0-0	0	0	0-0
Aug	0	0	0-0	0	0	0-0	0	0	0-0
Sep	0	0	0-0	0	0	0-0	0	0	0-0
Oct	0	0	0-0	0	0	0-0	0	0	0-0
Nov	0	0	0-0	0	0	0-0	0	0	0-0
Dec	0	0	0-0	0	0	0-0	0	0	0-0

Table 14.1a. Sandwich Tern design-based abundance estimates of birds in flight and on sea.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	11.53	11.55	0-34.69	11.48	17.20	0-45.93	11.51	17.24	0-57.41
Apr	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
May	0.00	5.79	0-34.73	0.00	5.73	0-34.38	11.47	11.48	0-34.45
Jun	0.00	5.77	0-34.65	0.00	11.48	0-57.42	0.00	11.49	0-46.25
Jul	0.00	11.52	0-46.08	0.00	17.19	0-68.77	0.00	17.21	0-68.84
Aug	0.00	0.00	0-0	0.00	5.74	0-34.45	0.00	5.73	0-34.39
Sep	0.00	5.79	0-34.73	0.00	5.74	0-34.42	0.00	5.73	0-34.39
Oct	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Nov	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Dec	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0

Table 14.1b. Sandwich Tern design-based density estimates of birds in flight and on sea.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	0.02	0.02	0-0.05	0.01	0.02	0-0.05	0.01	0.01	0-0.05
Apr	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
May	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.01	0.01	0-0.03
Jun	0.00	0.01	0-0.05	0.00	0.01	0-0.06	0.00	0.01	0-0.04
Jul	0.00	0.02	0-0.06	0.00	0.02	0-0.07	0.00	0.01	0-0.06
Aug	0.00	0.00	0-0	0.00	0.01	0-0.04	0.00	0.00	0-0.03
Sep	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.00	0.00	0-0.03
Oct	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Nov	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Dec	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0

Table 14.2a. Sandwich Tern design-based abundance estimates of birds in flight.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	11.53	11.55	0-34.69	11.48	17.20	0-57.31	11.51	17.24	0-57.41
Apr	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
May	0.00	5.79	0-34.73	0.00	5.73	0-34.38	11.47	11.48	0-34.45
Jun	0.00	5.77	0-34.65	0.00	11.48	0-57.42	0.00	11.49	0-57.45
Jul	0.00	11.52	0-46.08	0.00	17.19	0-68.77	0.00	17.21	0-68.84
Aug	0.00	0.00	0-0	0.00	5.74	0-34.45	0.00	5.73	0-34.39
Sep	0.00	5.79	0-34.73	0.00	5.74	0-34.42	0.00	5.73	0-34.39
Oct	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Nov	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Dec	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0

Table 14.2b. Sandwich Tern design-based density estimates of birds in flight.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	0.02	0.02	0-0.05	0.01	0.02	0-0.06	0.01	0.01	0-0.05
Apr	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
May	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.01	0.01	0-0.03
Jun	0.00	0.01	0-0.05	0.00	0.01	0-0.06	0.00	0.01	0-0.05
Jul	0.00	0.02	0-0.06	0.00	0.02	0-0.07	0.00	0.01	0-0.06
Aug	0.00	0.00	0-0	0.00	0.01	0-0.04	0.00	0.00	0-0.03
Sep	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.00	0.00	0-0.03
Oct	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Nov	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Dec	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0

Table 14.3a. Sandwich Tern design-based abundance estimates of birds on the sea surface.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0	0-0	0	0	0-0
Feb	0	0	0-0	0	0	0-0	0	0	0-0
Mar	0	0	0-0	0	0	0-0	0	0	0-0
Apr	0	0	0-0	0	0	0-0	0	0	0-0
May	0	0	0-0	0	0	0-0	0	0	0-0
Jun	0	0	0-0	0	0	0-0	0	0	0-0
Jul	0	0	0-0	0	0	0-0	0	0	0-0
Aug	0	0	0-0	0	0	0-0	0	0	0-0
Sep	0	0	0-0	0	0	0-0	0	0	0-0
Oct	0	0	0-0	0	0	0-0	0	0	0-0
Nov	0	0	0-0	0	0	0-0	0	0	0-0
Dec	0	0	0-0	0	0	0-0	0	0	0-0

Table 14.3b. Sandwich Tern design-based density estimates of birds on the sea surface.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0	0-0	0	0	0-0
Feb	0	0	0-0	0	0	0-0	0	0	0-0
Mar	0	0	0-0	0	0	0-0	0	0	0-0
Apr	0	0	0-0	0	0	0-0	0	0	0-0
May	0	0	0-0	0	0	0-0	0	0	0-0
Jun	0	0	0-0	0	0	0-0	0	0	0-0
Jul	0	0	0-0	0	0	0-0	0	0	0-0
Aug	0	0	0-0	0	0	0-0	0	0	0-0
Sep	0	0	0-0	0	0	0-0	0	0	0-0
Oct	0	0	0-0	0	0	0-0	0	0	0-0
Nov	0	0	0-0	0	0	0-0	0	0	0-0
Dec	0	0	0-0	0	0	0-0	0	0	0-0

Table 15.1a. Commic Tern design-based abundance estimates of birds in flight and on sea.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Apr	0.00	0.00	0-0	0.00	5.74	0-34.45	0.00	11.47	0-46.18
May	231.56	347.34	23.16-752.58	436.53	522.90	22.92-1160.95	459.20	539.62	22.95-1182.91
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	5.75	0-34.47
Jul	97.91	213.10	0-541.39	160.46	309.46	0-756.46	212.25	361.40	0-871.96
Aug	127.03	138.67	34.73-300.26	137.80	160.77	22.97-344.51	355.40	361.44	195.34-573.22
Sep	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Oct	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Nov	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Dec	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0

Table 15.1b. Commic Tern design-based density estimates of birds in flight and on sea.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Apr	0.00	0.00	0-0	0.00	0.01	0-0.04	0.00	0.01	0-0.04
May	0.32	0.48	0.03-1.04	0.45	0.54	0.02-1.21	0.38	0.44	0.02-0.97
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0.03
Jul	0.14	0.29	0-0.75	0.17	0.32	0-0.79	0.17	0.30	0-0.71
Aug	0.18	0.19	0.05-0.41	0.14	0.17	0.02-0.36	0.29	0.30	0.16-0.47
Sep	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Oct	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Nov	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Dec	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0

Table 15.2a. Commic Tern design-based abundance estimates of birds in flight.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Apr	0.00	0.00	0-0	0.00	5.74	0-34.45	0.00	11.47	0-45.89
May	306.82	347.34	23.16-764.15	390.58	522.90	22.92-1149.46	430.50	539.62	22.95-1194.1
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	5.75	0-34.47
Jul	103.67	213.10	0-541.39	149.00	298.00	0-733.54	189.31	309.77	0-757.22
Aug	127.03	138.67	23.16-288.71	137.80	155.03	34.45-321.54	344.71	355.70	172.36-561.76
Sep	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Oct	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Nov	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Dec	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0

Table 15.2b. Commic Tern design-based density estimates of birds in flight.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Apr	0.00	0.00	0-0	0.00	0.01	0-0.04	0.00	0.01	0-0.04
May	0.42	0.48	0.03-1.05	0.41	0.54	0.02-1.2	0.35	0.44	0.02-0.98
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0.03
Jul	0.14	0.29	0-0.75	0.15	0.31	0-0.76	0.15	0.25	0-0.62
Aug	0.18	0.19	0.03-0.4	0.14	0.16	0.04-0.33	0.28	0.29	0.14-0.46
Sep	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Oct	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Nov	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Dec	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0

Table 15.3a. Commic Tern design-based abundance estimates of birds on the sea surface.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0.00	0-0	0.00	0.00	0-0
Feb	0	0	0-0	0	0.00	0-0	0.00	0.00	0-0
Mar	0	0	0-0	0	0.00	0-0	0.00	0.00	0-0
Apr	0	0	0-0	0	0.00	0-0	0.00	0.00	0-0
May	0	0	0-0	0	0.00	0-0	0.00	0.00	0-0
Jun	0	0	0-0	0	0.00	0-0	0.00	0.00	0-0
Jul	0	0	0-0	0	0.00	0-0	5.74	40.16	0-137.68
Aug	0	0	0-0	0	5.74	0-34.45	0.00	5.75	0-34.47
Sep	0	0	0-0	0	0.00	0-0	0.00	0.00	0-0
Oct	0	0	0-0	0	0.00	0-0	0.00	0.00	0-0
Nov	0	0	0-0	0	0.00	0-0	0.00	0.00	0-0
Dec	0	0	0-0	0	0.00	0-0	0.00	0.00	0-0

Table 15.3b. Commic Tern design-based density estimates of birds on the sea surface.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Feb	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Mar	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Apr	0	0	0-0	0	0.00	0-0	0	0.00	0-0
May	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0	0	0-0	0	0.00	0-0	0	0.03	0-0.11
Aug	0	0	0-0	0	0.01	0-0.04	0	0.00	0-0.03
Sep	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Oct	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Nov	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Dec	0	0	0-0	0	0.00	0-0	0	0.00	0-0

Table 16.1a. Kittiwake design-based abundance estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	649.71	764.07	198.87-1454.99	846.79	949.05	278.15-1722.36	1068.91	1152.29	323.88-2112.65
Feb	254.06	260.27	115.48-439.97	401.15	418.92	160.46-723.46	688.69	717.98	263.48-1230.41
Mar	127.20	135.84	23.13-291.45	171.92	193.27	45.85-390.58	241.12	275.13	68.89-537.24
Apr	161.68	161.77	80.94-254.06	229.67	229.67	103.35-367.47	344.19	361.77	160.62-608.99
May	497.86	499.33	277.87-753.1	561.61	574.76	286.54-906.3	608.07	654.54	286.83-1091.41
Jun	127.03	161.68	11.55-392.65	132.06	160.77	0-378.96	172.36	195.40	34.52-413.66
Jul	328.76	372.10	78.55-739.8	412.60	457.99	98.6-908.48	764.37	877.70	110.41-1814.55
Aug	114.35	115.76	46.19-211.86	189.02	192.12	91.87-310.28	241.30	248.83	114.9-415.22
Sep	131.05	151.04	20.9-340.9	198.07	231.68	22.95-517.66	258.63	305.78	45.86-638.21
Oct	160.28	284.01	0-701.53	239.40	360.00	0-868.59	382.08	528.71	0-1237.03
Nov	647.70	677.34	333.25-1082.68	951.74	961.54	595.06-1374.8	1243.14	1278.45	742.6-1872.91
Dec	1807.28	1822.61	1132.34-2586.18	2554.10	2575.63	1655.61-3584.63	2976.74	3039.10	1756-4428.73

Table 16.1b. Kittiwake design-based density estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.90	1.05	0.27-2.01	0.88	0.99	0.29-1.79	0.87	0.94	0.26-1.73
Feb	0.35	0.36	0.16-0.61	0.42	0.44	0.17-0.75	0.56	0.59	0.22-1.01
Mar	0.18	0.19	0.03-0.4	0.18	0.20	0.05-0.41	0.20	0.22	0.06-0.44
Apr	0.22	0.22	0.11-0.35	0.24	0.24	0.11-0.38	0.28	0.30	0.13-0.5
May	0.69	0.69	0.38-1.04	0.58	0.60	0.3-0.94	0.50	0.54	0.23-0.89
Jun	0.18	0.22	0.02-0.54	0.14	0.17	0-0.39	0.14	0.16	0.03-0.34
Jul	0.45	0.51	0.11-1.02	0.43	0.48	0.1-0.94	0.62	0.72	0.09-1.48
Aug	0.16	0.16	0.06-0.29	0.20	0.20	0.1-0.32	0.20	0.20	0.09-0.34
Sep	0.18	0.21	0.03-0.47	0.21	0.24	0.02-0.54	0.21	0.25	0.04-0.52
Oct	0.22	0.39	0-0.97	0.25	0.37	0-0.9	0.31	0.43	0-1.01
Nov	0.89	0.93	0.46-1.49	0.99	1.00	0.62-1.43	1.02	1.05	0.61-1.53
Dec	2.49	2.51	1.56-3.57	2.66	2.68	1.72-3.73	2.43	2.48	1.44-3.62

Table 16.2a. Kittiwake design-based abundance estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	435.91	486.63	163.78-877.47	551.04	581.19	231.79-987.41	623.18	661.65	277.61-1102.25
Feb	161.68	161.93	69.29-277.87	206.70	218.03	91.69-367.47	320.76	321.50	171.84-505.96
Mar	57.82	70.79	0-182.39	95.74	116.73	11.46-268	133.84	146.17	34.45-292.53
Apr	115.48	115.56	57.45-196.32	149.29	155.03	80.38-252.64	195.04	189.45	103.41-287.26
May	150.52	150.52	69.47-243.14	160.46	156.74	68.77-260.39	183.57	187.66	80.31-329.49
Jun	57.74	80.84	0-207.87	57.42	80.38	0-206.7	103.41	109.20	23.02-241.3
Jul	115.63	132.06	23.13-286.89	157.97	175.86	34.45-365.52	298.38	356.62	45.93-774.09
Aug	69.29	69.49	23.1-132.62	126.32	128.96	57.42-208.23	149.38	152.31	68.94-247.26
Sep	46.31	56.99	0-148.71	86.12	106.65	11.47-256.55	126.11	143.25	22.93-311.57
Oct	67.65	148.70	0-390.03	85.96	174.14	0-462.9	85.85	172.57	0-460.54
Nov	442.38	453.20	219.69-745.07	612.31	628.67	356.68-947.34	802.86	821.29	469.42-1233.38
Dec	1029.79	1042.27	682.23-1439.37	1254.12	1263.05	897.15-1693.7	1453.07	1480.66	975.95-2034.3

Table 16.2b. Kittiwake design-based density estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.60	0.67	0.23-1.21	0.57	0.60	0.24-1.03	0.51	0.54	0.23-0.9
Feb	0.22	0.22	0.1-0.38	0.21	0.23	0.1-0.38	0.26	0.26	0.14-0.41
Mar	0.08	0.10	0-0.25	0.10	0.12	0.01-0.28	0.11	0.12	0.03-0.24
Apr	0.16	0.16	0.08-0.27	0.16	0.16	0.08-0.26	0.16	0.15	0.08-0.23
May	0.21	0.21	0.1-0.34	0.17	0.16	0.07-0.27	0.15	0.15	0.07-0.27
Jun	0.08	0.11	0-0.29	0.06	0.08	0-0.21	0.08	0.09	0.02-0.2
Jul	0.16	0.18	0.03-0.4	0.16	0.18	0.04-0.38	0.24	0.29	0.04-0.63
Aug	0.10	0.10	0.03-0.18	0.13	0.13	0.06-0.22	0.12	0.12	0.06-0.2
Sep	0.06	0.08	0-0.21	0.09	0.11	0.01-0.27	0.10	0.12	0.02-0.25
Oct	0.09	0.21	0-0.54	0.09	0.18	0-0.48	0.07	0.14	0-0.38
Nov	0.61	0.62	0.3-1.03	0.64	0.65	0.37-0.99	0.66	0.67	0.38-1.01
Dec	1.42	1.44	0.94-1.98	1.30	1.31	0.93-1.76	1.19	1.21	0.8-1.66

Table 16.3a. Kittiwake design-based abundance estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	208.62	271.61	0-646.71	293.41	367.68	11.59-838.3	379.37	493.89	11.57-1102.25
Feb	92.39	98.34	11.55-208.41	172.25	200.88	34.38-424.89	321.50	396.48	68.73-827.94
Mar	60.78	65.05	11.56-138.76	68.77	74.63	11.46-164.64	108.41	127.57	11.48-292.53
Apr	46.19	46.22	0-103.94	68.90	74.64	11.48-160.77	132.04	172.31	22.95-390.68
May	340.61	345.31	173.67-556.02	378.23	408.99	171.92-706.81	434.92	464.01	172.1-831.92
Jun	57.74	80.84	0-219.42	57.42	80.38	0-218.47	68.94	86.20	0-218.32
Jul	186.08	242.65	23.13-536.76	221.19	283.44	38.78-601.77	384.63	516.50	39.39-1125.15
Aug	46.19	46.27	0-104.2	57.42	63.16	11.48-137.8	91.72	97.51	22.98-206.36
Sep	83.60	97.14	9.33-233.82	104.77	126.58	0-301.91	120.66	160.80	8.96-378.48
Oct	62.77	134.40	0-361.43	90.40	183.43	0-477.97	218.33	351.07	0-846.06
Nov	209.55	219.58	78.59-407.46	328.01	332.88	177.5-520.17	433.51	453.01	204.52-733.05
Dec	750.41	780.77	358.46-1263.84	1236.49	1301.70	666.12-2029.38	1463.12	1563.71	676.04-2557.68

Table 16.3b. Kittiwake design-based density estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.29	0.37	0-0.89	0.31	0.38	0.01-0.87	0.31	0.40	0.01-0.9
Feb	0.13	0.14	0.02-0.29	0.18	0.21	0.04-0.44	0.26	0.32	0.06-0.68
Mar	0.08	0.09	0.02-0.19	0.07	0.08	0.01-0.17	0.09	0.10	0.01-0.24
Apr	0.06	0.06	0-0.14	0.07	0.08	0.01-0.17	0.11	0.14	0.02-0.32
May	0.47	0.48	0.24-0.77	0.39	0.43	0.18-0.74	0.36	0.38	0.14-0.68
Jun	0.08	0.11	0-0.3	0.06	0.08	0-0.23	0.06	0.07	0-0.18
Jul	0.26	0.33	0.03-0.74	0.23	0.29	0.04-0.63	0.31	0.42	0.03-0.92
Aug	0.06	0.06	0-0.14	0.06	0.07	0.01-0.14	0.07	0.08	0.02-0.17
Sep	0.12	0.13	0.01-0.32	0.11	0.13	0-0.31	0.10	0.13	0.01-0.31
Oct	0.09	0.19	0-0.5	0.09	0.19	0-0.5	0.18	0.29	0-0.69
Nov	0.29	0.30	0.11-0.56	0.34	0.35	0.18-0.54	0.35	0.37	0.17-0.6
Dec	1.03	1.08	0.49-1.74	1.29	1.35	0.69-2.11	1.20	1.28	0.55-2.09

Table 17.1a. Black-headed Gull design-based abundance estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	5.85	0-35.1	0.00	5.79	0-34.77	0.00	5.78	0-34.7
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	169.62	271.64	0-655.12	171.18	269.85	0-654.62	187.05	267.92	0-650.45
Apr	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
May	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	23.95	28.27	0-85.16	36.89	44.43	0.81-122.86	112.21	157.98	0.73-398.6
Aug	0.00	0.00	0-0	0.00	0.00	0-0	4.36	19.56	0-72.27
Sep	4.51	22.40	0-78.79	6.81	22.81	0-77.96	7.08	23.27	0-80.95
Oct	0.00	0.00	0-0	0.00	0.00	0-0	2.27	20.58	0-76.28
Nov	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Dec	0.00	5.78	0-34.79	0.00	5.75	0-34.58	0.00	5.74	0-34.51

Table 17.1b. Black-headed Gull design-based density estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.00	0.00	0-0.03
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	0.23	0.37	0-0.9	0.18	0.28	0-0.68	0.15	0.22	0-0.53
Apr	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
May	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	0.03	0.04	0-0.12	0.04	0.05	0-0.13	0.09	0.13	0-0.33
Aug	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.02	0-0.06
Sep	0.01	0.03	0-0.11	0.01	0.02	0-0.08	0.01	0.02	0-0.07
Oct	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.02	0-0.06
Nov	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Dec	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.00	0.00	0-0.03

Table 17.2a. Black-headed Gull design-based abundance estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	5.85	0-35.1	0.00	5.79	0-34.77	0.00	5.78	0-34.7
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	190.98	265.29	0-658.67	188.41	267.60	0-661.54	172.54	264.92	0-655.95
Apr	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
May	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	23.13	23.46	0-70.72	23.96	34.40	0-103.15	87.49	136.94	0-355.99
Aug	0.00	0.00	0-0	0.00	0.00	0-0	3.11	19.56	0-74.51
Sep	0.00	12.48	0-57.89	0.57	14.38	0-59.99	0.47	14.30	0-61.16
Oct	0.00	0.00	0-0	0.00	0.00	0-0	0.00	17.55	0-69.44
Nov	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Dec	0.00	5.78	0-34.69	0.00	5.75	0-34.52	0.00	5.74	0-34.45

Table 17.2b. Black-headed Gull design-based density estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.00	0.00	0-0.03
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	0.26	0.37	0-0.91	0.20	0.28	0-0.69	0.14	0.22	0-0.54
Apr	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
May	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	0.03	0.03	0-0.1	0.02	0.04	0-0.11	0.07	0.11	0-0.29
Aug	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.02	0-0.06
Sep	0.00	0.02	0-0.08	0.00	0.01	0-0.06	0.00	0.01	0-0.05
Oct	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.01	0-0.06
Nov	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Dec	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.00	0.00	0-0.03

Table 17.3a. Black-headed Gull design-based abundance estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	0.00	4.04	0-24.23	0.00	3.49	0-20.95	0.00	3.00	0-18.02
Apr	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
May	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	4.01	6.42	0-17.62	6.52	10.05	0.81-24.94	11.35	20.77	0-53.65
Aug	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Sep	2.71	10.83	0-32.48	3.41	9.65	0-27.26	2.83	8.49	0-23.58
Oct	0.00	0.00	0-0	0.00	0.00	0-0	0.95	3.03	0-8.72
Nov	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Dec	0.00	0.05	0-0.29	0.00	0.03	0-0.2	0.00	0.03	0-0.18

Table 17.3b. Black-headed Gull design-based density estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	0.00	0.01	0-0.03	0.00	0.00	0-0.02	0.00	0.00	0-0.01
Apr	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
May	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	0.01	0.01	0-0.02	0.01	0.01	0-0.03	0.01	0.02	0-0.04
Aug	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Sep	0.00	0.01	0-0.04	0.00	0.01	0-0.03	0.00	0.01	0-0.02
Oct	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0.01
Nov	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Dec	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0

Table 18.1a. Little Gull design-based abundance estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	11.88	17.49	0-48.45	22.92	23.19	0-71.26	22.96	29.02	0-92.6
Apr	0.00	5.77	0-34.65	0.00	5.74	0-34.45	0.00	5.75	0-34.47
May	114.31	201.28	0-513.49	114.59	200.80	0-508.1	103.53	201.83	0-520.61
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Aug	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Sep	0.00	0.00	0-0	0.00	6.56	0-34.42	0.00	6.36	0-35.65
Oct	0.00	6.35	0-36.07	0.58	7.10	0-37.11	2.11	20.63	0-77.14
Nov	46.57	64.94	0-186	57.76	70.70	0-185.71	61.94	82.84	0.16-209.22
Dec	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0

Table 18.1b. Little Gull design-based density estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	0.02	0.02	0-0.07	0.02	0.02	0-0.07	0.02	0.02	0-0.08
Apr	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.00	0.00	0-0.03
May	0.16	0.28	0-0.71	0.12	0.21	0-0.53	0.08	0.17	0-0.43
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Aug	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Sep	0.00	0.00	0-0	0.00	0.01	0-0.04	0.00	0.01	0-0.03
Oct	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.00	0.02	0-0.06
Nov	0.06	0.09	0-0.26	0.06	0.07	0-0.19	0.05	0.07	0-0.17
Dec	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0

Table 18.2a. Little Gull design-based abundance estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	11.88	17.32	0-57.67	22.92	23.19	0-69.37	22.96	28.76	0-92.06
Apr	0.00	5.77	0-34.65	0.00	5.74	0-34.45	0.00	5.75	0-34.47
May	0.00	13.87	0-57.89	0.00	13.49	0-57.94	0.00	11.48	0-57.41
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Aug	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Sep	0.00	0.00	0-0	0.00	5.74	0-34.42	0.00	5.73	0-34.39
Oct	0.00	5.90	0-34.96	0.00	5.93	0-34.97	0.00	17.75	0-70.22
Nov	46.31	63.71	0-173.67	57.53	69.08	0-172.58	58.18	80.33	0-206.09
Dec	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0

Table 18.2b. Little Gull design-based density estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	0.02	0.02	0-0.08	0.02	0.02	0-0.07	0.02	0.02	0-0.08
Apr	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.00	0.00	0-0.03
May	0.00	0.02	0-0.08	0.00	0.01	0-0.06	0.00	0.01	0-0.05
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Aug	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Sep	0.00	0.00	0-0	0.00	0.01	0-0.04	0.00	0.00	0-0.03
Oct	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.00	0.01	0-0.06
Nov	0.06	0.09	0-0.24	0.06	0.07	0-0.18	0.05	0.07	0-0.17
Dec	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0

Table 18.3a. Little Gull design-based abundance estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.00	0-0	0.0	0.00	0-0	0.00	0.00	0-0
Feb	0.00	0.00	0-0	0.0	0.00	0-0	0.00	0.00	0-0
Mar	0.00	0.17	0-1.04	0.0	0.24	0-1.42	0.00	0.27	0-1.6
Apr	0.00	0.00	0-0	0.0	0.00	0-0	0.00	0.00	0-0
May	92.36	184.04	0-469.6	90.9	188.13	0-480.67	92.05	186.26	0-485.1
Jun	0.00	0.00	0-0	0.0	0.00	0-0	0.00	0.00	0-0
Jul	0.00	0.00	0-0	0.0	0.00	0-0	0.00	0.00	0-0
Aug	0.00	0.00	0-0	0.0	0.00	0-0	0.00	0.00	0-0
Sep	0.00	0.00	0-0	0.0	0.82	0-4.94	0.00	1.26	0-5.05
Oct	0.00	0.44	0-1.56	0.1	1.17	0-3.51	0.96	3.07	0-8.84
Nov	0.00	2.46	0-12.29	0.0	1.62	0-6.46	0.81	2.51	0-9.39
Dec	0.00	0.00	0-0	0.0	0.00	0-0	0.00	0.00	0-0

Table 18.3b. Little Gull design-based density estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.00	0-0	0.00	0.0	0-0	0.00	0.00	0-0
Feb	0.00	0.00	0-0	0.00	0.0	0-0	0.00	0.00	0-0
Mar	0.00	0.00	0-0	0.00	0.0	0-0	0.00	0.00	0-0
Apr	0.00	0.00	0-0	0.00	0.0	0-0	0.00	0.00	0-0
May	0.13	0.25	0-0.65	0.09	0.2	0-0.5	0.08	0.15	0-0.4
Jun	0.00	0.00	0-0	0.00	0.0	0-0	0.00	0.00	0-0
Jul	0.00	0.00	0-0	0.00	0.0	0-0	0.00	0.00	0-0
Aug	0.00	0.00	0-0	0.00	0.0	0-0	0.00	0.00	0-0
Sep	0.00	0.00	0-0	0.00	0.0	0-0.01	0.00	0.00	0-0
Oct	0.00	0.00	0-0	0.00	0.0	0-0	0.00	0.00	0-0.01
Nov	0.00	0.00	0-0.02	0.00	0.0	0-0.01	0.00	0.00	0-0.01
Dec	0.00	0.00	0-0	0.00	0.0	0-0	0.00	0.00	0-0

Table 19.1a. Mediterranean Gull design-based abundance estimates of birds in flight and on sea.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Feb	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Mar	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Apr	0	0	0-0	0	0.00	0-0	0	0.00	0-0
May	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0	0	0-0	0	5.73	0-34.38	0	11.47	0-45.89
Aug	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Sep	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Oct	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Nov	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Dec	0	0	0-0	0	0.00	0-0	0	0.00	0-0

Table 19.1b. Mediterranean Gull design-based density estimates of birds in flight and on sea.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Feb	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Mar	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Apr	0	0	0-0	0	0.00	0-0	0	0.00	0-0
May	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0	0	0-0	0	0.01	0-0.04	0	0.01	0-0.04
Aug	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Sep	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Oct	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Nov	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Dec	0	0	0-0	0	0.00	0-0	0	0.00	0-0

Table 19.2a. Mediterranean Gull design-based abundance estimates of birds in flight.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Feb	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Mar	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Apr	0	0	0-0	0	0.00	0-0	0	0.00	0-0
May	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0	0	0-0	0	5.73	0-34.38	0	11.47	0-46.18
Aug	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Sep	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Oct	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Nov	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Dec	0	0	0-0	0	0.00	0-0	0	0.00	0-0

Table 19.2b. Mediterranean Gull design-based density estimates of birds in flight.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Feb	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Mar	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Apr	0	0	0-0	0	0.00	0-0	0	0.00	0-0
May	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0	0	0-0	0	0.01	0-0.04	0	0.01	0-0.04
Aug	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Sep	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Oct	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Nov	0	0	0-0	0	0.00	0-0	0	0.00	0-0
Dec	0	0	0-0	0	0.00	0-0	0	0.00	0-0

Table 19.3a. Mediterranean Gull design-based abundance estimates of birds on the sea surface.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0	0-0	0	0	0-0
Feb	0	0	0-0	0	0	0-0	0	0	0-0
Mar	0	0	0-0	0	0	0-0	0	0	0-0
Apr	0	0	0-0	0	0	0-0	0	0	0-0
May	0	0	0-0	0	0	0-0	0	0	0-0
Jun	0	0	0-0	0	0	0-0	0	0	0-0
Jul	0	0	0-0	0	0	0-0	0	0	0-0
Aug	0	0	0-0	0	0	0-0	0	0	0-0
Sep	0	0	0-0	0	0	0-0	0	0	0-0
Oct	0	0	0-0	0	0	0-0	0	0	0-0
Nov	0	0	0-0	0	0	0-0	0	0	0-0
Dec	0	0	0-0	0	0	0-0	0	0	0-0

Table 19.3b. Mediterranean Gull design-based density estimates of birds on the sea surface.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0	0-0	0	0	0-0
Feb	0	0	0-0	0	0	0-0	0	0	0-0
Mar	0	0	0-0	0	0	0-0	0	0	0-0
Apr	0	0	0-0	0	0	0-0	0	0	0-0
May	0	0	0-0	0	0	0-0	0	0	0-0
Jun	0	0	0-0	0	0	0-0	0	0	0-0
Jul	0	0	0-0	0	0	0-0	0	0	0-0
Aug	0	0	0-0	0	0	0-0	0	0	0-0
Sep	0	0	0-0	0	0	0-0	0	0	0-0
Oct	0	0	0-0	0	0	0-0	0	0	0-0
Nov	0	0	0-0	0	0	0-0	0	0	0-0
Dec	0	0	0-0	0	0	0-0	0	0	0-0

Table 20.1a. Common Gull design-based abundance estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	35.10	52.57	0-152.08	57.94	69.43	0-173.84	348.60	431.04	69.4-895.58
Feb	0.00	5.79	0-34.73	0.00	5.74	0-34.45	0.00	5.75	0-34.5
Mar	0.00	11.56	0-46.54	22.92	23.01	0-68.77	23.28	34.53	0-103.34
Apr	0.00	5.77	0-34.65	0.00	5.74	0-34.45	0.00	5.75	0-34.47
May	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	16.22	19.26	0-57.82	16.39	20.39	2.26-58.97	42.97	47.62	2.89-115.87
Aug	0.00	10.67	0-44.49	2.53	13.26	0-50.87	22.98	27.07	5.03-68.94
Sep	0.00	5.79	0-36.99	15.86	18.17	0-49.21	15.21	17.14	0-46.27
Oct	3.98	45.30	0-146.89	45.93	62.38	0-177.11	45.89	59.97	0-168.92
Nov	0.00	17.46	0-69.85	0.00	28.88	0-103.98	0.24	35.14	0-118.25
Dec	81.32	81.36	23.4-151.08	81.08	81.22	23.94-149.57	93.46	98.37	34.87-183.71

Table 20.1b. Common Gull design-based density estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.05	0.07	0-0.21	0.06	0.07	0-0.18	0.29	0.35	0.06-0.73
Feb	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.00	0.00	0-0.03
Mar	0.00	0.02	0-0.06	0.02	0.02	0-0.07	0.02	0.03	0-0.08
Apr	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.00	0.00	0-0.03
May	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	0.02	0.03	0-0.08	0.02	0.02	0-0.06	0.04	0.04	0-0.09
Aug	0.00	0.01	0-0.06	0.00	0.01	0-0.05	0.02	0.02	0-0.06
Sep	0.00	0.01	0-0.05	0.02	0.02	0-0.05	0.01	0.01	0-0.04
Oct	0.01	0.06	0-0.2	0.05	0.06	0-0.18	0.04	0.05	0-0.14
Nov	0.00	0.02	0-0.1	0.00	0.03	0-0.11	0.00	0.03	0-0.1
Dec	0.11	0.11	0.03-0.21	0.08	0.08	0.02-0.16	0.08	0.08	0.03-0.15

Table 20.2a. Common Gull design-based abundance estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.21	11.75	0-58.49	23.18	28.96	0-81.42	37.69	40.36	3.25-91.85
Feb	0.00	5.79	0-34.73	0.00	5.74	0-34.45	0.00	5.75	0-34.5
Mar	0.00	11.56	0-46.25	11.64	17.28	0-57.31	23.02	28.72	0-80.66
Apr	0.00	5.77	0-34.65	0.00	5.74	0-34.45	0.00	5.75	0-34.47
May	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	11.80	17.32	0-47.45	11.67	17.21	0-57.42	36.05	41.39	0-105.7
Aug	0.81	10.67	0-44.49	2.53	13.32	0-50.87	22.98	27.07	0-68.94
Sep	0.00	5.79	0-34.73	11.47	12.93	0-40.98	11.46	13.00	0-39.26
Oct	0.80	41.72	0-138.51	5.73	47.41	0-152.15	2.01	47.80	0-151.83
Nov	0.00	5.82	0-34.93	0.00	17.33	0-69.32	0.00	23.27	0-81.45
Dec	57.82	58.09	11.7-115.63	57.53	57.72	11.6-126.56	68.89	69.25	22.96-137.78

Table 20.2b. Common Gull design-based density estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.00	0.02	0-0.08	0.02	0.03	0-0.08	0.03	0.03	0-0.08
Feb	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.00	0.00	0-0.03
Mar	0.00	0.02	0-0.06	0.01	0.02	0-0.06	0.02	0.02	0-0.07
Apr	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.00	0.00	0-0.03
May	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	0.02	0.02	0-0.07	0.01	0.02	0-0.06	0.03	0.03	0-0.09
Aug	0.00	0.01	0-0.06	0.00	0.01	0-0.05	0.02	0.02	0-0.06
Sep	0.00	0.01	0-0.05	0.01	0.01	0-0.04	0.01	0.01	0-0.03
Oct	0.00	0.06	0-0.19	0.01	0.05	0-0.16	0.00	0.04	0-0.12
Nov	0.00	0.01	0-0.05	0.00	0.02	0-0.07	0.00	0.02	0-0.07
Dec	0.08	0.08	0.02-0.16	0.06	0.06	0.01-0.13	0.06	0.06	0.02-0.11

Table 20.3a. Common Gull design-based abundance estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	23.40	40.87	0-116.98	34.45	40.51	0-116.18	281.94	390.68	34.7-849.65
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	0.00	0.00	0-0	0.15	5.81	0-34.38	0.13	5.81	0-34.45
Apr	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
May	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	3.14	2.86	0-6.09	3.69	4.04	1.43-9.19	7.23	6.64	0-12.21
Aug	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Sep	0.00	1.13	0-6.76	5.71	6.19	0-15.23	5.00	5.20	0-10.97
Oct	0.00	3.18	0-11.14	15.61	15.11	0-34.45	14.07	13.78	0-34.42
Nov	0.00	11.64	0-58.21	0.00	11.55	0-46.5	0.00	11.87	0-58.65
Dec	23.40	23.64	0-59.33	23.45	23.44	0-58.5	23.94	29.16	0-69.75

Table 20.3b. Common Gull design-based density estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.03	0.06	0-0.16	0.04	0.04	0-0.12	0.23	0.32	0.03-0.69
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	0.00	0.00	0-0	0.00	0.01	0-0.04	0.00	0.00	0-0.03
Apr	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
May	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	0.00	0.00	0-0.01	0.00	0.00	0-0.01	0.01	0.01	0-0.01
Aug	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Sep	0.00	0.00	0-0.01	0.01	0.01	0-0.02	0.00	0.00	0-0.01
Oct	0.00	0.00	0-0.02	0.02	0.02	0-0.04	0.01	0.01	0-0.03
Nov	0.00	0.02	0-0.08	0.00	0.01	0-0.05	0.00	0.01	0-0.05
Dec	0.03	0.03	0-0.08	0.02	0.02	0-0.06	0.02	0.02	0-0.06

Table 21.1a. Lesser Black-backed Gull design-based abundance estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	34.86	35.05	0.21-81.89	46.36	46.49	11.59-92.89	46.81	52.18	11.57-104.1
Feb	23.10	23.11	0-69.29	22.92	25.14	0-75	34.50	36.71	0-91.65
Mar	0.00	5.77	0-34.6	0.00	5.74	0-34.45	0.00	11.51	0-57.54
Apr	0.00	17.34	0-69.38	34.45	34.99	1.08-91.87	45.89	46.70	4.7-103.26
May	16.83	19.99	0-62.07	26.51	27.96	0-67.51	52.41	57.44	11.44-137.68
Jun	11.55	63.52	0-196.32	22.97	74.64	0-218.19	28.73	91.92	0-264.28
Jul	1382.90	1679.80	57.82-3560.1	1477.51	1687.27	80.38-3557.51	1420.53	1684.35	80.37-3530.63
Aug	456.79	541.02	57.74-1137.24	555.53	618.69	57.42-1317.84	705.53	864.62	57.45-1815.65
Sep	310.17	422.16	12.95-962.5	461.46	581.53	3.14-1308.51	723.41	859.11	14.14-1880.63
Oct	23.08	76.91	0-219.22	21.83	67.98	0-193.39	107.67	209.61	0-533.22
Nov	34.73	36.74	2.29-79.78	46.02	49.26	11.51-103.55	103.04	118.63	29.48-251.89
Dec	76.99	87.00	11.7-186.84	81.20	86.91	11.6-196.45	81.37	92.60	11.62-212.3

Table 21.1b. Lesser Black-backed Gull design-based density estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.05	0.05	0-0.11	0.05	0.05	0.01-0.1	0.04	0.04	0.01-0.09
Feb	0.03	0.03	0-0.1	0.02	0.03	0-0.08	0.03	0.03	0-0.07
Mar	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.00	0.01	0-0.05
Apr	0.00	0.02	0-0.1	0.04	0.04	0-0.1	0.04	0.04	0-0.08
May	0.02	0.03	0-0.09	0.03	0.03	0-0.07	0.04	0.05	0.01-0.11
Jun	0.02	0.09	0-0.27	0.02	0.08	0-0.23	0.02	0.08	0-0.22
Jul	1.91	2.32	0.08-4.91	1.54	1.75	0.08-3.7	1.16	1.38	0.07-2.89
Aug	0.63	0.75	0.08-1.57	0.58	0.64	0.06-1.37	0.58	0.71	0.05-1.48
Sep	0.43	0.58	0.02-1.33	0.48	0.60	0-1.36	0.59	0.70	0.01-1.54
Oct	0.03	0.11	0-0.3	0.02	0.07	0-0.2	0.09	0.17	0-0.44
Nov	0.05	0.05	0-0.11	0.05	0.05	0.01-0.11	0.08	0.10	0.02-0.21
Dec	0.11	0.12	0.02-0.26	0.08	0.09	0.01-0.2	0.07	0.08	0.01-0.17

Table 21.2a. Lesser Black-backed Gull design-based abundance estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	23.10	23.32	0-70.19	22.97	23.13	0-69.54	22.96	28.87	0-92.54
Feb	0.00	5.77	0-34.65	0.00	5.73	0-34.38	0.00	5.73	0-34.37
Mar	0.00	5.77	0-34.6	0.00	5.74	0-34.45	0.00	11.51	0-57.54
Apr	0.00	17.34	0-80.94	22.97	28.71	0-80.38	34.47	40.17	0-103.26
May	11.58	11.58	0-34.73	11.49	17.21	0-57.31	34.45	45.90	0-126.2
Jun	0.00	17.32	0-69.29	0.00	28.71	0-103.35	0.00	40.22	0-137.89
Jul	57.59	63.53	11.52-150.32	68.77	68.86	11.46-149.29	68.84	74.61	11.47-172.23
Aug	92.39	96.81	34.65-173.23	103.35	107.66	34.45-200.97	114.90	123.69	34.47-244.72
Sep	127.79	239.32	0-604.98	216.96	364.98	0-880.54	336.84	484.98	0-1133.86
Oct	0.00	17.37	0-69.47	0.00	17.19	0-68.77	0.00	17.17	0-68.68
Nov	0.00	11.58	0-57.89	0.00	17.26	0-69.03	0.00	40.07	0-137.39
Dec	12.48	17.94	0-58.51	13.21	17.78	0-58	13.31	17.82	0-58.12

Table 21.2b. Lesser Black-backed Gull design-based density estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.03	0.03	0-0.1	0.02	0.02	0-0.07	0.02	0.02	0-0.08
Feb	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.00	0.00	0-0.03
Mar	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.00	0.01	0-0.05
Apr	0.00	0.02	0-0.11	0.02	0.03	0-0.08	0.03	0.03	0-0.08
May	0.02	0.02	0-0.05	0.01	0.02	0-0.06	0.03	0.04	0-0.1
Jun	0.00	0.02	0-0.1	0.00	0.03	0-0.11	0.00	0.03	0-0.11
Jul	0.08	0.09	0.02-0.21	0.07	0.07	0.01-0.16	0.06	0.06	0.01-0.14
Aug	0.13	0.13	0.05-0.24	0.11	0.11	0.04-0.21	0.09	0.10	0.03-0.2
Sep	0.18	0.33	0-0.83	0.23	0.38	0-0.92	0.28	0.40	0-0.93
Oct	0.00	0.02	0-0.1	0.00	0.02	0-0.07	0.00	0.01	0-0.06
Nov	0.00	0.02	0-0.08	0.00	0.02	0-0.07	0.00	0.03	0-0.11
Dec	0.02	0.02	0-0.08	0.01	0.02	0-0.06	0.01	0.01	0-0.05

Table 21.3a. Lesser Black-backed Gull design-based abundance estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	11.70	11.73	0-35.1	23.18	23.36	0-70.27	23.13	23.23	0-70.07
Feb	11.58	17.34	0-57.74	15.87	19.41	0-59.07	27.51	28.68	0-77.93
Mar	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Apr	0.00	0.00	0-0	0.00	6.28	0-36.61	0.00	6.53	0-37.6
May	0.00	9.73	0-45.24	1.25	10.75	0-46.99	0.00	10.87	0-49.84
Jun	5.77	46.19	0-150.13	5.74	45.93	0-149.29	5.75	51.71	0-172.36
Jul	1355.55	1613.98	0-3511.33	1397.13	1624.35	11.48-3499.32	1401.22	1606.53	11.48-3460.62
Aug	361.53	445.50	11.26-1009.94	378.96	512.47	0-1182.82	595.78	739.95	11.49-1652.31
Sep	141.49	179.16	12.56-420.26	157.09	217.75	2.74-514.32	295.27	378.78	13.9-852.86
Oct	15.41	59.54	0-176.81	14.63	52.19	0-152.67	87.99	193.33	0-491.5
Nov	23.16	25.16	0-75.96	23.01	32.29	0-94.2	77.71	78.55	22.92-148.84
Dec	57.82	69.52	0-185.01	57.53	69.13	0-172.58	58.12	74.77	0-183.71

Table 21.3b. Lesser Black-backed Gull design-based density estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.02	0.02	0-0.05	0.02	0.02	0-0.07	0.02	0.02	0-0.06
Feb	0.02	0.02	0-0.08	0.02	0.02	0-0.06	0.02	0.02	0-0.06
Mar	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Apr	0.00	0.00	0-0	0.00	0.01	0-0.04	0.00	0.01	0-0.03
May	0.00	0.01	0-0.06	0.00	0.01	0-0.05	0.00	0.01	0-0.04
Jun	0.01	0.06	0-0.21	0.01	0.05	0-0.16	0.00	0.04	0-0.14
Jul	1.87	2.23	0-4.84	1.45	1.69	0.01-3.64	1.15	1.31	0.01-2.83
Aug	0.50	0.61	0.02-1.39	0.39	0.53	0-1.23	0.49	0.61	0.01-1.35
Sep	0.20	0.25	0.02-0.58	0.16	0.23	0-0.53	0.24	0.31	0.01-0.7
Oct	0.02	0.08	0-0.24	0.02	0.05	0-0.16	0.07	0.16	0-0.4
Nov	0.03	0.03	0-0.1	0.02	0.03	0-0.1	0.06	0.06	0.02-0.12
Dec	0.08	0.10	0-0.26	0.06	0.07	0-0.18	0.05	0.06	0-0.15

Table 22.1a. Herring Gull design-based abundance estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	58.49	69.97	0-176.38	58.85	75.23	0-197.15	70.19	92.98	0-233.79
Feb	0.00	5.79	0-34.73	0.00	5.74	0-34.45	0.00	5.75	0-34.5
Mar	0.00	5.77	0-34.6	11.46	11.47	0-34.45	11.48	11.49	0-34.52
Apr	0.00	11.56	0-46.25	0.00	28.71	0-103.35	0.00	28.68	0-91.78
May	0.00	35.82	0-123.22	35.80	50.48	0-140.56	35.68	50.33	0-140.24
Jun	0.00	5.77	0-34.65	0.00	5.74	0-34.45	0.00	5.75	0-34.47
Jul	96.33	124.22	11.56-296.17	110.85	150.69	0-353.63	135.48	147.75	0-350.38
Aug	53.73	100.10	0-271.72	80.38	113.87	0-286.74	86.85	126.59	0-313.73
Sep	128.74	173.26	6.13-406.81	226.41	234.63	102.66-409.63	286.07	294.00	164.11-455.7
Oct	19.64	20.68	2.68-53.92	62.91	93.92	4.25-244.39	64.55	83.51	4.51-221.73
Nov	158.84	194.02	11.29-464.96	184.52	245.67	0-572.39	248.86	310.32	34.35-668.78
Dec	456.39	484.12	222.34-797.86	545.23	554.06	313.22-833.02	597.05	604.73	383.61-858.86

Table 22.1b. Herring Gull design-based density estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.08	0.10	0-0.24	0.06	0.08	0-0.21	0.06	0.08	0-0.19
Feb	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.00	0.00	0-0.03
Mar	0.00	0.01	0-0.05	0.01	0.01	0-0.04	0.01	0.01	0-0.03
Apr	0.00	0.02	0-0.06	0.00	0.03	0-0.11	0.00	0.02	0-0.08
May	0.00	0.05	0-0.17	0.04	0.05	0-0.15	0.03	0.04	0-0.11
Jun	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.00	0.00	0-0.03
Jul	0.13	0.17	0.02-0.41	0.12	0.16	0-0.37	0.11	0.12	0-0.29
Aug	0.07	0.14	0-0.37	0.08	0.12	0-0.3	0.07	0.10	0-0.26
Sep	0.18	0.24	0.01-0.56	0.24	0.24	0.11-0.43	0.23	0.24	0.13-0.37
Oct	0.03	0.03	0-0.07	0.07	0.10	0-0.25	0.05	0.07	0-0.18
Nov	0.22	0.27	0.02-0.64	0.19	0.26	0-0.6	0.20	0.25	0.03-0.55
Dec	0.63	0.67	0.31-1.1	0.57	0.58	0.33-0.87	0.49	0.49	0.31-0.7

Table 22.2a. Herring Gull design-based abundance estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	35.10	52.04	0-150.13	34.77	51.73	0-149.29	34.70	51.71	0-149.26
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	0.00	5.77	0-34.6	11.46	11.47	0-34.45	11.48	11.49	0-34.52
Apr	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
May	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	0.00	11.52	0-46.08	0.00	11.46	0-45.85	0.00	11.47	0-45.89
Aug	23.10	23.14	0-71.17	22.97	23.76	0-70.49	22.98	29.33	0-88.15
Sep	0.46	12.65	0-59.12	0.86	20.76	0-77	3.00	28.52	0-99.52
Oct	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Nov	46.31	46.47	0-104.78	46.21	51.92	0-115.53	46.54	52.08	11.45-116.36
Dec	46.81	71.81	0-201.31	69.60	83.00	0-200.21	73.49	85.19	0-204.4

Table 22.2b. Herring Gull design-based density estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.05	0.07	0-0.21	0.04	0.05	0-0.16	0.03	0.04	0-0.12
Feb	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Mar	0.00	0.01	0-0.05	0.01	0.01	0-0.04	0.01	0.01	0-0.03
Apr	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
May	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jun	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Jul	0.00	0.02	0-0.06	0.00	0.01	0-0.05	0.00	0.01	0-0.04
Aug	0.03	0.03	0-0.1	0.02	0.02	0-0.07	0.02	0.02	0-0.07
Sep	0.00	0.02	0-0.08	0.00	0.02	0-0.08	0.00	0.02	0-0.08
Oct	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Nov	0.06	0.06	0-0.14	0.05	0.05	0-0.12	0.04	0.04	0.01-0.1
Dec	0.06	0.10	0-0.28	0.07	0.09	0-0.21	0.06	0.07	0-0.17

Table 22.3a. Herring Gull design-based abundance estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	13.13	17.92	0-51.45	23.18	23.97	0-71.76	34.70	41.27	0-120.17
Feb	0.00	5.79	0-34.73	0.00	5.74	0-34.45	0.00	5.75	0-34.5
Mar	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Apr	0.00	11.56	0-46.25	0.00	28.71	0-103.35	0.00	28.68	0-103.26
May	3.17	37.90	0-123.22	34.38	47.93	0-138.13	35.68	49.72	0-142.7
Jun	0.00	5.77	0-34.65	0.00	5.74	0-34.45	0.00	5.75	0-34.47
Jul	92.90	113.23	11.56-267.93	104.31	138.08	0-328.97	103.34	135.91	0-325.26
Aug	19.07	77.81	0-225.08	57.42	89.31	0-247.52	57.45	96.02	0-256.4
Sep	100.00	159.79	1.53-406.68	198.20	212.67	64.6-401.52	248.92	261.64	118.01-458.09
Oct	19.80	20.68	2.68-52.55	69.03	96.51	4.64-249.84	53.18	84.65	4.51-224.2
Nov	62.64	147.55	0-388.27	102.18	193.75	0-498.14	202.82	258.93	11.45-602.03
Dec	397.87	412.30	210.64-647.54	464.03	473.30	290.02-678.83	511.48	513.79	360.36-711.87

Table 22.3b. Herring Gull design-based density estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.02	0.02	0-0.07	0.02	0.02	0-0.07	0.03	0.03	0-0.1
Feb	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.00	0.00	0-0.03
Mar	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Apr	0.00	0.02	0-0.06	0.00	0.03	0-0.11	0.00	0.02	0-0.08
May	0.00	0.05	0-0.17	0.04	0.05	0-0.14	0.03	0.04	0-0.12
Jun	0.00	0.01	0-0.05	0.00	0.01	0-0.04	0.00	0.00	0-0.03
Jul	0.13	0.16	0.02-0.37	0.11	0.14	0-0.34	0.08	0.11	0-0.27
Aug	0.03	0.11	0-0.31	0.06	0.09	0-0.26	0.05	0.08	0-0.21
Sep	0.14	0.22	0-0.56	0.21	0.22	0.07-0.42	0.20	0.21	0.1-0.37
Oct	0.03	0.03	0-0.07	0.07	0.10	0-0.26	0.04	0.07	0-0.18
Nov	0.09	0.20	0-0.54	0.11	0.20	0-0.52	0.17	0.21	0.01-0.49
Dec	0.55	0.57	0.29-0.89	0.48	0.49	0.3-0.71	0.42	0.42	0.29-0.58

Table 23.1a. Great Black-backed Gull design-based abundance estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	456.43	593.78	11.7-1326.96	603.03	721.84	23.18-1579.55	721.37	841.54	34.7-1831.78
Feb	57.74	57.83	11.55-115.78	75.82	75.91	22.92-149.29	103.49	106.79	34.37-206.98
Mar	34.60	34.63	0-80.74	34.45	40.17	0-103.35	57.41	63.27	0-161.11
Apr	34.69	46.21	0-115.48	85.59	130.98	0-328.71	96.82	130.17	0-328.56
May	33.64	31.57	0-77.37	34.38	35.16	0-75.59	34.42	34.47	2.56-76.57
Jun	80.84	98.16	0-242.52	86.13	103.35	0-252.64	137.89	138.02	45.96-253.17
Jul	52.16	54.86	11.56-111.02	52.76	54.67	11.48-114.84	288.25	351.65	22.96-794.18
Aug	86.24	94.51	11.55-217.49	91.87	104.95	11.48-238.64	119.79	136.13	22.98-298.12
Sep	1164.74	1239.03	527.64-2080.96	1312.53	1365.51	772.63-2043.19	1504.38	1542.27	1074.3-2051.43
Oct	102.49	126.19	25.4-285.73	270.46	284.76	121.42-492.08	444.23	456.34	281.66-673.23
Nov	175.35	178.50	81.05-289.5	330.58	362.24	92.05-693.34	505.32	525.36	228.99-887.78
Dec	497.25	553.95	210.64-977.23	690.91	707.43	394.42-1064.56	906.72	907.04	720.72-1116.05

Table 23.1b. Great Black-backed Gull design-based density estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.63	0.82	0.02-1.83	0.63	0.75	0.02-1.64	0.59	0.69	0.03-1.5
Feb	0.08	0.08	0.02-0.16	0.08	0.08	0.02-0.16	0.08	0.09	0.03-0.17
Mar	0.05	0.05	0-0.11	0.04	0.04	0-0.11	0.05	0.05	0-0.13
Apr	0.05	0.06	0-0.16	0.09	0.14	0-0.34	0.08	0.11	0-0.27
May	0.05	0.04	0-0.11	0.04	0.04	0-0.08	0.03	0.03	0-0.06
Jun	0.11	0.14	0-0.33	0.09	0.11	0-0.26	0.11	0.11	0.04-0.21
Jul	0.07	0.08	0.02-0.15	0.05	0.06	0.01-0.12	0.24	0.29	0.02-0.65
Aug	0.12	0.13	0.02-0.3	0.10	0.11	0.01-0.25	0.10	0.11	0.02-0.24
Sep	1.61	1.71	0.73-2.87	1.37	1.42	0.8-2.12	1.23	1.26	0.88-1.68
Oct	0.14	0.17	0.04-0.39	0.28	0.30	0.13-0.51	0.36	0.37	0.23-0.55
Nov	0.24	0.25	0.11-0.4	0.34	0.38	0.1-0.72	0.41	0.43	0.19-0.73
Dec	0.69	0.76	0.29-1.35	0.72	0.74	0.41-1.11	0.74	0.74	0.59-0.91

Table 23.2a. Great Black-backed Gull design-based abundance estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	156.65	208.10	0-485.03	167.15	224.14	11.59-516.76	201.49	252.81	23.13-585.57
Feb	57.74	57.83	11.55-115.78	57.31	57.37	11.46-114.84	57.50	63.16	11.46-126.49
Mar	34.60	34.63	0-80.74	34.45	40.17	0-103.35	57.41	63.27	0-161.11
Apr	23.10	23.11	0-57.74	22.97	28.71	0-68.9	22.98	28.71	0-68.94
May	23.16	28.95	0-69.47	22.99	28.69	0-68.97	22.96	28.69	0-68.84
Jun	0.00	0.00	0-0	0.00	5.74	0-34.45	11.49	11.50	0-34.52
Jul	34.69	40.40	0-92.51	34.45	40.16	0-91.87	246.73	298.32	22.96-665.44
Aug	36.03	41.11	1.3-92.39	47.21	52.31	11.48-105.9	68.94	70.06	13.88-138.78
Sep	134.67	246.09	0-625.89	182.45	308.42	0-748.99	278.73	382.41	0-905.3
Oct	11.61	17.40	0-46.43	22.92	22.95	0-57.42	22.89	22.92	0-57.37
Nov	138.94	133.50	58.21-219.98	184.09	184.54	80.54-311.93	244.35	248.58	114.49-395.61
Dec	175.53	171.67	93.05-269.15	230.68	231.21	120.97-359.62	278.99	289.55	132.71-476.61

Table 23.2b. Great Black-backed Gull design-based density estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.22	0.29	0-0.67	0.17	0.23	0.01-0.54	0.16	0.21	0.02-0.48
Feb	0.08	0.08	0.02-0.16	0.06	0.06	0.01-0.12	0.05	0.05	0.01-0.1
Mar	0.05	0.05	0-0.11	0.04	0.04	0-0.11	0.05	0.05	0-0.13
Apr	0.03	0.03	0-0.08	0.02	0.03	0-0.07	0.02	0.02	0-0.06
May	0.03	0.04	0-0.1	0.02	0.03	0-0.07	0.02	0.02	0-0.06
Jun	0.00	0.00	0-0	0.00	0.01	0-0.04	0.01	0.01	0-0.03
Jul	0.05	0.06	0-0.13	0.04	0.04	0-0.1	0.20	0.24	0.02-0.54
Aug	0.05	0.06	0-0.13	0.05	0.05	0.01-0.11	0.06	0.06	0.01-0.11
Sep	0.19	0.34	0-0.86	0.19	0.32	0-0.78	0.23	0.31	0-0.74
Oct	0.02	0.02	0-0.06	0.02	0.02	0-0.06	0.02	0.02	0-0.05
Nov	0.19	0.18	0.08-0.3	0.19	0.19	0.08-0.32	0.20	0.20	0.09-0.32
Dec	0.24	0.24	0.13-0.37	0.24	0.24	0.13-0.37	0.23	0.24	0.11-0.39

Table 23.3a. Great Black-backed Gull design-based abundance estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	265.36	380.54	0-908.53	404.20	498.34	0-1149.51	418.72	578.58	0-1329.22
Feb	0.00	0.00	0-0	21.17	20.74	0-57.42	41.23	43.63	0-103.49
Mar	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Apr	0.00	23.10	0-80.84	40.19	100.66	0-286.01	34.47	101.06	0-285.7
May	0.00	3.93	0-15.72	0.00	6.47	0-23.29	0.00	6.40	0-23.04
Jun	80.84	98.16	11.55-231.26	80.38	97.61	0-229.67	126.40	126.52	45.96-230.16
Jul	1.89	14.35	0-53.84	1.83	14.31	0-54.39	15.31	38.82	0-112.55
Aug	12.23	54.05	0-175	13.40	54.87	0-169.7	15.09	66.68	0-202.18
Sep	850.04	994.08	101.26-2058.54	932.92	1055.84	218.32-2033.65	994.69	1154.50	400.6-2056.51
Oct	78.25	108.01	20.32-258.95	249.75	264.52	104.47-469.11	422.80	433.73	264-645.26
Nov	34.73	46.78	0-132.6	102.23	178.26	0-448.99	251.89	276.77	68.7-551.41
Dec	313.67	376.43	58.51-786.59	438.97	478.53	174.01-851.42	616.10	617.49	406.86-861.13

Table 23.3b. Great Black-backed Gull design-based density estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0.37	0.52	0-1.25	0.42	0.52	0-1.2	0.34	0.47	0-1.09
Feb	0.00	0.00	0-0	0.02	0.02	0-0.06	0.03	0.04	0-0.08
Mar	0.00	0.00	0-0	0.00	0.00	0-0	0.00	0.00	0-0
Apr	0.00	0.03	0-0.11	0.04	0.10	0-0.3	0.03	0.08	0-0.23
May	0.00	0.01	0-0.02	0.00	0.01	0-0.02	0.00	0.01	0-0.02
Jun	0.11	0.14	0.02-0.32	0.08	0.10	0-0.24	0.10	0.10	0.04-0.19
Jul	0.00	0.02	0-0.07	0.00	0.01	0-0.06	0.01	0.03	0-0.09
Aug	0.02	0.07	0-0.24	0.01	0.06	0-0.18	0.01	0.05	0-0.17
Sep	1.17	1.37	0.14-2.84	0.97	1.10	0.23-2.11	0.81	0.94	0.33-1.68
Oct	0.11	0.15	0.03-0.36	0.26	0.28	0.11-0.49	0.35	0.35	0.22-0.53
Nov	0.05	0.06	0-0.18	0.11	0.19	0-0.47	0.21	0.23	0.06-0.45
Dec	0.43	0.52	0.08-1.08	0.46	0.50	0.18-0.89	0.50	0.50	0.33-0.7

Table 24.1a. Shearwater Species design-based abundance estimates of birds in flight and on sea.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Feb	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Mar	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Apr	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
May	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0	5.76	0-34.56	0	5.73	0-34.38	0	5.74	0-34.42
Aug	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Sep	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Oct	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Nov	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Dec	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0

Table 24.1b. Shearwater Species design-based density estimates of birds in flight and on sea.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Feb	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Mar	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Apr	0	0.00	0-0	0	0.00	0-0	0	0	0-0
May	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Jul	0	0.01	0-0.05	0	0.01	0-0.04	0	0	0-0.03
Aug	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Sep	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Oct	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Nov	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Dec	0	0.00	0-0	0	0.00	0-0	0	0	0-0

Table 24.2a. Shearwater Species design-based abundance estimates of birds in flight.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Feb	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Mar	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Apr	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
May	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Jul	0	5.76	0-34.56	0	5.73	0-34.38	0	5.74	0-34.42
Aug	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Sep	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Oct	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Nov	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0
Dec	0	0.00	0-0	0	0.00	0-0	0	0.00	0-0

Table 24.2b. Shearwater Species design-based density estimates of birds in flight.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Feb	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Mar	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Apr	0	0.00	0-0	0	0.00	0-0	0	0	0-0
May	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Jun	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Jul	0	0.01	0-0.05	0	0.01	0-0.04	0	0	0-0.03
Aug	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Sep	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Oct	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Nov	0	0.00	0-0	0	0.00	0-0	0	0	0-0
Dec	0	0.00	0-0	0	0.00	0-0	0	0	0-0

Table 24.3a. Shearwater Species design-based abundance estimates of birds on the sea surface.

Month	Abundance								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0	0-0	0	0	0-0
Feb	0	0	0-0	0	0	0-0	0	0	0-0
Mar	0	0	0-0	0	0	0-0	0	0	0-0
Apr	0	0	0-0	0	0	0-0	0	0	0-0
May	0	0	0-0	0	0	0-0	0	0	0-0
Jun	0	0	0-0	0	0	0-0	0	0	0-0
Jul	0	0	0-0	0	0	0-0	0	0	0-0
Aug	0	0	0-0	0	0	0-0	0	0	0-0
Sep	0	0	0-0	0	0	0-0	0	0	0-0
Oct	0	0	0-0	0	0	0-0	0	0	0-0
Nov	0	0	0-0	0	0	0-0	0	0	0-0
Dec	0	0	0-0	0	0	0-0	0	0	0-0

Table 24.3b. Shearwater Species design-based density estimates of birds on the sea surface.

Month	Density								
	Wind farm			Wind farm & 2km buffer			Wind farm & 4km buffer		
	Median	Mean	Confidence interval	Median	Mean	Confidence interval	Median	Mean	Confidence interval
Jan	0	0	0-0	0	0	0-0	0	0	0-0
Feb	0	0	0-0	0	0	0-0	0	0	0-0
Mar	0	0	0-0	0	0	0-0	0	0	0-0
Apr	0	0	0-0	0	0	0-0	0	0	0-0
May	0	0	0-0	0	0	0-0	0	0	0-0
Jun	0	0	0-0	0	0	0-0	0	0	0-0
Jul	0	0	0-0	0	0	0-0	0	0	0-0
Aug	0	0	0-0	0	0	0-0	0	0	0-0
Sep	0	0	0-0	0	0	0-0	0	0	0-0
Oct	0	0	0-0	0	0	0-0	0	0	0-0
Nov	0	0	0-0	0	0	0-0	0	0	0-0
Dec	0	0	0-0	0	0	0-0	0	0	0-0

Norfolk Boreas Wind Farm

Appendix 13.1

Ornithology Technical Appendix

Annex 2

Survey seabird density and abundance

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Document Quality Record.

Version	Status	Person Responsible	Date
1	Draft	Nicola Goodship	20/02/2019
2	Reviewed	Mark Trinder	22/02/2019
3	Updated	Mark Trinder	22/02/2019
3.1	Revisions	Nicola Goodship	29/03/2019
4	Internal Approval	Mark Trinder	30/03/2019

1 INTRODUCTION

1. This appendix provides tables of seabird density and abundance for each species recorded on Norfolk Boreas in each survey, conducted over 24 months between August 2016 to July 2018.

2. A key to the table numbering is provided in Table A2. Tables are presented for all birds (on the sea and in flight), in flight and on the sea separately. Tables are presented with and without the inclusion of birds not identified to species level (e.g. large gulls, etc) and for guillemot and razorbill, with and without adjustment for availability bias to account for the estimated proportion of individuals underwater when images were captured. Methods for assigning unidentified records and adjustment for availability bias are provided in Technical Appendix 13.1.

3. For each month, the density (birds/km^2) recorded in the surveyed area (i.e. the sum of all the image footprints) was multiplied up to the total area to obtain an abundance estimate, with the 95% confidence range derived from 1,000 nonparametric bootstrap samples. These were calculated separately for the wind farm, wind farm plus 2km buffer and wind farm plus 4km buffer.

Table A2. Key to species density and abundance tables.

Species	All birds				In Flight		On Sea			
	Positive ID only	Plus availability bias	Plus unidentified	Plus unidentified AND availability bias	Positive ID only	Plus unidentified	Positive ID only	Plus availability bias	Plus unidentified	Plus unidentified AND availability bias
Long-tailed duck	1.1				1.2		1.3			
Red-throated diver	2.1		2.2		2.3	2.4	2.5		2.6	
Great northern diver	3.1		3.2		3.3	3.4	3.5		3.6	
Fulmar	4.1				4.2		4.3			
Gannet	5.1				5.2		5.3			
Cormorant	6.1				6.2		6.3			
Shag	7.1				7.2		7.3			
Arctic skua	8.1				8.2		8.3			
Great skua	9.1				9.2		9.3			
Puffin	10.1				10.2		10.3			
Razorbill	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	11.10
Guillemot	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	12.10
Black tern	13.1				13.2		13.3			
Sandwich tern	14.1				14.2		14.3			
Commic tern	15.1				15.2		15.3			
Kittiwake	16.1		16.2		16.3	16.4	16.5		16.6	
Black-headed gull	17.1		17.2		17.3	17.4	17.5		17.6	
Little gull	18.1		18.2		18.3	18.4	18.5		18.6	
Mediterranean gull	19.1				19.2		19.3			
Common gull	20.1		20.2		20.3	20.4	20.5		20.6	
Lesser black-backed gull	21.1		21.2		21.3	21.4	21.5		21.6	
Herring gull	22.1		22.2		22.3	22.4	22.5		22.6	
Great black-backed gull	23.1		23.2		23.3	23.4	23.5		23.6	
Shearwater species	24.1				24.2		24.3			

Table 1.1. Long-tailed Duck design based estimates of birds in flight and on sea.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Sep-2016	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Oct-2016	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Nov-2016	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Dec-2016	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jan-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Feb-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Mar-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Apr-2017	0	0-0	11.48	0-34.45	11.47	0-45.89	0	0-0	0.01	0-0.04	0.01	0-0.04
May-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jun-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jul-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Aug-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Sep-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Oct-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Nov-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Dec-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jan-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Feb-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Mar-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Apr-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
May-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jun-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jul-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0

Table 1.2. Long-tailed Duck design based estimates of birds in flight.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Sep-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Oct-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Nov-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Dec-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jan-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Feb-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Mar-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Apr-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
May-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jun-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jul-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Aug-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Sep-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Oct-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Nov-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Dec-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jan-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Feb-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Mar-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Apr-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
May-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jun-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jul-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0

Table 1.3. Long-tailed Duck design based estimates of birds on the sea surface.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Sep-2016	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Oct-2016	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Nov-2016	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Dec-2016	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jan-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Feb-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Mar-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Apr-2017	0	0-0	11.48	0-34.45	11.47	0-34.42	0	0-0	0.01	0-0.04	0.01	0-0.03
May-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jun-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jul-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Aug-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Sep-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Oct-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Nov-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Dec-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jan-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Feb-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Mar-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Apr-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
May-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jun-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jul-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0

Table 2.1. Red-throated Diver design based estimates of birds in flight and on sea.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.00	0-0	11.46	0-34.38	11.45	0-34.34	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Nov-2016	23.16	0-69.47	23.01	0-57.53	22.90	0-57.53	0.03	0-0.1	0.02	0-0.06	0.02	0-0.05
Dec-2016	35.11	0-81.92	34.80	0-81.2	34.87	0-81.37	0.05	0-0.11	0.04	0-0.08	0.03	0-0.07
Jan-2017	93.59	35.1-163.78	127.48	57.95-208.61	138.80	69.4-231.34	0.13	0.05-0.23	0.13	0.06-0.22	0.11	0.06-0.19
Feb-2017	34.73	0-81.05	34.45	0-80.38	57.50	11.5-114.99	0.05	0-0.11	0.04	0-0.08	0.05	0.01-0.09
Mar-2017	878.81	693.79-1075.67	1088.84	882.53-1306.61	1217.07	998.91-1446.7	1.21	0.96-1.48	1.13	0.92-1.36	1.00	0.82-1.18
Apr-2017	115.63	57.82-196.57	149.29	80.38-229.96	172.10	91.78-263.88	0.16	0.08-0.27	0.16	0.08-0.24	0.14	0.08-0.22
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	22.95	0-57.36	22.93	0-57.32	0.00	0-0	0.02	0-0.06	0.02	0-0.05
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	11.55	0-34.66	11.64	0-34.91	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Dec-2017	115.63	57.82-185.01	138.07	69.03-218.9	160.74	80.37-252.6	0.16	0.08-0.26	0.14	0.07-0.23	0.13	0.07-0.21
Jan-2018	69.29	23.1-127.03	103.35	45.93-172.25	172.23	91.85-264.08	0.10	0.03-0.18	0.11	0.05-0.18	0.14	0.08-0.22
Feb-2018	184.77	103.94-277.45	252.15	160.17-366.77	263.48	148.93-378.04	0.25	0.14-0.38	0.26	0.17-0.38	0.22	0.12-0.31
Mar-2018	23.07	0-57.67	22.97	0-57.42	23.02	0-57.54	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Apr-2018	23.10	0-57.74	57.42	11.48-114.84	80.43	22.98-149.38	0.03	0-0.08	0.06	0.01-0.12	0.07	0.02-0.12
May-2018	69.47	23.16-127.36	80.46	22.99-149.43	80.37	22.96-149.26	0.10	0.03-0.18	0.08	0.02-0.16	0.07	0.02-0.12
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 2.2. Red-throated Diver design based estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.00	0-0	11.46	0-34.38	11.45	0-34.34	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Nov-2016	23.16	0-69.47	23.01	0-57.53	22.90	0-57.53	0.03	0-0.1	0.02	0-0.06	0.02	0-0.05
Dec-2016	35.11	0-81.92	34.80	0-81.2	34.87	0-81.37	0.05	0-0.11	0.04	0-0.08	0.03	0-0.07
Jan-2017	93.59	35.1-163.78	127.48	57.95-208.61	138.80	69.4-231.34	0.13	0.05-0.23	0.13	0.06-0.22	0.11	0.06-0.19
Feb-2017	34.73	0-81.05	34.45	0-80.38	57.50	11.5-114.99	0.05	0-0.11	0.04	0-0.08	0.05	0.01-0.09
Mar-2017	878.81	693.79-1075.67	1088.84	882.53-1306.61	1217.07	998.91-1446.7	1.21	0.96-1.48	1.13	0.92-1.36	1.00	0.82-1.18
Apr-2017	115.63	57.82-196.57	149.29	80.38-229.96	172.10	91.78-263.88	0.16	0.08-0.27	0.16	0.08-0.24	0.14	0.08-0.22
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	22.95	0-57.36	22.93	0-57.32	0.00	0-0	0.02	0-0.06	0.02	0-0.05
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	23.11	0-57.76	23.27	0-58.18	0.00	0-0	0.02	0-0.06	0.02	0-0.05
Dec-2017	115.63	57.82-185.01	138.07	69.03-218.9	160.74	80.37-252.6	0.16	0.08-0.26	0.14	0.07-0.23	0.13	0.07-0.21
Jan-2018	69.29	23.1-127.03	103.35	45.93-172.25	172.23	91.85-264.08	0.10	0.03-0.18	0.11	0.05-0.18	0.14	0.08-0.22
Feb-2018	184.77	103.94-277.45	252.15	160.17-366.77	263.48	148.93-378.04	0.25	0.14-0.38	0.26	0.17-0.38	0.22	0.12-0.31
Mar-2018	23.07	0-57.67	22.97	0-57.42	23.02	0-57.54	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Apr-2018	23.10	0-57.74	57.42	11.48-114.84	80.43	22.98-149.38	0.03	0-0.08	0.06	0.01-0.12	0.07	0.02-0.12
May-2018	69.47	23.16-127.36	80.46	22.99-149.43	80.37	22.96-149.26	0.10	0.03-0.18	0.08	0.02-0.16	0.07	0.02-0.12
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 2.3. Red-throated Diver design based estimates of birds in flight.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	23.40	0-58.49	23.18	0-57.95	34.70	0-80.97	0.03	0-0.08	0.02	0-0.06	0.03	0-0.07
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	23.13	0-57.82	34.38	0-80.23	34.45	0-80.37	0.03	0-0.08	0.04	0-0.08	0.03	0-0.07
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	22.95	0-57.36	22.93	0-57.32	0.00	0-0	0.02	0-0.06	0.02	0-0.05
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	11.53	0-46.13	11.48	0-34.45	11.51	0-34.52	0.02	0-0.06	0.01	0-0.04	0.01	0-0.03
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 2.4. Red-throated Diver design based estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	23.40	0-58.49	23.18	0-57.95	34.70	0-80.97	0.03	0-0.08	0.02	0-0.06	0.03	0-0.07
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	23.13	0-57.82	34.38	0-80.23	34.45	0-80.37	0.03	0-0.08	0.04	0-0.08	0.03	0-0.07
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	22.95	0-57.36	22.93	0-57.32	0.00	0-0	0.02	0-0.06	0.02	0-0.05
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	11.53	0-46.13	11.48	0-34.45	11.51	0-34.52	0.02	0-0.06	0.01	0-0.04	0.01	0-0.03
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 2.5. Red-throated Diver design based estimates of birds on the sea surface.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.00	0-0	11.46	0-34.38	11.45	0-34.34	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Nov-2016	23.16	0-57.89	23.01	0-57.53	22.90	0-57.25	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Dec-2016	35.11	0-81.92	34.80	0-81.2	34.87	0-81.37	0.05	0-0.11	0.04	0-0.08	0.03	0-0.07
Jan-2017	70.19	23.4-128.68	104.30	46.36-173.84	104.10	45.98-173.51	0.10	0.03-0.18	0.11	0.05-0.18	0.09	0.04-0.14
Feb-2017	34.73	0-81.05	34.45	0-80.38	57.50	11.5-114.99	0.05	0-0.11	0.04	0-0.08	0.05	0.01-0.09
Mar-2017	809.43	635.98-1006	997.15	790.84-1214.92	1113.73	895.58-1343.37	1.12	0.88-1.39	1.04	0.82-1.26	0.91	0.73-1.1
Apr-2017	115.63	57.82-185.01	149.29	68.9-241.15	172.10	91.78-263.88	0.16	0.08-0.26	0.16	0.07-0.25	0.14	0.08-0.22
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	11.55	0-34.66	11.64	0-34.91	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Dec-2017	115.63	46.25-196.57	138.07	69.03-218.61	160.74	80.37-252.6	0.16	0.06-0.27	0.14	0.07-0.23	0.13	0.07-0.21
Jan-2018	69.29	23.1-127.03	103.35	34.45-172.25	172.23	91.85-264.08	0.10	0.03-0.18	0.11	0.04-0.18	0.14	0.08-0.22
Feb-2018	184.77	103.94-277.16	252.15	149-355.31	263.48	160.38-378.04	0.25	0.14-0.38	0.26	0.15-0.37	0.22	0.13-0.31
Mar-2018	11.53	0-34.6	11.48	0-34.45	11.51	0-34.52	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Apr-2018	23.10	0-57.74	57.42	11.48-114.84	80.43	34.47-149.38	0.03	0-0.08	0.06	0.01-0.12	0.07	0.03-0.12
May-2018	69.47	23.16-127.36	80.46	22.99-137.94	80.37	22.96-137.78	0.10	0.03-0.18	0.08	0.02-0.14	0.07	0.02-0.11
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 2.6. Red-throated Diver design based estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.00	0-0	11.46	0-34.38	11.45	0-34.34	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Nov-2016	23.16	0-57.89	23.01	0-57.53	22.90	0-57.25	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Dec-2016	35.11	0-81.92	34.80	0-81.2	34.87	0-81.37	0.05	0-0.11	0.04	0-0.08	0.03	0-0.07
Jan-2017	70.19	23.4-128.68	104.30	46.36-173.84	104.10	45.98-173.51	0.10	0.03-0.18	0.11	0.05-0.18	0.09	0.04-0.14
Feb-2017	34.73	0-81.05	34.45	0-80.38	57.50	11.5-114.99	0.05	0-0.11	0.04	0-0.08	0.05	0.01-0.09
Mar-2017	809.43	635.98-1006	997.15	790.84-1214.92	1113.73	895.58-1343.37	1.12	0.88-1.39	1.04	0.82-1.26	0.91	0.73-1.1
Apr-2017	115.63	57.82-185.01	149.29	68.9-241.15	172.10	91.78-263.88	0.16	0.08-0.26	0.16	0.07-0.25	0.14	0.08-0.22
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	23.11	0-57.76	23.27	0-58.18	0.00	0-0	0.02	0-0.06	0.02	0-0.05
Dec-2017	115.63	46.25-196.57	138.07	69.03-218.61	160.74	80.37-252.6	0.16	0.06-0.27	0.14	0.07-0.23	0.13	0.07-0.21
Jan-2018	69.29	23.1-127.03	103.35	34.45-172.25	172.23	91.85-264.08	0.10	0.03-0.18	0.11	0.04-0.18	0.14	0.08-0.22
Feb-2018	184.77	103.94-277.16	252.15	149-355.31	263.48	160.38-378.04	0.25	0.14-0.38	0.26	0.15-0.37	0.22	0.13-0.31
Mar-2018	11.53	0-34.6	11.48	0-34.45	11.51	0-34.52	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Apr-2018	23.10	0-57.74	57.42	11.48-114.84	80.43	34.47-149.38	0.03	0-0.08	0.06	0.01-0.12	0.07	0.03-0.12
May-2018	69.47	23.16-127.36	80.46	22.99-137.94	80.37	22.96-137.78	0.10	0.03-0.18	0.08	0.02-0.14	0.07	0.02-0.11
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 3.1. Great Northern Diver design based estimates of birds in flight and on sea.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	11.7	0-46.79	11.59	0-34.77	11.57	0-34.7	0.02	0-0.06	0.01	0-0.04	0.01	0-0.03
Feb-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 3.2. Great Northern Diver design based estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	11.7	0-46.79	11.59	0-34.77	11.57	0-34.7	0.02	0-0.06	0.01	0-0.04	0.01	0-0.03
Feb-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 3.3. Great Northern Diver design based estimates of birds in flight.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Sep-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Oct-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Nov-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Dec-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jan-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Feb-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Mar-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Apr-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
May-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jun-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jul-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Aug-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Sep-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Oct-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Nov-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Dec-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jan-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Feb-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Mar-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Apr-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
May-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jun-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jul-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0

Table 3.4. Great Northern Diver design based estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Sep-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Oct-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Nov-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Dec-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jan-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Feb-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Mar-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Apr-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
May-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jun-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jul-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Aug-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Sep-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Oct-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Nov-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Dec-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jan-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Feb-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Mar-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Apr-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
May-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jun-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jul-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0

Table 3.5. Great Northern Diver design based estimates of birds on the sea surface.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	11.7	0-35.1	11.59	0-34.77	11.57	0-34.7	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Feb-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 3.6. Great Northern Diver design based estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	11.7	0-35.1	11.59	0-34.77	11.57	0-34.7	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Feb-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.0	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 4.1. Fulmar design based estimates of birds in flight and on sea.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	312.61	196.83-428.39	401.92	275.6-539.73	527.36	378.33-687.87	0.43	0.27-0.59	0.42	0.29-0.56	0.43	0.31-0.56
Sep-2016	393.66	277.58-532.59	507.72	357.71-680.8	676.91	516.29-849.01	0.54	0.38-0.73	0.53	0.37-0.71	0.55	0.42-0.69
Oct-2016	521.01	382.08-671.53	573.07	412.61-722.07	629.59	469.33-801.3	0.72	0.53-0.93	0.60	0.43-0.75	0.51	0.38-0.66
Nov-2016	34.73	0-81.05	34.52	0-80.54	68.70	22.9-125.94	0.05	0-0.11	0.04	0-0.08	0.06	0.02-0.1
Dec-2016	163.83	81.92-257.45	208.81	116.01-313.22	244.12	151.12-360.36	0.23	0.11-0.35	0.22	0.12-0.33	0.20	0.12-0.29
Jan-2017	105.29	46.79-175.48	150.66	81.13-243.38	173.51	92.54-266.04	0.15	0.06-0.24	0.16	0.08-0.25	0.14	0.08-0.22
Feb-2017	0.00	0-0	34.45	0-80.38	68.99	23-126.49	0.00	0-0	0.04	0-0.08	0.06	0.02-0.1
Mar-2017	57.82	11.56-115.63	91.69	34.38-160.46	103.34	45.64-172.23	0.08	0.02-0.16	0.10	0.04-0.17	0.08	0.04-0.14
Apr-2017	150.32	69.38-231.55	183.74	103.35-275.6	275.35	172.1-378.61	0.21	0.1-0.32	0.19	0.11-0.29	0.23	0.14-0.31
May-2017	23.16	0-57.89	22.92	0-57.31	45.89	11.47-91.78	0.03	0-0.08	0.02	0-0.06	0.04	0.01-0.08
Jun-2017	115.48	46.19-196.32	137.80	68.9-218.19	149.38	80.43-241.3	0.16	0.06-0.27	0.14	0.07-0.23	0.12	0.07-0.2
Jul-2017	104.07	46.25-173.45	126.32	57.42-195.22	137.78	68.89-229.64	0.14	0.06-0.24	0.13	0.06-0.2	0.11	0.06-0.19
Aug-2017	300.26	184.77-404.19	298.57	183.74-413.41	321.73	206.83-448.13	0.41	0.25-0.56	0.31	0.19-0.43	0.26	0.17-0.37
Sep-2017	1551.46	1296.75-1806.18	1686.46	1422.59-1962.08	1799.92	1524.77-2075.06	2.14	1.79-2.49	1.75	1.48-2.04	1.47	1.25-1.7
Oct-2017	197.33	104.47-301.81	321.54	206.7-447.86	367.14	240.94-493.63	0.27	0.14-0.42	0.33	0.21-0.47	0.30	0.2-0.4
Nov-2017	58.21	11.64-104.78	115.53	46.21-185.14	221.08	127.7-325.8	0.08	0.02-0.14	0.12	0.05-0.19	0.18	0.1-0.27
Dec-2017	173.45	92.51-254.68	230.11	138.07-345.17	252.60	160.46-356.22	0.24	0.13-0.35	0.24	0.14-0.36	0.21	0.13-0.29
Jan-2018	1524.39	1270.32-1778.74	2021.10	1722.24-2331.16	2778.59	2434.14-3146.29	2.10	1.75-2.45	2.10	1.79-2.42	2.27	1.99-2.57
Feb-2018	92.39	34.65-161.68	103.15	45.85-171.92	194.75	114.56-297.85	0.13	0.05-0.22	0.11	0.05-0.18	0.16	0.09-0.24
Mar-2018	23.07	0-57.67	22.97	0-57.42	23.02	0-57.54	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Apr-2018	34.65	0-80.84	57.42	11.48-114.84	114.90	57.17-195.34	0.05	0-0.11	0.06	0.01-0.12	0.09	0.05-0.16
May-2018	81.05	34.44-150.52	114.95	45.98-183.91	137.78	68.89-218.15	0.11	0.05-0.21	0.12	0.05-0.19	0.11	0.06-0.18
Jun-2018	34.65	0-69.29	45.93	11.48-91.87	69.05	23.02-126.59	0.05	0-0.1	0.05	0.01-0.1	0.06	0.02-0.1
Jul-2018	449.24	311.01-587.46	515.77	378.23-676.23	596.60	447.45-757.22	0.62	0.43-0.81	0.54	0.39-0.7	0.49	0.37-0.62

Table 4.2. Fulmar design based estimates of birds in flight.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	69.47	23.16-127.36	126.32	57.42-206.7	160.50	80.25-252.22	0.10	0.03-0.18	0.13	0.06-0.21	0.13	0.07-0.21
Sep-2016	81.05	23.16-150.52	103.85	46.16-173.09	195.04	114.73-298.3	0.11	0.03-0.21	0.11	0.05-0.18	0.16	0.09-0.24
Oct-2016	57.89	11.58-115.78	80.23	22.92-149	91.58	34.34-160.26	0.08	0.02-0.16	0.08	0.02-0.15	0.07	0.03-0.13
Nov-2016	34.73	0-81.05	34.52	0-80.54	57.25	11.45-114.49	0.05	0-0.11	0.04	0-0.08	0.05	0.01-0.09
Dec-2016	70.21	23.4-128.72	104.41	46.4-174.01	116.25	57.83-197.62	0.10	0.03-0.18	0.11	0.05-0.18	0.10	0.05-0.16
Jan-2017	46.79	11.7-93.59	57.95	11.59-115.89	69.40	23.13-127.24	0.06	0.02-0.13	0.06	0.01-0.12	0.06	0.02-0.1
Feb-2017	0.00	0-0	22.97	0-57.42	34.50	0-80.49	0.00	0-0	0.02	0-0.06	0.03	0-0.07
Mar-2017	46.25	11.56-92.51	80.23	22.92-137.54	91.85	34.45-160.74	0.06	0.02-0.13	0.08	0.02-0.14	0.08	0.03-0.13
Apr-2017	46.25	11.27-92.51	80.38	22.97-137.8	137.68	68.84-229.46	0.06	0.02-0.13	0.08	0.02-0.14	0.11	0.06-0.19
May-2017	23.16	0-57.89	22.92	0-57.31	34.42	0-80.31	0.03	0-0.08	0.02	0-0.06	0.03	0-0.07
Jun-2017	23.10	0-57.74	34.45	0-68.9	34.47	0-80.43	0.03	0-0.08	0.04	0-0.07	0.03	0-0.07
Jul-2017	46.25	11.56-92.51	57.42	11.48-114.84	68.89	22.96-126.3	0.06	0.02-0.13	0.06	0.01-0.12	0.06	0.02-0.1
Aug-2017	23.10	0-57.74	22.97	0-57.42	34.47	0-80.43	0.03	0-0.08	0.02	0-0.06	0.03	0-0.07
Sep-2017	162.09	81.05-243.43	195.03	103.25-286.81	217.82	126.11-321	0.22	0.11-0.34	0.20	0.11-0.3	0.18	0.1-0.26
Oct-2017	0.00	0-0	22.97	0-57.42	34.42	0-80.31	0.00	0-0	0.02	0-0.06	0.03	0-0.07
Nov-2017	0.00	0-0	11.55	0-34.66	34.91	0-81.45	0.00	0-0	0.01	0-0.04	0.03	0-0.07
Dec-2017	127.20	57.82-208.14	172.58	92.05-264.63	195.19	103.34-298.53	0.18	0.08-0.29	0.18	0.1-0.28	0.16	0.08-0.24
Jan-2018	750.65	577.42-935.42	861.26	677.53-1056.77	1159.66	929.74-1366.62	1.04	0.8-1.29	0.90	0.7-1.1	0.95	0.76-1.12
Feb-2018	80.84	23.1-138.58	91.69	34.38-160.46	148.93	80.19-240.57	0.11	0.03-0.19	0.10	0.04-0.17	0.12	0.07-0.2
Mar-2018	11.53	0-34.6	11.48	0-34.45	11.51	0-34.52	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Apr-2018	23.10	0-57.74	45.93	11.48-91.87	57.45	11.49-114.9	0.03	0-0.08	0.05	0.01-0.1	0.05	0.01-0.09
May-2018	23.16	0-57.89	45.98	11.49-103.45	57.41	11.48-114.82	0.03	0-0.08	0.05	0.01-0.11	0.05	0.01-0.09
Jun-2018	23.10	0-57.74	34.45	0-80.38	46.03	11.51-103.57	0.03	0-0.08	0.04	0-0.08	0.04	0.01-0.08
Jul-2018	34.56	0-80.63	34.38	0-68.77	57.37	11.47-114.73	0.05	0-0.11	0.04	0-0.07	0.05	0.01-0.09

Table 4.3. Fulmar design based estimates of birds on the sea surface.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	243.14	138.94-347.34	275.60	172.25-390.44	366.86	240.75-492.97	0.34	0.19-0.48	0.29	0.18-0.41	0.30	0.2-0.4
Sep-2016	312.61	208.41-428.39	403.87	288.48-542.33	481.87	344.19-642.49	0.43	0.29-0.59	0.42	0.3-0.56	0.39	0.28-0.53
Oct-2016	463.12	324.19-602.06	492.84	355.31-630.38	538.02	389.2-698.28	0.64	0.45-0.83	0.51	0.37-0.66	0.44	0.32-0.57
Nov-2016	0.00	0-0	0.00	0-0	11.45	0-34.35	0.00	0-0	0.00	0-0	0.01	0-0.03
Dec-2016	93.62	35.11-163.83	104.41	46.4-174.01	127.87	58.12-209.24	0.13	0.05-0.23	0.11	0.05-0.18	0.10	0.05-0.17
Jan-2017	58.49	11.7-105.29	92.72	34.77-162.25	104.10	46.27-173.51	0.08	0.02-0.15	0.10	0.04-0.17	0.09	0.04-0.14
Feb-2017	0.00	0-0	11.48	0-34.45	34.50	0-69.28	0.00	0-0	0.01	0-0.04	0.03	0-0.06
Mar-2017	11.56	0-34.69	11.46	0-34.38	11.48	0-34.45	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Apr-2017	104.07	45.96-173.45	103.35	45.93-172.25	137.68	68.84-217.99	0.14	0.06-0.24	0.11	0.05-0.18	0.11	0.06-0.18
May-2017	0.00	0-0	0.00	0-0	11.47	0-34.42	0.00	0-0	0.00	0-0	0.01	0-0.03
Jun-2017	92.39	34.65-161.68	103.35	45.93-172.25	114.90	57.17-195.34	0.13	0.05-0.22	0.11	0.05-0.18	0.09	0.05-0.16
Jul-2017	57.82	11.56-104.07	68.90	22.97-126.32	68.89	22.96-126.3	0.08	0.02-0.14	0.07	0.02-0.13	0.06	0.02-0.1
Aug-2017	277.16	173.23-392.65	275.60	183.74-390.44	287.26	172.36-402.17	0.38	0.24-0.54	0.29	0.19-0.41	0.23	0.14-0.33
Sep-2017	1389.37	1157.81-1644.09	1491.43	1250.5-1743.82	1582.09	1306.95-1834.31	1.92	1.6-2.27	1.55	1.3-1.81	1.29	1.07-1.5
Oct-2017	197.33	104.47-290.49	298.57	183.74-413.41	332.72	217.99-458.92	0.27	0.14-0.4	0.31	0.19-0.43	0.27	0.18-0.38
Nov-2017	58.21	11.64-116.42	103.98	46.21-173.29	186.17	104.72-290.89	0.08	0.02-0.16	0.11	0.05-0.18	0.15	0.09-0.24
Dec-2017	46.25	11.56-92.51	57.53	11.51-115.06	57.41	11.48-114.82	0.06	0.02-0.13	0.06	0.01-0.12	0.05	0.01-0.09
Jan-2018	773.74	588.97-958.52	1159.84	953.13-1378.02	1618.93	1366.33-1906.26	1.07	0.81-1.32	1.21	0.99-1.43	1.32	1.12-1.56
Feb-2018	11.55	0-34.65	11.46	0-34.38	45.82	11.46-91.65	0.02	0-0.05	0.01	0-0.04	0.04	0.01-0.07
Mar-2018	11.53	0-34.6	11.48	0-34.45	11.51	0-34.52	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Apr-2018	11.55	0-34.65	11.48	0-34.45	57.45	11.49-114.9	0.02	0-0.05	0.01	0-0.04	0.05	0.01-0.09
May-2018	57.89	11.58-115.78	68.97	22.99-126.44	80.37	34.45-149.26	0.08	0.02-0.16	0.07	0.02-0.13	0.07	0.03-0.12
Jun-2018	11.55	0-34.65	11.48	0-34.45	23.02	0-57.54	0.02	0-0.05	0.01	0-0.04	0.02	0-0.05
Jul-2018	414.68	287.97-552.91	481.38	343.84-630.38	539.24	401.56-699.86	0.57	0.4-0.76	0.50	0.36-0.66	0.44	0.33-0.57

Table 5.1. Gannet design based estimates of birds in flight and on sea.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	208.41	115.78-312.61	242.32	138.47-357.71	344.19	229.46-459.21	0.29	0.16-0.43	0.25	0.14-0.37	0.28	0.19-0.38
Oct-2016	69.47	11.58-127.36	114.61	45.85-194.85	137.37	68.68-217.5	0.10	0.02-0.18	0.12	0.05-0.2	0.11	0.06-0.18
Nov-2016	1424.11	1169.39-1690.4	1875.42	1587.78-2174.57	2278.42	1957.83-2587.55	1.96	1.61-2.33	1.95	1.65-2.26	1.86	1.6-2.12
Dec-2016	386.17	269.15-526.6	626.44	487.23-788.84	999.71	790.47-1197.33	0.53	0.37-0.73	0.65	0.51-0.82	0.82	0.65-0.98
Jan-2017	11.70	0-35.1	11.59	0-34.77	11.57	0-34.7	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Feb-2017	23.16	0-57.89	57.42	11.48-114.84	57.50	11.5-114.99	0.03	0-0.08	0.06	0.01-0.12	0.05	0.01-0.09
Mar-2017	11.56	0-34.69	11.46	0-34.38	34.45	0-80.37	0.02	0-0.05	0.01	0-0.04	0.03	0-0.07
Apr-2017	0.00	0-0	0.00	0-0	11.47	0-34.42	0.00	0-0	0.00	0-0	0.01	0-0.03
May-2017	46.31	11.58-92.62	45.85	11.46-91.69	45.89	11.47-91.78	0.06	0.02-0.13	0.05	0.01-0.1	0.04	0.01-0.08
Jun-2017	57.74	11.55-104.22	126.32	57.42-206.7	149.38	68.94-230.1	0.08	0.02-0.14	0.13	0.06-0.21	0.12	0.06-0.19
Jul-2017	0.00	0-0	22.97	0-57.42	34.45	0-80.37	0.00	0-0	0.02	0-0.06	0.03	0-0.07
Aug-2017	2344.33	2020.97-2679.52	2457.48	2112.97-2801.98	2493.43	2148.72-2815.16	3.23	2.79-3.69	2.56	2.2-2.91	2.04	1.76-2.3
Sep-2017	196.83	104.2-301.03	217.98	126.2-332.7	240.75	137.57-343.93	0.27	0.14-0.42	0.23	0.13-0.35	0.20	0.11-0.28
Oct-2017	348.24	220.55-475.93	436.37	310.06-574.18	458.92	320.96-596.6	0.48	0.3-0.66	0.45	0.32-0.6	0.38	0.26-0.49
Nov-2017	977.90	768.35-1187.45	1571.20	1317.04-1825.37	1989.70	1687.17-2303.87	1.35	1.06-1.64	1.63	1.37-1.9	1.63	1.38-1.88
Dec-2017	404.71	277.52-543.47	425.71	299.15-563.78	505.20	378.9-665.94	0.56	0.38-0.75	0.44	0.31-0.59	0.41	0.31-0.54
Jan-2018	138.58	69.29-219.42	149.29	80.38-229.67	149.26	80.37-229.64	0.19	0.1-0.3	0.16	0.08-0.24	0.12	0.07-0.19
Feb-2018	34.65	0-80.84	45.85	11.46-91.69	45.82	11.46-91.65	0.05	0-0.11	0.05	0.01-0.1	0.04	0.01-0.07
Mar-2018	46.13	11.53-92.27	57.42	11.48-114.84	80.56	34.52-138.38	0.06	0.02-0.13	0.06	0.01-0.12	0.07	0.03-0.11
Apr-2018	23.10	0-57.74	45.93	11.48-91.87	45.96	11.49-103.41	0.03	0-0.08	0.05	0.01-0.1	0.04	0.01-0.08
May-2018	46.31	11.58-92.91	45.98	11.49-91.96	45.93	11.48-91.85	0.06	0.02-0.13	0.05	0.01-0.1	0.04	0.01-0.08
Jun-2018	46.19	11.55-92.39	45.93	11.48-91.87	46.03	11.51-92.06	0.06	0.02-0.13	0.05	0.01-0.1	0.04	0.01-0.08
Jul-2018	34.56	0-80.63	68.77	22.92-126.08	103.26	45.89-172.1	0.05	0-0.11	0.07	0.02-0.13	0.08	0.04-0.14

Table 5.2. Gannet design based estimates of birds in flight.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	57.89	11.58-115.78	92.31	34.62-161.55	172.10	80.31-263.88	0.08	0.02-0.16	0.10	0.04-0.17	0.14	0.07-0.22
Oct-2016	46.31	11.58-104.2	68.77	22.92-126.08	91.58	34.34-148.81	0.06	0.02-0.14	0.07	0.02-0.13	0.07	0.03-0.12
Nov-2016	891.51	706.26-1099.92	1173.58	943.46-1415.48	1442.62	1213.34-1717.4	1.23	0.97-1.52	1.22	0.98-1.47	1.18	0.99-1.4
Dec-2016	198.94	117.02-304.26	324.82	208.81-452.43	581.23	418.48-743.97	0.27	0.16-0.42	0.34	0.22-0.47	0.48	0.34-0.61
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	23.16	0-57.89	57.42	11.48-114.84	57.50	11.5-114.99	0.03	0-0.08	0.06	0.01-0.12	0.05	0.01-0.09
Mar-2017	11.56	0-46.25	11.46	0-34.38	22.96	0-57.41	0.02	0-0.06	0.01	0-0.04	0.02	0-0.05
Apr-2017	0.00	0-0	0.00	0-0	11.47	0-34.71	0.00	0-0	0.00	0-0	0.01	0-0.03
May-2017	46.31	11.58-92.62	45.85	11.46-91.69	45.89	11.19-91.78	0.06	0.02-0.13	0.05	0.01-0.1	0.04	0.01-0.08
Jun-2017	0.00	0-0	34.45	0-80.38	57.45	11.49-114.9	0.00	0-0	0.04	0-0.08	0.05	0.01-0.09
Jul-2017	0.00	0-0	11.48	0-34.45	22.96	0-57.41	0.00	0-0	0.01	0-0.04	0.02	0-0.05
Aug-2017	958.52	750.65-1189.49	1067.97	860.98-1274.67	1080.10	873.28-1310.2	1.32	1.04-1.64	1.11	0.9-1.33	0.88	0.71-1.07
Sep-2017	127.36	57.89-208.41	137.67	57.36-229.45	160.50	80.25-241.04	0.18	0.08-0.29	0.14	0.06-0.24	0.13	0.07-0.2
Oct-2017	208.94	116.08-313.41	264.12	160.77-378.96	286.83	172.1-401.56	0.29	0.16-0.43	0.27	0.17-0.39	0.23	0.14-0.33
Nov-2017	512.23	372.53-651.93	785.60	612.31-970.45	861.04	674.87-1047.21	0.71	0.51-0.9	0.82	0.64-1.01	0.70	0.55-0.86
Dec-2017	254.39	161.89-370.02	264.63	161.08-379.69	332.97	218.15-459.56	0.35	0.22-0.51	0.28	0.17-0.39	0.27	0.18-0.38
Jan-2018	23.10	0-57.74	22.97	0-57.42	22.96	0-57.41	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Feb-2018	34.65	0-80.84	45.85	11.46-103.15	45.82	11.46-91.65	0.05	0-0.11	0.05	0.01-0.11	0.04	0.01-0.07
Mar-2018	46.13	11.53-92.27	57.42	11.48-103.35	80.56	23.02-149.6	0.06	0.02-0.13	0.06	0.01-0.11	0.07	0.02-0.12
Apr-2018	23.10	0-57.74	34.45	0-80.38	34.47	0-80.43	0.03	0-0.08	0.04	0-0.08	0.03	0-0.07
May-2018	46.31	11.58-92.62	45.98	11.49-91.96	45.93	11.48-91.85	0.06	0.02-0.13	0.05	0.01-0.1	0.04	0.01-0.08
Jun-2018	34.65	0-80.84	34.45	0-80.38	34.52	0-80.56	0.05	0-0.11	0.04	0-0.08	0.03	0-0.07
Jul-2018	23.04	0-57.59	34.38	0-80.23	34.42	0-80.31	0.03	0-0.08	0.04	0-0.08	0.03	0-0.07

Table 5.3. Gannet design based estimates of birds on the sea surface.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	150.52	81.05-243.14	150.01	80.77-230.78	172.10	80.31-263.88	0.21	0.11-0.34	0.16	0.08-0.24	0.14	0.07-0.22
Oct-2016	23.16	0-57.89	45.85	11.46-103.15	45.79	11.45-103.02	0.03	0-0.08	0.05	0.01-0.11	0.04	0.01-0.08
Nov-2016	532.59	382.08-694.69	701.85	540.48-885.94	824.35	641.16-1030.44	0.73	0.53-0.96	0.73	0.56-0.92	0.67	0.52-0.84
Dec-2016	187.23	105.32-292.55	301.62	197.21-429.22	418.48	290.32-557.98	0.26	0.15-0.4	0.31	0.21-0.45	0.34	0.24-0.46
Jan-2017	11.70	0-46.79	11.59	0-34.77	11.57	0-34.7	0.02	0-0.06	0.01	0-0.04	0.01	0-0.03
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	0.00	0-0	11.48	0-34.45	0.00	0-0	0.00	0-0	0.01	0-0.03
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	57.74	11.55-115.48	91.87	34.45-160.77	91.92	34.47-160.87	0.08	0.02-0.16	0.10	0.04-0.17	0.08	0.03-0.13
Jul-2017	0.00	0-0	11.48	0-34.74	11.48	0-34.45	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Aug-2017	1385.81	1166.39-1639.87	1389.51	1171.32-1642.15	1413.33	1172.03-1654.91	1.91	1.61-2.26	1.45	1.22-1.71	1.16	0.96-1.35
Sep-2017	69.47	23.16-127.36	80.31	22.95-137.67	80.25	22.93-149.04	0.10	0.03-0.18	0.08	0.02-0.14	0.07	0.02-0.12
Oct-2017	139.30	58.04-220.55	172.25	91.87-264.12	172.10	91.78-263.88	0.19	0.08-0.3	0.18	0.1-0.27	0.14	0.08-0.22
Nov-2017	465.67	337.32-605.37	785.60	612.31-982	1128.66	907.58-1349.74	0.64	0.47-0.83	0.82	0.64-1.02	0.92	0.74-1.1
Dec-2017	150.32	69.38-231.26	161.08	80.54-253.12	172.23	91.85-264.08	0.21	0.1-0.32	0.17	0.08-0.26	0.14	0.08-0.22
Jan-2018	115.48	46.19-196.32	126.32	57.42-206.7	126.30	57.41-206.67	0.16	0.06-0.27	0.13	0.06-0.21	0.10	0.05-0.17
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	11.48	0-34.45	11.49	0-34.47	0.00	0-0	0.01	0-0.04	0.01	0-0.03
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	11.55	0-34.65	11.48	0-34.45	11.51	0-34.52	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Jul-2018	11.52	0-34.56	34.38	0-80.23	68.84	22.95-137.68	0.02	0-0.05	0.04	0-0.08	0.06	0.02-0.11

Table 6.1. Cormorant design based estimates of birds in flight and on sea.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	69.47	23.16-138.94	68.77	22.92-126.08	68.68	22.89-125.92	0.10	0.03-0.19	0.07	0.02-0.13	0.06	0.02-0.1
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	11.70	0-35.11	23.20	0-58	23.25	0-58.12	0.02	0-0.05	0.02	0-0.06	0.02	0-0.05
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	11.46	0-34.38	11.48	0-45.93	0.00	0-0	0.01	0-0.04	0.01	0-0.04
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.00	0-0	0.00	0-0	11.47	0-45.89	0.00	0-0	0.00	0-0	0.01	0-0.04
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 6.2. Cormorant design based estimates of birds in flight.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	23.16	0-57.89	22.92	0-57.31	22.89	0-57.24	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 6.3. Cormorant design based estimates of birds on the sea surface.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	46.31	11.58-92.91	45.85	11.46-91.69	45.79	11.45-103.02	0.06	0.02-0.13	0.05	0.01-0.1	0.04	0.01-0.08
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	11.70	0-35.11	23.20	0-58	23.25	0-58.12	0.02	0-0.05	0.02	0-0.06	0.02	0-0.05
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	11.46	0-34.38	11.48	0-34.45	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.00	0-0	0.00	0-0	11.47	0-34.42	0.00	0-0	0.00	0-0	0.01	0-0.03
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 7.1. Shag design based estimates of birds in flight and on sea.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Sep-2017	69.47	23.16-127.36	68.84	22.95-126.2	68.79	11.46-126.11	0.1	0.03-0.18	0.07	0.02-0.13	0.06	0.01-0.1
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0

Table 7.2. Shag design based estimates of birds in flight.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Sep-2017	69.47	23.16-127.36	68.84	22.95-126.2	68.79	22.93-126.11	0.1	0.03-0.18	0.07	0.02-0.13	0.06	0.02-0.1
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.0	0-0	0.00	0-0	0.00	0-0

Table 7.3. Shag design based estimates of birds on the sea surface.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Sep-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Oct-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Nov-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Dec-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jan-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Feb-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Mar-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Apr-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
May-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jun-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jul-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Aug-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Sep-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Oct-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Nov-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Dec-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jan-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Feb-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Mar-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Apr-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
May-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jun-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jul-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0

Table 8.1. Arctic Skua design based estimates of birds in flight and on sea.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	34.73	0-81.05	34.45	0-80.38	45.86	0-103.18	0.05	0-0.11	0.04	0-0.08	0.04	0-0.08
Sep-2016	11.58	0-34.73	23.08	0-57.7	45.89	11.47-92.07	0.02	0-0.05	0.02	0-0.06	0.04	0.01-0.08
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	0.00	0-0	11.46	0-34.39	0.00	0-0	0.00	0-0	0.01	0-0.03
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 8.2. Arctic Skua design based estimates of birds in flight.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	34.73	0-81.05	34.45	0-80.38	45.86	11.46-91.72	0.05	0-0.11	0.04	0-0.08	0.04	0.01-0.07
Sep-2016	11.58	0-34.73	23.08	0-57.7	45.89	11.47-91.78	0.02	0-0.05	0.02	0-0.06	0.04	0.01-0.08
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	0.00	0-0	11.46	0-34.39	0.00	0-0	0.00	0-0	0.01	0-0.03
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 8.3. Arctic Skua design based estimates of birds on the sea surface.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Sep-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Oct-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Nov-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Dec-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jan-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Feb-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Mar-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Apr-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
May-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jun-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jul-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Aug-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Sep-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Oct-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Nov-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Dec-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jan-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Feb-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Mar-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Apr-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
May-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jun-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jul-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0

Table 9.1. Great Skua design based estimates of birds in flight and on sea.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	46.31	11.58-92.62	57.70	11.54-115.39	80.31	22.95-149.15	0.06	0.02-0.13	0.06	0.01-0.12	0.07	0.02-0.12
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	11.70	0-35.11	11.60	0-34.8	23.25	0-58.12	0.02	0-0.05	0.01	0-0.04	0.02	0-0.05
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	69.47	23.16-127.36	91.78	34.42-160.62	91.72	34.39-160.5	0.10	0.03-0.18	0.10	0.04-0.17	0.07	0.03-0.13
Oct-2017	11.61	0-34.82	11.48	0-34.45	11.47	0-34.42	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 9.2. Great Skua design based estimates of birds in flight.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	46.31	11.58-92.62	57.70	11.54-115.39	80.31	34.42-149.15	0.06	0.02-0.13	0.06	0.01-0.12	0.07	0.03-0.12
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	11.70	0-35.11	11.60	0-34.8	23.25	0-58.12	0.02	0-0.05	0.01	0-0.04	0.02	0-0.05
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	34.73	0-81.05	57.36	11.47-114.73	57.32	11.46-103.18	0.05	0-0.11	0.06	0.01-0.12	0.05	0.01-0.08
Oct-2017	11.61	0-34.82	11.48	0-34.45	11.47	0-34.42	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 9.3. Great Skua design based estimates of birds on the sea surface.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	34.73	0-81.05	34.42	0-80.31	34.39	0-80.25	0.05	0-0.11	0.04	0-0.08	0.03	0-0.07
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 10.1. Puffin design based estimates of birds in flight and on sea.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	11.48	0-34.45	46.00	11.5-103.49	0.00	0-0	0.01	0-0.04	0.04	0.01-0.08
Mar-2017	46.25	0-92.51	45.85	11.46-103.15	45.93	11.48-91.85	0.06	0-0.13	0.05	0.01-0.11	0.04	0.01-0.08
Apr-2017	0.00	0-0	0.00	0-0	11.47	0-34.42	0.00	0-0	0.00	0-0	0.01	0-0.03
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 10.2. Puffin design based estimates of birds in flight.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Sep-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Oct-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Nov-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Dec-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jan-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Feb-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Mar-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Apr-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
May-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jun-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jul-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Aug-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Sep-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Oct-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Nov-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Dec-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jan-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Feb-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Mar-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Apr-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
May-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jun-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jul-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0

Table 10.3. Puffin design based estimates of birds on the sea surface.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	11.48	0-34.45	46.00	11.5-91.99	0.00	0-0	0.01	0-0.04	0.04	0.01-0.08
Mar-2017	46.25	11.27-92.51	45.85	11.46-91.69	45.93	11.48-92.14	0.06	0.02-0.13	0.05	0.01-0.1	0.04	0.01-0.08
Apr-2017	0.00	0-0	0.00	0-0	11.47	0-34.42	0.00	0-0	0.00	0-0	0.01	0-0.03
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 11.1. Razorbill design based estimates of birds in flight and on sea.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	277.87	173.67-405.23	275.60	172.25-390.44	298.08	194.9-412.72	0.38	0.24-0.56	0.29	0.18-0.41	0.24	0.16-0.34
Sep-2016	104.20	34.73-173.67	184.62	103.85-276.94	275.35	160.62-390.09	0.14	0.05-0.24	0.19	0.11-0.29	0.23	0.13-0.32
Oct-2016	69.47	23.16-127.36	80.23	22.92-137.54	91.58	34.34-160.26	0.10	0.03-0.18	0.08	0.02-0.14	0.07	0.03-0.13
Nov-2016	138.94	69.47-231.56	172.58	92.05-264.63	263.33	148.84-366.38	0.19	0.1-0.32	0.18	0.1-0.28	0.22	0.12-0.3
Dec-2016	877.66	678.73-1100.01	1194.87	974.45-1426.88	1464.69	1220.58-1697.48	1.21	0.94-1.52	1.24	1.01-1.48	1.20	1-1.39
Jan-2017	105.29	46.79-175.77	115.89	57.66-197.02	150.37	80.97-242.91	0.15	0.06-0.24	0.12	0.06-0.2	0.12	0.07-0.2
Feb-2017	382.08	254.72-521.01	413.41	275.6-551.21	471.47	344.97-609.74	0.53	0.35-0.72	0.43	0.29-0.57	0.39	0.28-0.5
Mar-2017	185.01	104.07-277.52	240.69	149-355.31	275.56	172.23-390.38	0.26	0.14-0.38	0.25	0.15-0.37	0.23	0.14-0.32
Apr-2017	589.72	439.4-751.61	746.43	573.89-930.17	860.48	665.44-1055.53	0.81	0.61-1.04	0.78	0.6-0.97	0.70	0.54-0.86
May-2017	0.00	0-0	11.46	0-34.38	11.47	0-34.42	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Jun-2017	57.74	11.55-115.48	57.42	11.48-114.84	57.45	11.49-114.9	0.08	0.02-0.16	0.06	0.01-0.12	0.05	0.01-0.09
Jul-2017	265.95	173.16-381.59	321.54	206.7-447.86	401.86	275.56-539.93	0.37	0.24-0.53	0.33	0.21-0.47	0.33	0.23-0.44
Aug-2017	138.58	57.74-219.42	160.77	80.38-241.15	160.87	80.43-252.79	0.19	0.08-0.3	0.17	0.08-0.25	0.13	0.07-0.21
Sep-2017	92.62	34.73-162.09	91.78	34.42-160.62	103.18	45.86-172.25	0.13	0.05-0.22	0.10	0.04-0.17	0.08	0.04-0.14
Oct-2017	46.43	11.32-92.86	91.87	34.45-160.77	91.78	34.42-160.62	0.06	0.02-0.13	0.10	0.04-0.17	0.08	0.03-0.13
Nov-2017	337.61	232.54-454.03	462.12	323.48-612.31	930.86	744.68-1151.93	0.47	0.32-0.63	0.48	0.34-0.64	0.76	0.61-0.94
Dec-2017	265.95	173.16-381.59	575.28	425.71-747.87	1125.21	918.54-1343.37	0.37	0.24-0.53	0.60	0.44-0.78	0.92	0.75-1.1
Jan-2018	115.48	57.74-196.32	172.25	91.87-275.6	241.12	149.26-355.94	0.16	0.08-0.27	0.18	0.1-0.29	0.20	0.12-0.29
Feb-2018	103.94	46.19-184.77	160.46	80.23-252.15	183.29	103.1-274.94	0.14	0.06-0.25	0.17	0.08-0.26	0.15	0.08-0.22
Mar-2018	265.27	161.47-369.36	333.02	218.19-459.34	425.79	287.7-575.39	0.37	0.22-0.51	0.35	0.23-0.48	0.35	0.24-0.47
Apr-2018	34.65	0-80.84	91.87	34.45-160.77	252.79	149.38-356.2	0.05	0-0.11	0.10	0.04-0.17	0.21	0.12-0.29
May-2018	555.75	405.23-717.84	908.07	712.66-1103.48	1389.30	1159.66-1641.89	0.77	0.56-0.99	0.94	0.74-1.15	1.14	0.95-1.34
Jun-2018	46.19	11.55-92.39	91.87	34.45-172.25	149.60	69.05-230.16	0.06	0.02-0.13	0.10	0.04-0.18	0.12	0.06-0.19
Jul-2018	518.35	380.12-668.09	722.07	561.61-882.82	1296.46	1067-1537.4	0.71	0.52-0.92	0.75	0.58-0.92	1.06	0.87-1.26

Table 11.2. Razorbill design based estimates of birds in flight and on sea and accounting for availability bias.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	334.79	209.24-485.86	332.05	207.53-470.41	359.13	234.81-497.25	0.46	0.29-0.67	0.35	0.22-0.49	0.29	0.19-0.41
Sep-2016	125.55	44.16-209.24	222.44	125.12-333.66	331.75	195.87-469.98	0.17	0.06-0.29	0.23	0.13-0.35	0.27	0.16-0.38
Oct-2016	83.70	27.9-153.44	96.66	27.62-165.71	110.33	41.38-193.08	0.12	0.04-0.21	0.10	0.03-0.17	0.09	0.03-0.16
Nov-2016	167.39	81.33-276.62	207.93	110.9-321.19	317.27	183.96-443.76	0.23	0.11-0.38	0.22	0.12-0.33	0.26	0.15-0.36
Dec-2016	1055.03	820.14-1318.12	1437.22	1171.67-1716.76	1759.93	1468.2-2042.71	1.45	1.13-1.82	1.49	1.22-1.79	1.44	1.2-1.67
Jan-2017	126.85	56.38-211.71	139.63	69.53-237.37	181.17	97.55-290.35	0.17	0.08-0.29	0.15	0.07-0.25	0.15	0.08-0.24
Feb-2017	460.33	309.26-627.73	498.08	332.05-664.11	568.03	413.28-736.99	0.63	0.43-0.87	0.52	0.35-0.69	0.46	0.34-0.6
Mar-2017	222.91	125.38-334.36	289.99	177.17-428.08	332.00	207.5-470.34	0.31	0.17-0.46	0.30	0.18-0.45	0.27	0.17-0.38
Apr-2017	710.51	527.03-905.61	899.31	691.49-1118.33	1036.73	804.03-1271.72	0.98	0.73-1.25	0.94	0.72-1.16	0.85	0.66-1.04
May-2017	0.00	0-0	13.81	0-41.43	13.82	0-41.47	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Jun-2017	69.57	13.91-136.83	69.18	13.84-138.36	69.22	13.84-138.44	0.10	0.02-0.19	0.07	0.01-0.14	0.06	0.01-0.11
Jul-2017	320.43	206.32-459.74	387.40	246.69-537.24	484.17	332-650.46	0.44	0.28-0.63	0.40	0.26-0.56	0.40	0.27-0.53
Aug-2017	166.96	71.93-266.73	193.70	96.85-292.9	193.82	96.91-304.57	0.23	0.1-0.37	0.20	0.1-0.3	0.16	0.08-0.25
Sep-2017	111.60	41.85-195.29	110.58	41.47-193.51	124.31	55.25-207.48	0.15	0.06-0.27	0.11	0.04-0.2	0.10	0.05-0.17
Oct-2017	55.94	13.7-111.88	110.68	41.51-193.7	110.58	41.47-195.87	0.08	0.02-0.15	0.12	0.04-0.2	0.09	0.03-0.16
Nov-2017	404.37	275.46-544.63	554.40	389.74-735.35	1114.36	887.68-1378.34	0.56	0.38-0.75	0.58	0.41-0.76	0.91	0.73-1.13
Dec-2017	320.43	206.32-459.74	693.11	512.84-896.33	1355.68	1101.97-1620.87	0.44	0.28-0.63	0.72	0.53-0.93	1.11	0.9-1.33
Jan-2018	139.14	69.57-236.53	207.53	110.68-329.7	290.50	177.48-428.84	0.19	0.1-0.33	0.22	0.12-0.34	0.24	0.15-0.35
Feb-2018	122.86	53.29-217.89	190.98	94.32-299.1	218.49	121.87-331.25	0.17	0.07-0.3	0.20	0.1-0.31	0.18	0.1-0.27
Mar-2018	317.24	194.54-444.96	398.88	262.88-553.42	503.57	339.55-679.1	0.44	0.27-0.61	0.41	0.27-0.58	0.41	0.28-0.56
Apr-2018	39.38	0-92.67	108.33	39.15-188.99	292.80	170.56-415.1	0.05	0-0.13	0.11	0.04-0.2	0.24	0.14-0.34
May-2018	669.58	488.23-864.87	1094.06	860.93-1329.49	1673.85	1394.83-1975.83	0.92	0.67-1.19	1.14	0.9-1.38	1.37	1.14-1.62
Jun-2018	55.65	13.91-111.31	110.68	41.51-205.18	180.24	85.55-279.71	0.08	0.02-0.15	0.12	0.04-0.21	0.15	0.07-0.23
Jul-2018	624.52	457.98-804.99	869.97	674.29-1070.62	1562.00	1287.89-1854.63	0.86	0.63-1.11	0.90	0.7-1.11	1.28	1.05-1.52

Table 11.3. Razorbill design based estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	277.87	173.67-405.23	275.60	172.25-390.44	298.08	194.9-412.72	0.38	0.24-0.56	0.29	0.18-0.41	0.24	0.16-0.34
Sep-2016	104.20	34.73-173.67	184.62	103.85-276.94	275.35	160.62-390.09	0.14	0.05-0.24	0.19	0.11-0.29	0.23	0.13-0.32
Oct-2016	69.47	23.16-127.36	80.23	22.92-137.54	91.58	34.34-160.26	0.10	0.03-0.18	0.08	0.02-0.14	0.07	0.03-0.13
Nov-2016	138.94	69.47-231.56	172.58	92.05-264.63	263.33	148.84-366.38	0.19	0.1-0.32	0.18	0.1-0.28	0.22	0.12-0.3
Dec-2016	877.66	678.73-1100.01	1194.87	974.45-1426.88	1464.69	1220.58-1697.48	1.21	0.94-1.52	1.24	1.01-1.48	1.20	1-1.39
Jan-2017	105.29	46.79-175.77	115.89	57.66-197.02	150.37	80.97-242.91	0.15	0.06-0.24	0.12	0.06-0.2	0.12	0.07-0.2
Feb-2017	382.08	254.72-521.01	413.41	275.6-551.21	471.47	344.97-609.74	0.53	0.35-0.72	0.43	0.29-0.57	0.39	0.28-0.5
Mar-2017	185.01	104.07-277.52	240.69	149-355.31	275.56	172.23-390.38	0.26	0.14-0.38	0.25	0.15-0.37	0.23	0.14-0.32
Apr-2017	589.72	439.4-751.61	746.43	573.89-930.17	860.48	665.44-1055.53	0.81	0.61-1.04	0.78	0.6-0.97	0.70	0.54-0.86
May-2017	0.00	0-0	11.46	0-34.38	11.47	0-34.42	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Jun-2017	57.74	11.55-115.48	57.42	11.48-114.84	57.45	11.49-114.9	0.08	0.02-0.16	0.06	0.01-0.12	0.05	0.01-0.09
Jul-2017	265.95	173.16-381.59	321.54	206.7-447.86	401.86	275.56-539.93	0.37	0.24-0.53	0.33	0.21-0.47	0.33	0.23-0.44
Aug-2017	138.58	57.74-219.42	160.77	80.38-241.15	160.87	80.43-252.79	0.19	0.08-0.3	0.17	0.08-0.25	0.13	0.07-0.21
Sep-2017	92.62	34.73-162.09	91.78	34.42-160.62	103.18	45.86-172.25	0.13	0.05-0.22	0.10	0.04-0.17	0.08	0.04-0.14
Oct-2017	46.43	11.32-92.86	91.87	34.45-160.77	91.78	34.42-160.62	0.06	0.02-0.13	0.10	0.04-0.17	0.08	0.03-0.13
Nov-2017	337.61	232.54-454.03	462.12	323.48-612.31	930.86	744.68-1151.93	0.47	0.32-0.63	0.48	0.34-0.64	0.76	0.61-0.94
Dec-2017	265.95	173.16-381.59	575.28	425.71-747.87	1125.21	918.54-1343.37	0.37	0.24-0.53	0.60	0.44-0.78	0.92	0.75-1.1
Jan-2018	115.48	57.74-196.32	172.25	91.87-275.6	241.12	149.26-355.94	0.16	0.08-0.27	0.18	0.1-0.29	0.20	0.12-0.29
Feb-2018	103.94	46.19-184.77	160.46	80.23-252.15	183.29	103.1-274.94	0.14	0.06-0.25	0.17	0.08-0.26	0.15	0.08-0.22
Mar-2018	265.27	161.47-369.36	333.02	218.19-459.34	425.79	287.7-575.39	0.37	0.22-0.51	0.35	0.23-0.48	0.35	0.24-0.47
Apr-2018	34.65	0-80.84	91.87	34.45-160.77	252.79	149.38-356.2	0.05	0-0.11	0.10	0.04-0.17	0.21	0.12-0.29
May-2018	559.38	414.36-730.01	917.35	723.05-1117.33	1433.51	1194.87-1679.83	0.77	0.57-1.01	0.95	0.75-1.16	1.17	0.98-1.37
Jun-2018	46.19	11.55-92.39	91.87	34.45-172.25	149.60	69.05-230.16	0.06	0.02-0.13	0.10	0.04-0.18	0.12	0.06-0.19
Jul-2018	519.01	380.78-668.75	723.58	562.36-887.22	1299.52	1068.02-1537.4	0.72	0.53-0.92	0.75	0.58-0.92	1.06	0.87-1.26

Table 11.4. Razorbill design based estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions and accounting for availability bias.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	334.79	209.24-485.86	332.05	207.53-470.41	359.13	234.81-497.25	0.46	0.29-0.67	0.35	0.22-0.49	0.29	0.19-0.41
Sep-2016	125.55	44.16-209.24	222.44	125.12-333.66	331.75	195.87-469.98	0.17	0.06-0.29	0.23	0.13-0.35	0.27	0.16-0.38
Oct-2016	83.70	27.9-153.44	96.66	27.62-165.71	110.33	41.38-193.08	0.12	0.04-0.21	0.10	0.03-0.17	0.09	0.03-0.16
Nov-2016	167.39	81.33-276.62	207.93	110.9-321.19	317.27	183.96-443.76	0.23	0.11-0.38	0.22	0.12-0.33	0.26	0.15-0.36
Dec-2016	1055.03	820.14-1318.12	1437.22	1171.67-1716.76	1759.93	1468.2-2042.71	1.45	1.13-1.82	1.49	1.22-1.79	1.44	1.2-1.67
Jan-2017	126.85	56.38-211.71	139.63	69.53-237.37	181.17	97.55-290.35	0.17	0.08-0.29	0.15	0.07-0.25	0.15	0.08-0.24
Feb-2017	457.96	309.26-627.73	498.08	332.05-664.11	568.03	413.28-736.99	0.63	0.43-0.87	0.52	0.35-0.69	0.46	0.34-0.6
Mar-2017	222.91	125.38-334.36	289.99	177.17-428.08	332.00	207.5-470.34	0.31	0.17-0.46	0.30	0.18-0.45	0.27	0.17-0.38
Apr-2017	710.51	527.03-905.61	899.31	691.49-1118.33	1036.73	804.03-1271.72	0.98	0.73-1.25	0.94	0.72-1.16	0.85	0.66-1.04
May-2017	0.00	0-0	13.81	0-41.43	13.82	0-41.47	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Jun-2017	69.57	13.91-136.83	69.18	13.84-138.36	69.22	13.84-138.44	0.10	0.02-0.19	0.07	0.01-0.14	0.06	0.01-0.11
Jul-2017	320.43	206.32-459.74	387.40	246.69-537.24	484.17	332-650.46	0.44	0.28-0.63	0.40	0.26-0.56	0.40	0.27-0.53
Aug-2017	166.96	71.93-266.73	193.70	96.85-292.9	193.82	96.91-304.57	0.23	0.1-0.37	0.20	0.1-0.3	0.16	0.08-0.25
Sep-2017	111.60	41.85-195.29	110.58	41.47-193.51	124.31	55.25-207.48	0.15	0.06-0.27	0.11	0.04-0.2	0.10	0.05-0.17
Oct-2017	55.94	13.7-111.88	110.68	41.51-193.7	110.58	41.47-195.87	0.08	0.02-0.15	0.12	0.04-0.2	0.09	0.03-0.16
Nov-2017	404.37	275.46-544.63	552.04	389.74-735.35	1114.36	887.68-1378.34	0.56	0.38-0.75	0.57	0.41-0.76	0.91	0.73-1.13
Dec-2017	320.43	206.32-459.74	693.11	512.84-896.33	1355.68	1101.97-1620.87	0.44	0.28-0.63	0.72	0.53-0.93	1.11	0.9-1.33
Jan-2018	139.14	69.57-236.53	207.53	110.68-329.7	290.50	177.48-428.84	0.19	0.1-0.33	0.22	0.12-0.34	0.24	0.15-0.35
Feb-2018	122.86	53.29-217.89	190.98	94.32-299.1	218.49	121.87-331.25	0.17	0.07-0.3	0.20	0.1-0.31	0.18	0.1-0.27
Mar-2018	317.24	194.54-444.96	398.88	262.88-553.42	501.22	339.55-679.1	0.44	0.27-0.61	0.41	0.27-0.58	0.41	0.28-0.56
Apr-2018	39.38	0-92.67	108.33	39.15-188.99	292.80	170.56-415.1	0.05	0-0.13	0.11	0.04-0.2	0.24	0.14-0.34
May-2018	674.20	499.72-878.3	1105.35	872.08-1345.25	1725.38	1439.36-2021.35	0.93	0.69-1.21	1.15	0.91-1.4	1.41	1.18-1.65
Jun-2018	55.65	13.91-111.31	110.68	41.51-205.18	180.24	85.55-279.71	0.08	0.02-0.15	0.12	0.04-0.21	0.15	0.07-0.23
Jul-2018	625.44	458.91-806.18	871.78	675.05-1075.33	1565.27	1289.32-1855.06	0.86	0.63-1.11	0.91	0.7-1.12	1.28	1.05-1.52

Table 11.5. Razorbill design based estimates of birds in flight.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	11.70	0-35.11	11.60	0-35.09	23.25	0-58.12	0.02	0-0.05	0.01	0-0.04	0.02	0-0.05
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	11.64	0-34.93	11.55	0-34.66	34.91	0-81.45	0.02	0-0.05	0.01	0-0.04	0.03	0-0.07
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	11.55	0-46.19	11.46	0-45.85	11.46	0-45.82	0.02	0-0.06	0.01	0-0.05	0.01	0-0.04
Mar-2018	11.53	0-34.6	11.48	0-34.45	46.03	11.51-92.06	0.02	0-0.05	0.01	0-0.04	0.04	0.01-0.08
Apr-2018	11.55	0-34.65	11.48	0-34.45	57.45	11.49-114.9	0.02	0-0.05	0.01	0-0.04	0.05	0.01-0.09
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 11.6. Razorbill design based estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	11.70	0-35.11	11.60	0-35.09	23.25	0-58.12	0.02	0-0.05	0.01	0-0.04	0.02	0-0.05
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	11.64	0-34.93	11.55	0-34.66	34.91	0-81.45	0.02	0-0.05	0.01	0-0.04	0.03	0-0.07
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	11.55	0-46.19	11.46	0-45.85	11.46	0-45.82	0.02	0-0.06	0.01	0-0.05	0.01	0-0.04
Mar-2018	11.53	0-34.6	11.48	0-34.45	46.03	11.51-92.06	0.02	0-0.05	0.01	0-0.04	0.04	0.01-0.08
Apr-2018	11.55	0-34.65	11.48	0-34.45	57.45	11.49-114.9	0.02	0-0.05	0.01	0-0.04	0.05	0.01-0.09
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 11.7. Razorbill design based estimates of birds on the sea surface.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	277.87	173.67-393.66	275.60	172.25-390.44	298.08	194.9-412.72	0.38	0.24-0.54	0.29	0.18-0.41	0.24	0.16-0.34
Sep-2016	104.20	46.02-173.67	184.62	103.85-276.94	275.35	172.1-390.09	0.14	0.06-0.24	0.19	0.11-0.29	0.23	0.14-0.32
Oct-2016	69.47	23.16-127.36	80.23	22.92-137.54	91.58	34.34-160.26	0.10	0.03-0.18	0.08	0.02-0.14	0.07	0.03-0.13
Nov-2016	138.94	57.89-219.98	172.58	92.05-276.14	263.33	171.45-377.83	0.19	0.08-0.3	0.18	0.1-0.29	0.22	0.14-0.31
Dec-2016	865.96	690.43-1064.9	1183.27	962.85-1415.28	1441.45	1208.95-1685.56	1.19	0.95-1.47	1.23	1-1.47	1.18	0.99-1.38
Jan-2017	105.29	46.79-175.48	115.89	57.95-197.02	150.37	80.97-231.63	0.15	0.06-0.24	0.12	0.06-0.2	0.12	0.07-0.19
Feb-2017	382.08	266.3-521.01	413.41	275.6-551.21	471.47	333.48-621.24	0.53	0.37-0.72	0.43	0.29-0.57	0.39	0.27-0.51
Mar-2017	185.01	104.07-277.52	240.69	137.54-355.31	275.56	172.23-390.38	0.26	0.14-0.38	0.25	0.14-0.37	0.23	0.14-0.32
Apr-2017	589.72	427.84-751.9	746.43	574.18-918.68	860.48	676.63-1055.53	0.81	0.59-1.04	0.78	0.6-0.96	0.70	0.55-0.86
May-2017	0.00	0-0	11.46	0-34.38	11.47	0-34.42	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Jun-2017	57.74	11.55-104.22	57.42	11.48-114.84	57.45	11.49-114.9	0.08	0.02-0.14	0.06	0.01-0.12	0.05	0.01-0.09
Jul-2017	265.95	161.89-381.59	321.54	195.22-436.37	401.86	275.56-539.64	0.37	0.22-0.53	0.33	0.2-0.45	0.33	0.23-0.44
Aug-2017	138.58	69.29-230.97	160.77	80.38-252.64	160.87	80.43-252.79	0.19	0.1-0.32	0.17	0.08-0.26	0.13	0.07-0.21
Sep-2017	92.62	34.73-162.09	91.78	34.42-160.62	103.18	45.86-171.97	0.13	0.05-0.22	0.10	0.04-0.17	0.08	0.04-0.14
Oct-2017	46.43	11.61-92.86	91.87	34.45-160.77	91.78	34.42-172.1	0.06	0.02-0.13	0.10	0.04-0.17	0.08	0.03-0.14
Nov-2017	325.97	209.55-442.38	450.57	323.48-600.75	895.95	698.14-1105.39	0.45	0.29-0.61	0.47	0.34-0.62	0.73	0.57-0.9
Dec-2017	265.95	161.89-381.59	575.28	425.42-724.86	1125.21	895.58-1354.85	0.37	0.22-0.53	0.60	0.44-0.75	0.92	0.73-1.11
Jan-2018	115.48	57.74-196.32	172.25	91.87-264.12	241.12	137.78-355.94	0.16	0.08-0.27	0.18	0.1-0.27	0.20	0.11-0.29
Feb-2018	92.39	34.65-161.68	149.00	68.77-229.23	171.84	91.65-274.94	0.13	0.05-0.22	0.15	0.07-0.24	0.14	0.07-0.22
Mar-2018	253.74	161.47-369.08	321.54	218.19-459.34	379.76	253.17-506.35	0.35	0.22-0.51	0.33	0.23-0.48	0.31	0.21-0.41
Apr-2018	23.10	0-57.74	80.38	22.97-137.8	195.34	103.41-287.55	0.03	0-0.08	0.08	0.02-0.14	0.16	0.08-0.24
May-2018	555.75	405.23-717.84	908.07	723.87-1103.48	1389.30	1148.18-1630.41	0.77	0.56-0.99	0.94	0.75-1.15	1.14	0.94-1.33
Jun-2018	46.19	11.55-92.39	91.87	34.45-160.77	149.60	80.56-241.95	0.06	0.02-0.13	0.10	0.04-0.17	0.12	0.07-0.2
Jul-2018	518.35	380.12-668.38	722.07	550.15-916.92	1296.46	1078.47-1548.87	0.71	0.52-0.92	0.75	0.57-0.95	1.06	0.88-1.27

Table 11.8. Razorbill design based estimates of birds on the sea surface and accounting for availability bias.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	334.79	209.24-474.28	332.05	207.53-470.41	359.13	234.81-497.25	0.46	0.29-0.65	0.35	0.22-0.49	0.29	0.19-0.41
Sep-2016	125.55	55.45-209.24	222.44	125.12-333.66	331.75	207.35-469.98	0.17	0.08-0.29	0.23	0.13-0.35	0.27	0.17-0.38
Oct-2016	83.70	27.9-153.44	96.66	27.62-165.71	110.33	41.38-193.08	0.12	0.04-0.21	0.10	0.03-0.17	0.09	0.03-0.16
Nov-2016	167.39	69.75-265.04	207.93	110.9-332.69	317.27	206.57-455.21	0.23	0.1-0.37	0.22	0.12-0.35	0.26	0.17-0.37
Dec-2016	1043.33	831.84-1283.01	1425.62	1160.07-1705.16	1736.68	1456.57-2030.8	1.44	1.15-1.77	1.48	1.21-1.77	1.42	1.19-1.66
Jan-2017	126.85	56.38-211.42	139.63	69.82-237.37	181.17	97.55-279.07	0.17	0.08-0.29	0.15	0.07-0.25	0.15	0.08-0.23
Feb-2017	460.33	320.84-627.73	498.08	332.05-664.11	568.03	401.78-748.48	0.63	0.44-0.87	0.52	0.35-0.69	0.46	0.33-0.61
Mar-2017	222.91	125.38-334.36	289.99	165.71-428.08	332.00	207.5-470.34	0.31	0.17-0.46	0.30	0.17-0.45	0.27	0.17-0.38
Apr-2017	710.51	515.47-905.9	899.31	691.78-1106.85	1036.73	815.21-1271.72	0.98	0.71-1.25	0.94	0.72-1.15	0.85	0.67-1.04
May-2017	0.00	0-0	13.81	0-41.43	13.82	0-41.47	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Jun-2017	69.57	13.91-125.57	69.18	13.84-138.36	69.22	13.84-138.44	0.10	0.02-0.17	0.07	0.01-0.14	0.06	0.01-0.11
Jul-2017	320.43	195.04-459.74	387.40	235.2-525.75	484.17	332-650.17	0.44	0.27-0.63	0.40	0.24-0.55	0.40	0.27-0.53
Aug-2017	166.96	83.48-278.27	193.70	96.85-304.38	193.82	96.91-304.57	0.23	0.12-0.38	0.20	0.1-0.32	0.16	0.08-0.25
Sep-2017	111.60	41.85-195.29	110.58	41.47-193.51	124.31	55.25-207.19	0.15	0.06-0.27	0.11	0.04-0.2	0.10	0.05-0.17
Oct-2017	55.94	13.99-111.88	110.68	41.51-193.7	110.58	41.47-207.35	0.08	0.02-0.15	0.12	0.04-0.2	0.09	0.03-0.17
Nov-2017	392.73	252.47-532.99	542.85	389.74-723.8	1079.46	841.13-1331.8	0.54	0.35-0.73	0.56	0.41-0.75	0.88	0.69-1.09
Dec-2017	320.43	195.04-459.74	693.11	512.56-873.32	1355.68	1079.01-1632.35	0.44	0.27-0.63	0.72	0.53-0.91	1.11	0.88-1.33
Jan-2018	139.14	69.57-236.53	207.53	110.68-318.22	290.50	166-428.84	0.19	0.1-0.33	0.22	0.12-0.33	0.24	0.14-0.35
Feb-2018	111.31	41.74-194.79	179.52	82.85-276.18	207.03	110.42-331.25	0.15	0.06-0.27	0.19	0.09-0.29	0.17	0.09-0.27
Mar-2018	305.71	194.54-444.67	387.40	262.88-553.42	457.54	305.03-610.06	0.42	0.27-0.61	0.40	0.27-0.58	0.37	0.25-0.5
Apr-2018	27.83	0-69.57	96.85	27.67-166.03	235.35	124.6-346.44	0.04	0-0.1	0.10	0.03-0.17	0.19	0.1-0.28
May-2018	669.58	488.23-864.87	1094.06	872.13-1329.49	1673.85	1383.35-1964.35	0.92	0.67-1.19	1.14	0.91-1.38	1.37	1.13-1.61
Jun-2018	55.65	13.91-111.31	110.68	41.51-193.7	180.24	97.05-291.51	0.08	0.02-0.15	0.12	0.04-0.2	0.15	0.08-0.24
Jul-2018	624.52	457.98-805.28	869.97	662.83-1104.72	1562.00	1299.36-1866.11	0.86	0.63-1.11	0.90	0.69-1.15	1.28	1.06-1.53

Table 11.9. Razorbill design based estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	277.87	173.67-393.66	275.60	172.25-390.44	298.08	194.9-412.72	0.38	0.24-0.54	0.29	0.18-0.41	0.24	0.16-0.34
Sep-2016	104.20	46.02-173.67	184.62	103.85-276.94	275.35	172.1-390.09	0.14	0.06-0.24	0.19	0.11-0.29	0.23	0.14-0.32
Oct-2016	69.47	23.16-127.36	80.23	22.92-137.54	91.58	34.34-160.26	0.10	0.03-0.18	0.08	0.02-0.14	0.07	0.03-0.13
Nov-2016	138.94	57.89-219.98	172.58	92.05-276.14	263.33	171.45-377.83	0.19	0.08-0.3	0.18	0.1-0.29	0.22	0.14-0.31
Dec-2016	865.96	690.43-1064.9	1183.27	962.85-1415.28	1441.45	1208.95-1685.56	1.19	0.95-1.47	1.23	1-1.47	1.18	0.99-1.38
Jan-2017	105.29	46.79-175.48	115.89	57.95-197.02	150.37	80.97-231.63	0.15	0.06-0.24	0.12	0.06-0.2	0.12	0.07-0.19
Feb-2017	370.50	266.3-521.01	413.41	275.6-551.21	471.47	333.48-621.24	0.51	0.37-0.72	0.43	0.29-0.57	0.39	0.27-0.51
Mar-2017	185.01	104.07-277.52	240.69	137.54-355.31	275.56	172.23-390.38	0.26	0.14-0.38	0.25	0.14-0.37	0.23	0.14-0.32
Apr-2017	589.72	427.84-751.9	746.43	574.18-918.68	860.48	676.63-1055.53	0.81	0.59-1.04	0.78	0.6-0.96	0.70	0.55-0.86
May-2017	0.00	0-0	11.46	0-34.38	11.47	0-34.42	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Jun-2017	57.74	11.55-104.22	57.42	11.48-114.84	57.45	11.49-114.9	0.08	0.02-0.14	0.06	0.01-0.12	0.05	0.01-0.09
Jul-2017	265.95	161.89-381.59	321.54	195.22-436.37	401.86	275.56-539.64	0.37	0.22-0.53	0.33	0.2-0.45	0.33	0.23-0.44
Aug-2017	138.58	69.29-230.97	160.77	80.38-252.64	160.87	80.43-252.79	0.19	0.1-0.32	0.17	0.08-0.26	0.13	0.07-0.21
Sep-2017	92.62	34.73-162.09	91.78	34.42-160.62	103.18	45.86-171.97	0.13	0.05-0.22	0.10	0.04-0.17	0.08	0.04-0.14
Oct-2017	46.43	11.61-92.86	91.87	34.45-160.77	91.78	34.42-172.1	0.06	0.02-0.13	0.10	0.04-0.17	0.08	0.03-0.14
Nov-2017	325.97	209.55-442.38	439.01	323.48-600.75	895.95	698.14-1105.39	0.45	0.29-0.61	0.46	0.34-0.62	0.73	0.57-0.9
Dec-2017	265.95	161.89-381.59	575.28	425.42-724.86	1125.21	895.58-1354.85	0.37	0.22-0.53	0.60	0.44-0.75	0.92	0.73-1.11
Jan-2018	115.48	57.74-196.32	172.25	91.87-264.12	241.12	137.78-355.94	0.16	0.08-0.27	0.18	0.1-0.27	0.20	0.11-0.29
Feb-2018	92.39	34.65-161.68	149.00	68.77-229.23	171.84	91.65-274.94	0.13	0.05-0.22	0.15	0.07-0.24	0.14	0.07-0.22
Mar-2018	253.74	161.47-369.08	321.54	218.19-459.34	368.25	253.17-506.35	0.35	0.22-0.51	0.33	0.23-0.48	0.30	0.21-0.41
Apr-2018	23.10	0-57.74	80.38	22.97-137.8	195.34	103.41-287.55	0.03	0-0.08	0.08	0.02-0.14	0.16	0.08-0.24
May-2018	560.60	416.75-724	917.90	727.62-1112.78	1425.01	1193.67-1667.43	0.77	0.57-1	0.95	0.76-1.16	1.17	0.98-1.36
Jun-2018	46.19	11.55-92.39	91.87	34.45-160.77	149.60	80.56-241.95	0.06	0.02-0.13	0.10	0.04-0.17	0.12	0.07-0.2
Jul-2018	519.67	381.44-670.96	723.58	550.15-918.42	1297.48	1080.46-1550.94	0.72	0.53-0.93	0.75	0.57-0.96	1.06	0.88-1.27

Table 11.10. Razorbill design based estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions and accounting for availability bias.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	334.79	209.24-474.28	332.05	207.53-470.41	359.13	234.81-497.25	0.46	0.29-0.65	0.35	0.22-0.49	0.29	0.19-0.41
Sep-2016	125.55	55.45-209.24	222.44	125.12-333.66	331.75	207.35-469.98	0.17	0.08-0.29	0.23	0.13-0.35	0.27	0.17-0.38
Oct-2016	83.70	27.9-153.44	96.66	27.62-165.71	110.33	41.38-193.08	0.12	0.04-0.21	0.10	0.03-0.17	0.09	0.03-0.16
Nov-2016	167.39	69.75-265.04	207.93	110.9-332.69	317.27	206.57-455.21	0.23	0.1-0.37	0.22	0.12-0.35	0.26	0.17-0.37
Dec-2016	1043.33	831.84-1283.01	1425.62	1160.07-1705.16	1736.68	1456.57-2030.8	1.44	1.15-1.77	1.48	1.21-1.77	1.42	1.19-1.66
Jan-2017	126.85	56.38-211.42	139.63	69.82-237.37	181.17	97.55-279.07	0.17	0.08-0.29	0.15	0.07-0.25	0.15	0.08-0.23
Feb-2017	446.38	320.84-627.73	498.08	332.05-664.11	568.03	401.78-748.48	0.62	0.44-0.87	0.52	0.35-0.69	0.46	0.33-0.61
Mar-2017	222.91	125.38-334.36	289.99	165.71-428.08	332.00	207.5-470.34	0.31	0.17-0.46	0.30	0.17-0.45	0.27	0.17-0.38
Apr-2017	710.51	515.47-905.9	899.31	691.78-1106.85	1036.73	815.21-1271.72	0.98	0.71-1.25	0.94	0.72-1.15	0.85	0.67-1.04
May-2017	0.00	0-0	13.81	0-41.43	13.82	0-41.47	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Jun-2017	69.57	13.91-125.57	69.18	13.84-138.36	69.22	13.84-138.44	0.10	0.02-0.17	0.07	0.01-0.14	0.06	0.01-0.11
Jul-2017	320.43	195.04-459.74	387.40	235.2-525.75	484.17	332-650.17	0.44	0.27-0.63	0.40	0.24-0.55	0.40	0.27-0.53
Aug-2017	166.96	83.48-278.27	193.70	96.85-304.38	193.82	96.91-304.57	0.23	0.12-0.38	0.20	0.1-0.32	0.16	0.08-0.25
Sep-2017	111.60	41.85-195.29	110.58	41.47-193.51	124.31	55.25-207.19	0.15	0.06-0.27	0.11	0.04-0.2	0.10	0.05-0.17
Oct-2017	55.94	13.99-111.88	110.68	41.51-193.7	110.58	41.47-207.35	0.08	0.02-0.15	0.12	0.04-0.2	0.09	0.03-0.17
Nov-2017	392.73	252.47-532.99	528.93	389.74-723.8	1079.46	841.13-1331.8	0.54	0.35-0.73	0.55	0.41-0.75	0.88	0.69-1.09
Dec-2017	320.43	195.04-459.74	693.11	512.56-873.32	1355.68	1079.01-1632.35	0.44	0.27-0.63	0.72	0.53-0.91	1.11	0.88-1.33
Jan-2018	139.14	69.57-236.53	207.53	110.68-318.22	290.50	166-428.84	0.19	0.1-0.33	0.22	0.12-0.33	0.24	0.14-0.35
Feb-2018	111.31	41.74-194.79	179.52	82.85-276.18	207.03	110.42-331.25	0.15	0.06-0.27	0.19	0.09-0.29	0.17	0.09-0.27
Mar-2018	305.71	194.54-444.67	387.40	262.88-553.42	443.68	305.03-610.06	0.42	0.27-0.61	0.40	0.27-0.58	0.36	0.25-0.5
Apr-2018	27.83	0-69.57	96.85	27.67-166.03	235.35	124.6-346.44	0.04	0-0.1	0.10	0.03-0.17	0.19	0.1-0.28
May-2018	675.43	502.11-872.29	1105.91	876.65-1340.7	1716.88	1438.15-2008.95	0.93	0.69-1.2	1.15	0.91-1.39	1.40	1.18-1.64
Jun-2018	55.65	13.91-111.31	110.68	41.51-193.7	180.24	97.05-291.51	0.08	0.02-0.15	0.12	0.04-0.2	0.15	0.08-0.24
Jul-2018	626.10	459.56-808.39	871.78	662.83-1106.53	1563.23	1301.76-1868.6	0.86	0.63-1.11	0.91	0.69-1.15	1.28	1.06-1.53

Table 12.1. Guillemot design based estimates of birds in flight and on sea.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	1794.60	1516.73-2072.48	2273.74	1952.2-2583.79	3210.05	2865.83-3588.37	2.47	2.09-2.86	2.36	2.03-2.69	2.62	2.34-2.93
Sep-2016	2188.26	1875.65-2477.71	2723.21	2411.36-3057.84	3086.27	2707.65-3441.93	3.02	2.59-3.42	2.83	2.51-3.18	2.52	2.21-2.81
Oct-2016	729.42	567.33-914.67	985.69	779.38-1203.74	1339.32	1098.93-1579.71	1.01	0.78-1.26	1.03	0.81-1.25	1.10	0.9-1.29
Nov-2016	926.25	717.55-1134.65	1472.72	1219.6-1725.85	2198.27	1923.49-2507.4	1.28	0.99-1.56	1.53	1.27-1.79	1.80	1.57-2.05
Dec-2016	11339.42	10695.8-11959.92	14315.21	13595.97-14999.65	18099.44	17308.97-18855.32	15.64	14.75-16.49	14.89	14.14-15.6	14.80	14.15-15.42
Jan-2017	2351.38	2047.22-2643.83	2804.63	2503.31-3129.14	3446.97	3076.83-3828.68	3.24	2.82-3.65	2.92	2.6-3.25	2.82	2.52-3.13
Feb-2017	2165.10	1875.36-2489.58	3066.10	2744.56-3422.09	4392.68	3978.71-4841.15	2.99	2.59-3.43	3.19	2.85-3.56	3.59	3.25-3.96
Mar-2017	555.04	404.71-716.92	767.92	596-951.3	952.99	757.8-1136.7	0.77	0.56-0.99	0.80	0.62-0.99	0.78	0.62-0.93
Apr-2017	2000.44	1699.79-2301.37	2411.54	2090-2733.08	2879.75	2535.56-3212.47	2.76	2.34-3.17	2.51	2.17-2.84	2.35	2.07-2.63
May-2017	11.58	0-34.73	11.46	0-34.38	11.47	0-34.42	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Jun-2017	300.26	196.32-427.29	424.89	287.09-574.18	471.11	321.73-620.48	0.41	0.27-0.59	0.44	0.3-0.6	0.39	0.26-0.51
Jul-2017	1006.00	809.43-1191.3	1515.83	1263.19-1780.23	1791.16	1515.59-2066.72	1.39	1.12-1.64	1.58	1.31-1.85	1.46	1.24-1.69
Aug-2017	1293.42	1050.9-1536.23	1734.01	1469.61-2009.62	2068.28	1781.02-2367.04	1.78	1.45-2.12	1.80	1.53-2.09	1.69	1.46-1.94
Sep-2017	324.19	208.41-439.97	378.59	252.4-504.79	550.29	412.72-722.26	0.45	0.29-0.61	0.39	0.26-0.52	0.45	0.34-0.59
Oct-2017	185.73	104.47-278.59	218.19	126.32-321.54	298.30	183.57-424.5	0.26	0.14-0.38	0.23	0.13-0.33	0.24	0.15-0.35
Nov-2017	4342.35	3946.53-4750.1	6227.05	5729.98-6700.72	9529.63	8959.19-10123.34	5.99	5.44-6.55	6.48	5.96-6.97	7.79	7.33-8.28
Dec-2017	4590.60	4162.76-4995.6	6615.75	6098-7133.8	8427.62	7887.69-8990.52	6.33	5.74-6.89	6.88	6.34-7.42	6.89	6.45-7.35
Jan-2018	1016.26	808.39-1235.68	1435.44	1217.25-1711.05	1894.49	1618.64-2193.02	1.40	1.11-1.7	1.49	1.27-1.78	1.55	1.32-1.79
Feb-2018	2228.84	1893.94-2517.55	2773.68	2441.3-3117.53	3379.46	3024.05-3792.44	3.07	2.61-3.47	2.88	2.54-3.24	2.76	2.47-3.1
Mar-2018	1499.37	1257.16-1741.58	1952.20	1688.08-2250.77	2727.37	2381.84-3084.11	2.07	1.73-2.4	2.03	1.76-2.34	2.23	1.95-2.52
Apr-2018	877.68	692.9-1085.84	1240.22	1022.03-1458.7	1608.66	1367.08-1873.23	1.21	0.96-1.5	1.29	1.06-1.52	1.32	1.12-1.53
May-2018	1563.04	1308.32-1841.21	2103.51	1793.16-2425.36	2376.73	2055.24-2675.54	2.16	1.8-2.54	2.19	1.86-2.52	1.94	1.68-2.19
Jun-2018	80.84	34.65-150.13	103.35	45.93-172.25	115.08	46.03-195.63	0.11	0.05-0.21	0.11	0.05-0.18	0.09	0.04-0.16
Jul-2018	8535.48	8005.61-9123.23	10269.50	9707.6-10945.72	13262.91	12597.47-13963.06	11.77	11.04-12.58	10.68	10.1-11.38	10.84	10.3-11.42

Table 12.2. Guillemot design based estimates of birds in flight and on sea and accounting for availability bias.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	2361.32	1999.26-2734.35	2991.76	2579.56-3403.36	4223.74	3760.05-4714.39	3.26	2.76-3.77	3.11	2.68-3.54	3.45	3.07-3.85
Sep-2016	2879.29	2475.27-3260.15	3583.17	3162.01-4023.47	4060.88	3566.32-4528.86	3.97	3.41-4.5	3.73	3.29-4.18	3.32	2.92-3.7
Oct-2016	959.76	742.83-1203.51	1296.96	1025.41-1583.78	1762.26	1453.19-2078.66	1.32	1.02-1.66	1.35	1.07-1.65	1.44	1.19-1.7
Nov-2016	1218.75	947.9-1489.31	1937.80	1604.74-2274.49	2885.23	2516.35-3295.6	1.68	1.31-2.05	2.02	1.67-2.37	2.36	2.06-2.69
Dec-2016	14920.28	14099.19-15721.87	18828.47	17885.58-19732.8	23804.04	22771.19-24798.62	20.57	19.44-21.68	19.58	18.6-20.52	19.46	18.62-20.28
Jan-2017	3090.22	2686.32-3478.73	3686.65	3286.51-4120.95	4531.84	4048.37-5026.78	4.26	3.7-4.8	3.83	3.42-4.29	3.71	3.31-4.11
Feb-2017	2834.20	2452.96-3250.08	4019.84	3593.05-4481.09	5765.32	5224.16-6348.14	3.91	3.38-4.48	4.18	3.74-4.66	4.71	4.27-5.19
Mar-2017	730.31	532.43-939.66	1010.42	780.59-1248.1	1253.93	997.01-1510.16	1.01	0.73-1.3	1.05	0.81-1.3	1.03	0.82-1.23
Apr-2017	2628.50	2243.88-3024.38	3169.45	2750-3592.53	3785.52	3336.26-4227.02	3.62	3.09-4.17	3.30	2.86-3.74	3.10	2.73-3.46
May-2017	15.23	0-45.7	15.08	0-45.24	15.10	0-45.29	0.02	0-0.06	0.02	0-0.05	0.01	0-0.04
Jun-2017	395.08	258.32-558.58	559.07	381.37-755.5	619.88	426.96-816.52	0.54	0.36-0.77	0.58	0.4-0.79	0.51	0.35-0.67
Jul-2017	1323.69	1065.03-1574.81	1994.51	1665.72-2342.41	2356.79	1990.58-2719.37	1.83	1.47-2.17	2.07	1.73-2.44	1.93	1.63-2.22
Aug-2017	1698.22	1382.77-2010.32	2277.97	1933.78-2644.23	2717.80	2343.45-3110.89	2.34	1.91-2.77	2.37	2.01-2.75	2.22	1.92-2.54
Sep-2017	426.56	274.22-582.56	498.15	332.1-664.2	724.07	543.05-946.72	0.59	0.38-0.8	0.52	0.35-0.69	0.59	0.44-0.77
Oct-2017	233.38	126.47-351.9	276.21	158.96-408.57	381.63	234.29-544.07	0.32	0.17-0.49	0.29	0.17-0.42	0.31	0.19-0.44
Nov-2017	5654.80	5130.31-6180.28	8124.16	7473.87-8754.71	12469.17	11715.01-13246.79	7.80	7.07-8.52	8.45	7.77-9.1	10.20	9.58-10.83
Dec-2017	6036.61	5473.67-6576.72	8697.67	8027.32-9368.32	11081.73	10356.88-11825.91	8.32	7.55-9.07	9.05	8.35-9.74	9.06	8.47-9.67
Jan-2018	1326.24	1056.38-1611.31	1870.61	1579.89-2229.62	2467.37	2104.5-2853.01	1.83	1.46-2.22	1.95	1.64-2.32	2.02	1.72-2.33
Feb-2018	2874.34	2448.26-3254.22	3573.57	3139.85-4022.38	4367.07	3899.51-4895.82	3.96	3.38-4.49	3.72	3.27-4.18	3.57	3.19-4
Mar-2018	1958.29	1635.95-2273.34	2546.93	2199.4-2936.16	3552.30	3108.65-4014.43	2.70	2.26-3.13	2.65	2.29-3.05	2.90	2.54-3.28
Apr-2018	936.03	725.73-1173.36	1349.01	1090.94-1607.38	1800.98	1508.59-2120.07	1.29	1-1.62	1.40	1.13-1.67	1.47	1.23-1.73
May-2018	2056.63	1721.48-2418.89	2767.78	2363.04-3184	3127.27	2693.38-3523.98	2.84	2.37-3.34	2.88	2.46-3.31	2.56	2.2-2.88
Jun-2018	106.37	41.94-193.89	135.99	60.44-226.65	151.42	64.2-257.41	0.15	0.06-0.27	0.14	0.06-0.24	0.12	0.05-0.21

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Jul-2018	11230.90	10522.7-11986.07	13512.49	12755.06-14387.79	17451.20	16561.04-18372.35	15.49	14.51-16.53	14.05	13.26-14.96	14.27	13.54-15.02

Table 12.3. Guillemot design based estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	1794.60	1516.73-2072.48	2273.74	1952.2-2583.79	3221.51	2865.83-3588.37	2.47	2.09-2.86	2.36	2.03-2.69	2.63	2.34-2.93
Sep-2016	2188.26	1875.65-2477.71	2723.21	2411.36-3057.84	3086.27	2707.65-3441.93	3.02	2.59-3.42	2.83	2.51-3.18	2.52	2.21-2.81
Oct-2016	729.42	567.33-914.67	985.69	779.38-1203.74	1339.32	1098.93-1579.71	1.01	0.78-1.26	1.03	0.81-1.25	1.10	0.9-1.29
Nov-2016	926.25	717.55-1134.65	1472.72	1219.6-1725.85	2209.72	1923.49-2507.4	1.28	0.99-1.56	1.53	1.27-1.79	1.81	1.57-2.05
Dec-2016	11339.42	10695.8-11959.92	14338.41	13595.97-14999.65	18099.44	17308.97-18855.32	15.64	14.75-16.49	14.91	14.14-15.6	14.80	14.15-15.42
Jan-2017	2351.38	2047.22-2643.83	2816.22	2503.31-3129.14	3446.97	3076.83-3828.68	3.24	2.82-3.65	2.93	2.6-3.25	2.82	2.52-3.13
Feb-2017	2165.10	1875.36-2489.58	3066.10	2744.56-3422.09	4392.68	3978.71-4841.15	2.99	2.59-3.43	3.19	2.85-3.56	3.59	3.25-3.96
Mar-2017	555.04	404.71-716.92	767.92	596-951.3	952.99	757.8-1136.7	0.77	0.56-0.99	0.80	0.62-0.99	0.78	0.62-0.93
Apr-2017	2000.44	1699.79-2301.37	2411.54	2090-2733.08	2879.75	2535.56-3212.47	2.76	2.34-3.17	2.51	2.17-2.84	2.35	2.07-2.63
May-2017	11.58	0-34.73	11.46	0-34.38	11.47	0-34.42	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Jun-2017	300.26	196.32-427.29	424.89	287.09-574.18	471.11	321.73-620.48	0.41	0.27-0.59	0.44	0.3-0.6	0.39	0.26-0.51
Jul-2017	1006.00	809.43-1191.3	1515.83	1263.19-1780.23	1791.16	1515.59-2066.72	1.39	1.12-1.64	1.58	1.31-1.85	1.46	1.24-1.69
Aug-2017	1304.97	1050.9-1536.23	1734.01	1469.61-2009.62	2068.28	1781.02-2367.04	1.80	1.45-2.12	1.80	1.53-2.09	1.69	1.46-1.94
Sep-2017	324.19	208.41-439.97	378.59	252.4-504.79	550.29	412.72-722.26	0.45	0.29-0.61	0.39	0.26-0.52	0.45	0.34-0.59
Oct-2017	185.73	104.47-278.59	218.19	126.32-321.54	298.30	183.57-424.5	0.26	0.14-0.38	0.23	0.13-0.33	0.24	0.15-0.35
Nov-2017	4353.99	3946.53-4750.1	6227.05	5729.98-6700.72	9529.63	8959.19-10123.34	6.00	5.44-6.55	6.48	5.96-6.97	7.79	7.33-8.28
Dec-2017	4590.60	4162.76-4995.6	6615.75	6098-7133.8	8427.62	7887.69-8990.52	6.33	5.74-6.89	6.88	6.34-7.42	6.89	6.45-7.35
Jan-2018	1016.26	808.39-1235.68	1435.44	1217.25-1711.05	1894.49	1618.64-2193.02	1.40	1.11-1.7	1.49	1.27-1.78	1.55	1.32-1.79
Feb-2018	2228.84	1893.94-2517.55	2785.14	2441.3-3117.53	3379.46	3024.05-3792.44	3.07	2.61-3.47	2.90	2.54-3.24	2.76	2.47-3.1
Mar-2018	1499.37	1257.16-1741.58	1963.68	1688.08-2250.77	2727.37	2381.84-3084.11	2.07	1.73-2.4	2.04	1.76-2.34	2.23	1.95-2.52
Apr-2018	877.68	692.9-1085.84	1240.22	1022.03-1458.7	1608.66	1367.08-1873.23	1.21	0.96-1.5	1.29	1.06-1.52	1.32	1.12-1.53
May-2018	1580.12	1330.83-1872.75	2131.62	1818.25-2446.08	2438.19	2125.81-2754.83	2.18	1.84-2.58	2.22	1.89-2.54	1.99	1.74-2.25
Jun-2018	80.84	34.65-150.13	103.35	45.93-172.25	115.08	46.03-195.63	0.11	0.05-0.21	0.11	0.05-0.18	0.09	0.04-0.16
Jul-2018	8558.52	8026.44-9145.58	10301.25	9719.33-10957.43	13295.80	12631.89-13993.13	11.80	11.07-12.61	10.71	10.11-11.4	10.87	10.33-11.44

Table 12.4. Guillemot design based estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions and accounting for availability bias.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	2361.32	1999.26-2734.35	2991.76	2579.56-3403.36	4235.21	3760.05-4714.39	3.26	2.76-3.77	3.11	2.68-3.54	3.46	3.07-3.85
Sep-2016	2879.29	2475.27-3260.15	3583.17	3162.01-4023.47	4060.88	3566.32-4528.86	3.97	3.41-4.5	3.73	3.29-4.18	3.32	2.92-3.7
Oct-2016	959.76	742.83-1203.51	1296.96	1025.41-1583.78	1762.26	1453.19-2078.66	1.32	1.02-1.66	1.35	1.07-1.65	1.44	1.19-1.7
Nov-2016	1218.75	947.9-1489.31	1937.80	1604.74-2274.49	2896.68	2516.35-3295.6	1.68	1.31-2.05	2.02	1.67-2.37	2.37	2.06-2.69
Dec-2016	14920.28	14099.19-15721.87	18855.34	17885.58-19732.8	23804.04	22771.19-24798.62	20.57	19.44-21.68	19.61	18.6-20.52	19.46	18.62-20.28
Jan-2017	3086.53	2686.32-3478.73	3698.24	3286.51-4120.95	4524.53	4048.37-5026.78	4.26	3.7-4.8	3.85	3.42-4.29	3.70	3.31-4.11
Feb-2017	2834.20	2452.96-3250.08	4019.84	3593.05-4481.09	5765.32	5224.16-6348.14	3.91	3.38-4.48	4.18	3.74-4.66	4.71	4.27-5.19
Mar-2017	730.31	532.43-939.66	1010.42	780.59-1248.1	1253.93	997.01-1510.16	1.01	0.73-1.3	1.05	0.81-1.3	1.03	0.82-1.23
Apr-2017	2628.50	2243.88-3024.38	3165.83	2750-3592.53	3781.90	3336.26-4227.02	3.62	3.09-4.17	3.29	2.86-3.74	3.09	2.73-3.46
May-2017	15.23	0-45.7	15.08	0-45.24	15.10	0-45.29	0.02	0-0.06	0.02	0-0.05	0.01	0-0.04
Jun-2017	395.08	258.32-558.58	559.07	381.37-755.5	619.88	426.96-816.52	0.54	0.36-0.77	0.58	0.4-0.79	0.51	0.35-0.67
Jul-2017	1323.69	1065.03-1574.81	1994.51	1665.72-2342.41	2353.16	1990.58-2719.37	1.83	1.47-2.17	2.07	1.73-2.44	1.92	1.63-2.22
Aug-2017	1709.77	1382.77-2010.32	2281.60	1933.78-2644.23	2717.80	2343.45-3110.89	2.36	1.91-2.77	2.37	2.01-2.75	2.22	1.92-2.54
Sep-2017	426.56	274.22-582.56	498.15	332.1-664.2	724.07	543.05-946.72	0.59	0.38-0.8	0.52	0.35-0.69	0.59	0.44-0.77
Oct-2017	233.38	126.47-351.9	276.21	158.96-408.57	381.63	234.29-544.07	0.32	0.17-0.49	0.29	0.17-0.42	0.31	0.19-0.44
Nov-2017	5666.44	5130.31-6180.28	8127.81	7473.87-8754.71	12472.85	11715.01-13246.79	7.81	7.07-8.52	8.45	7.77-9.1	10.20	9.58-10.83
Dec-2017	6040.27	5473.67-6576.72	8697.67	8027.32-9368.32	11078.10	10356.88-11825.91	8.33	7.55-9.07	9.05	8.35-9.74	9.06	8.47-9.67
Jan-2018	1326.24	1056.38-1611.31	1870.61	1579.89-2229.62	2467.37	2104.5-2853.01	1.83	1.46-2.22	1.95	1.64-2.32	2.02	1.72-2.33
Feb-2018	2874.34	2448.26-3254.22	3581.41	3139.85-4022.38	4367.07	3899.51-4895.82	3.96	3.38-4.49	3.72	3.27-4.18	3.57	3.19-4
Mar-2018	1958.29	1635.95-2273.34	2558.41	2199.4-2936.16	3552.30	3108.65-4014.43	2.70	2.26-3.13	2.66	2.29-3.05	2.90	2.54-3.28
Apr-2018	936.03	725.73-1173.36	1349.01	1090.94-1607.38	1800.98	1508.59-2120.07	1.29	1-1.62	1.40	1.13-1.67	1.47	1.23-1.73
May-2018	2081.32	1752.05-2459.52	2801.31	2396.09-3212.7	3207.00	2785.28-3626.51	2.87	2.42-3.39	2.91	2.49-3.34	2.62	2.28-2.97
Jun-2018	106.37	41.94-193.89	135.99	60.44-226.65	151.42	64.2-257.41	0.15	0.06-0.27	0.14	0.06-0.24	0.12	0.05-0.21

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Jul-2018	11261.00	10547.16-12019.03	13540.39	12773.87-14406.27	17497.45	16599.17-18405.26	15.53	14.54-16.57	14.08	13.28-14.98	14.31	13.57-15.05

Table 12.5. Guillemot design based estimates of birds in flight.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.00	0-0	0.00	0-0	22.90	0-57.25	0.00	0-0	0.00	0-0	0.02	0-0.05
Dec-2016	0.00	0-0	23.20	0-58	34.87	0-81.37	0.00	0-0	0.02	0-0.06	0.03	0-0.07
Jan-2017	11.70	0-35.1	11.59	0-46.36	11.57	0-34.7	0.02	0-0.05	0.01	0-0.05	0.01	0-0.03
Feb-2017	46.31	0-92.62	45.93	11.48-91.87	46.00	11.5-91.99	0.06	0-0.13	0.05	0.01-0.1	0.04	0.01-0.08
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	11.56	0-34.69	11.48	0-34.45	11.47	0-34.42	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	11.55	0-46.19	11.48	0-34.45	11.49	0-34.47	0.02	0-0.06	0.01	0-0.04	0.01	0-0.03
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	34.82	0-81.26	34.45	0-80.38	34.42	0-80.31	0.05	0-0.11	0.04	0-0.08	0.03	0-0.07
Nov-2017	186.27	104.78-279.4	219.51	127.08-323.48	221.08	127.99-325.8	0.26	0.14-0.39	0.23	0.13-0.34	0.18	0.1-0.27
Dec-2017	11.56	0-34.69	23.01	0-57.53	22.96	0-57.41	0.02	0-0.05	0.02	0-0.06	0.02	0-0.05
Jan-2018	34.65	0-80.84	57.42	11.48-114.84	80.37	22.96-149.26	0.05	0-0.11	0.06	0.01-0.12	0.07	0.02-0.12
Feb-2018	184.77	103.65-277.16	240.69	149-343.84	252.03	148.93-366.59	0.25	0.14-0.38	0.25	0.15-0.36	0.21	0.12-0.3
Mar-2018	46.13	11.53-92.27	68.90	22.97-126.32	115.08	46.03-195.63	0.06	0.02-0.13	0.07	0.02-0.13	0.09	0.04-0.16
Apr-2018	692.90	530.94-866.13	895.72	711.98-1090.94	999.67	804.33-1218.28	0.96	0.73-1.19	0.93	0.74-1.13	0.82	0.66-1
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 12.6. Guillemot design based estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.00	0-0	0.00	0-0	22.90	0-57.25	0.00	0-0	0.00	0-0	0.02	0-0.05
Dec-2016	0.00	0-0	23.20	0-58	34.87	0-81.37	0.00	0-0	0.02	0-0.06	0.03	0-0.07
Jan-2017	11.70	0-35.1	11.59	0-46.36	11.57	0-34.7	0.02	0-0.05	0.01	0-0.05	0.01	0-0.03
Feb-2017	46.31	0-92.62	45.93	11.48-91.87	46.00	11.5-91.99	0.06	0-0.13	0.05	0.01-0.1	0.04	0.01-0.08
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	11.56	0-34.69	11.48	0-34.45	11.47	0-34.42	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	11.55	0-46.19	11.48	0-34.45	11.49	0-34.47	0.02	0-0.06	0.01	0-0.04	0.01	0-0.03
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	34.82	0-81.26	34.45	0-80.38	34.42	0-80.31	0.05	0-0.11	0.04	0-0.08	0.03	0-0.07
Nov-2017	186.27	104.78-279.4	219.51	127.08-323.48	221.08	127.99-325.8	0.26	0.14-0.39	0.23	0.13-0.34	0.18	0.1-0.27
Dec-2017	11.56	0-34.69	23.01	0-57.53	22.96	0-57.41	0.02	0-0.05	0.02	0-0.06	0.02	0-0.05
Jan-2018	34.65	0-80.84	57.42	11.48-114.84	80.37	22.96-149.26	0.05	0-0.11	0.06	0.01-0.12	0.07	0.02-0.12
Feb-2018	184.77	103.65-277.16	240.69	149-343.84	252.03	148.93-366.59	0.25	0.14-0.38	0.25	0.15-0.36	0.21	0.12-0.3
Mar-2018	46.13	11.53-92.27	68.90	22.97-126.32	115.08	46.03-195.63	0.06	0.02-0.13	0.07	0.02-0.13	0.09	0.04-0.16
Apr-2018	692.90	530.94-866.13	895.72	711.98-1090.94	999.67	804.33-1218.28	0.96	0.73-1.19	0.93	0.74-1.13	0.82	0.66-1
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 12.7. Guillemot design based estimates of birds on the sea surface.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	1794.60	1528.02-2095.92	2273.74	1986.65-2595.28	3210.05	2831.72-3565.73	2.47	2.11-2.89	2.36	2.07-2.7	2.62	2.32-2.92
Sep-2016	2188.26	1898.81-2477.71	2723.21	2377.04-3057.84	3086.27	2719.13-3441.93	3.02	2.62-3.42	2.83	2.47-3.18	2.52	2.22-2.81
Oct-2016	729.42	555.75-914.67	985.69	779.09-1203.46	1339.32	1121.82-1580	1.01	0.77-1.26	1.03	0.81-1.25	1.10	0.92-1.29
Nov-2016	926.25	729.42-1123.08	1472.72	1219.6-1737.35	2175.37	1877.4-2495.95	1.28	1.01-1.55	1.53	1.27-1.81	1.78	1.54-2.04
Dec-2016	11339.42	10777.42-11912.82	14292.01	13583.79-14988.34	18064.56	17297.05-18820.45	15.64	14.86-16.43	14.86	14.13-15.59	14.77	14.14-15.39
Jan-2017	2339.68	2023.82-2643.83	2793.04	2480.13-3140.73	3435.41	3076.54-3793.98	3.23	2.79-3.65	2.90	2.58-3.27	2.81	2.52-3.1
Feb-2017	2118.79	1829.05-2408.24	3020.17	2686.86-3353.48	4346.68	3943.92-4772.15	2.92	2.52-3.32	3.14	2.79-3.49	3.55	3.22-3.9
Mar-2017	555.04	404.42-705.36	767.92	584.54-939.84	952.99	757.51-1182.62	0.77	0.56-0.97	0.80	0.61-0.98	0.78	0.62-0.97
Apr-2017	1988.88	1722.92-2289.52	2400.06	2090-2721.6	2868.28	2535.56-3212.76	2.74	2.38-3.16	2.50	2.17-2.83	2.35	2.07-2.63
May-2017	11.58	0-34.73	11.46	0-34.38	11.47	0-34.42	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Jun-2017	300.26	196.32-415.74	424.89	298.57-574.18	471.11	333.22-620.77	0.41	0.27-0.57	0.44	0.31-0.6	0.39	0.27-0.51
Jul-2017	1006.00	809.43-1214.43	1515.83	1274.67-1780.23	1791.16	1504.11-2066.72	1.39	1.12-1.67	1.58	1.33-1.85	1.46	1.23-1.69
Aug-2017	1281.87	1050.9-1501.29	1722.53	1469.89-2009.62	2056.79	1781.02-2355.54	1.77	1.45-2.07	1.79	1.53-2.09	1.68	1.46-1.93
Sep-2017	324.19	208.41-451.55	378.59	252.4-504.79	550.29	412.72-710.8	0.45	0.29-0.62	0.39	0.26-0.52	0.45	0.34-0.58
Oct-2017	150.90	69.65-232.16	183.74	103.35-275.6	263.88	160.62-378.61	0.21	0.1-0.32	0.19	0.11-0.29	0.22	0.13-0.31
Nov-2017	4156.08	3748.62-4528.91	6007.54	5522.32-6504.32	9308.55	8726.77-9890.92	5.73	5.17-6.24	6.25	5.74-6.76	7.61	7.14-8.09
Dec-2017	4579.04	4151.2-5006.88	6592.74	6109.5-7075.98	8404.66	7819.09-8978.75	6.31	5.72-6.9	6.86	6.35-7.36	6.87	6.39-7.34
Jan-2018	981.61	785.29-1189.49	1378.02	1148.35-1642.15	1814.12	1538.56-2089.97	1.35	1.08-1.64	1.43	1.19-1.71	1.48	1.26-1.71
Feb-2018	2044.07	1755.36-2332.78	2532.99	2212.07-2865.37	3127.43	2772.3-3494.02	2.82	2.42-3.22	2.63	2.3-2.98	2.56	2.27-2.86
Mar-2018	1453.24	1199.5-1683.91	1883.30	1619.18-2170.39	2612.29	2301.57-2946.02	2.00	1.65-2.32	1.96	1.68-2.26	2.14	1.88-2.41
Apr-2018	184.77	103.94-277.16	344.51	218.19-470.82	608.99	448.13-781.64	0.25	0.14-0.38	0.36	0.23-0.49	0.50	0.37-0.64
May-2018	1563.04	1308.32-1829.34	2103.51	1804.65-2402.37	2376.73	2020.79-2686.74	2.16	1.8-2.52	2.19	1.88-2.5	1.94	1.65-2.2
Jun-2018	80.84	23.1-138.58	103.35	45.93-172.25	115.08	57.54-195.63	0.11	0.03-0.19	0.11	0.05-0.18	0.09	0.05-0.16
Jul-2018	8535.48	7970.77-9065.64	10269.50	9650.29-10899.88	13262.91	12551.29-13962.77	11.77	10.99-12.5	10.68	10.04-11.34	10.84	10.26-11.42

Table 12.8. Guillemot design based estimates of birds on the sea surface and accounting for availability bias.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	2361.32	2010.55-2757.8	2991.76	2614.01-3414.84	4223.74	3725.95-4691.75	3.26	2.77-3.8	3.11	2.72-3.55	3.45	3.05-3.84
Sep-2016	2879.29	2498.43-3260.15	3583.17	3127.68-4023.47	4060.88	3577.8-4528.86	3.97	3.44-4.5	3.73	3.25-4.18	3.32	2.93-3.7
Oct-2016	959.76	731.25-1203.51	1296.96	1025.12-1583.5	1762.26	1476.08-2078.94	1.32	1.01-1.66	1.35	1.07-1.65	1.44	1.21-1.7
Nov-2016	1218.75	959.76-1477.73	1937.80	1604.74-2285.99	2862.33	2470.27-3284.15	1.68	1.32-2.04	2.02	1.67-2.38	2.34	2.02-2.69
Dec-2016	14920.28	14180.81-15674.77	18805.27	17873.4-19721.49	23769.16	22759.28-24763.75	20.57	19.55-21.61	19.56	18.59-20.51	19.43	18.61-20.25
Jan-2017	3078.52	2662.92-3478.73	3675.06	3263.33-4132.54	4520.27	4048.08-4992.08	4.24	3.67-4.8	3.82	3.39-4.3	3.70	3.31-4.08
Feb-2017	2787.88	2406.64-3168.74	3973.91	3535.34-4412.47	5719.32	5189.37-6279.15	3.84	3.32-4.37	4.13	3.68-4.59	4.68	4.24-5.13
Mar-2017	730.31	532.14-928.1	1010.42	769.13-1236.63	1253.93	996.72-1556.08	1.01	0.73-1.28	1.05	0.8-1.29	1.03	0.81-1.27
Apr-2017	2616.94	2267-3012.53	3157.97	2750-3581.05	3774.05	3336.26-4227.31	3.61	3.13-4.15	3.28	2.86-3.72	3.09	2.73-3.46
May-2017	15.23	0-45.7	15.08	0-45.24	15.10	0-45.29	0.02	0-0.06	0.02	0-0.05	0.01	0-0.04
Jun-2017	395.08	258.32-547.03	559.07	392.86-755.5	619.88	438.45-816.81	0.54	0.36-0.75	0.58	0.41-0.79	0.51	0.36-0.67
Jul-2017	1323.69	1065.03-1597.93	1994.51	1677.2-2342.41	2356.79	1979.1-2719.37	1.83	1.47-2.2	2.07	1.74-2.44	1.93	1.62-2.22
Aug-2017	1686.68	1382.77-1975.39	2266.49	1934.07-2644.23	2706.31	2343.45-3099.4	2.33	1.91-2.72	2.36	2.01-2.75	2.21	1.92-2.53
Sep-2017	426.56	274.22-594.14	498.15	332.1-664.2	724.07	543.05-935.26	0.59	0.38-0.82	0.52	0.35-0.69	0.59	0.44-0.76
Oct-2017	198.56	91.64-305.47	241.76	135.99-362.64	347.21	211.35-498.17	0.27	0.13-0.42	0.25	0.14-0.38	0.28	0.17-0.41
Nov-2017	5468.53	4932.4-5959.09	7904.66	7266.2-8558.31	12248.09	11482.59-13014.36	7.54	6.8-8.22	8.22	7.56-8.9	10.01	9.39-10.64
Dec-2017	6025.05	5462.1-6588	8674.66	8038.82-9310.5	11058.76	10288.28-11814.14	8.31	7.53-9.08	9.02	8.36-9.68	9.04	8.41-9.66
Jan-2018	1291.60	1033.28-1565.11	1813.19	1510.99-2160.72	2387.00	2024.42-2749.96	1.78	1.42-2.16	1.89	1.57-2.25	1.95	1.66-2.25
Feb-2018	2689.56	2309.68-3069.44	3332.88	2910.62-3770.23	4115.04	3647.77-4597.39	3.71	3.18-4.23	3.47	3.03-3.92	3.36	2.98-3.76
Mar-2018	1912.15	1578.28-2215.67	2478.03	2130.5-2855.77	3437.22	3028.39-3876.34	2.64	2.18-3.06	2.58	2.22-2.97	2.81	2.48-3.17
Apr-2018	243.12	136.76-364.69	453.30	287.09-619.51	801.31	589.64-1028.47	0.34	0.19-0.5	0.47	0.3-0.64	0.66	0.48-0.84
May-2018	2056.63	1721.48-2407.02	2767.78	2374.54-3161.01	3127.27	2658.94-3535.18	2.84	2.37-3.32	2.88	2.47-3.29	2.56	2.17-2.89
Jun-2018	106.37	30.39-182.34	135.99	60.44-226.65	151.42	75.71-257.41	0.15	0.04-0.25	0.14	0.06-0.24	0.12	0.06-0.21

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Jul-2018	11230.90	10487.86-11928.47	13512.49	12697.75-14341.94	17451.20	16514.86-18372.07	15.49	14.46-16.45	14.05	13.21-14.92	14.27	13.5-15.02

Table 12.9. Guillemot design based estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	1794.60	1528.02-2095.92	2273.74	1986.65-2595.28	3210.05	2831.72-3565.73	2.47	2.11-2.89	2.36	2.07-2.7	2.62	2.32-2.92
Sep-2016	2188.26	1898.81-2477.71	2723.21	2377.04-3057.84	3086.27	2719.13-3441.93	3.02	2.62-3.42	2.83	2.47-3.18	2.52	2.22-2.81
Oct-2016	729.42	555.75-914.67	985.69	779.09-1203.46	1339.32	1121.82-1580	1.01	0.77-1.26	1.03	0.81-1.25	1.10	0.92-1.29
Nov-2016	926.25	729.42-1123.08	1472.72	1219.6-1737.35	2175.37	1877.4-2495.95	1.28	1.01-1.55	1.53	1.27-1.81	1.78	1.54-2.04
Dec-2016	11339.42	10777.42-11912.82	14303.61	13583.79-14988.34	18064.56	17297.05-18820.45	15.64	14.86-16.43	14.88	14.13-15.59	14.77	14.14-15.39
Jan-2017	2327.98	2023.82-2643.83	2793.04	2480.13-3140.73	3412.27	3076.54-3793.98	3.21	2.79-3.65	2.90	2.58-3.27	2.79	2.52-3.1
Feb-2017	2118.79	1829.05-2408.24	3020.17	2686.86-3353.48	4346.68	3943.92-4772.15	2.92	2.52-3.32	3.14	2.79-3.49	3.55	3.22-3.9
Mar-2017	555.04	404.42-705.36	767.92	584.54-939.84	952.99	757.51-1182.62	0.77	0.56-0.97	0.80	0.61-0.98	0.78	0.62-0.97
Apr-2017	1988.88	1722.92-2289.52	2388.57	2090-2721.6	2856.80	2535.56-3212.76	2.74	2.38-3.16	2.48	2.17-2.83	2.34	2.07-2.63
May-2017	11.58	0-34.73	11.46	0-34.38	11.47	0-34.42	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Jun-2017	300.26	196.32-415.74	424.89	298.57-574.18	471.11	333.22-620.77	0.41	0.27-0.57	0.44	0.31-0.6	0.39	0.27-0.51
Jul-2017	1006.00	809.43-1214.43	1515.83	1274.67-1780.23	1779.68	1504.11-2066.72	1.39	1.12-1.67	1.58	1.33-1.85	1.46	1.23-1.69
Aug-2017	1281.87	1050.9-1501.29	1734.01	1469.89-2009.62	2056.79	1781.02-2355.54	1.77	1.45-2.07	1.80	1.53-2.09	1.68	1.46-1.93
Sep-2017	324.19	208.41-451.55	378.59	252.4-504.79	550.29	412.72-710.8	0.45	0.29-0.62	0.39	0.26-0.52	0.45	0.34-0.58
Oct-2017	150.90	69.65-232.16	183.74	103.35-275.6	263.88	160.62-378.61	0.21	0.1-0.32	0.19	0.11-0.29	0.22	0.13-0.31
Nov-2017	4156.08	3748.62-4528.91	6019.09	5522.32-6504.32	9320.19	8726.77-9890.92	5.73	5.17-6.24	6.26	5.74-6.76	7.62	7.14-8.09
Dec-2017	4590.60	4151.2-5006.88	6592.74	6109.5-7075.98	8393.18	7819.09-8978.75	6.33	5.72-6.9	6.86	6.35-7.36	6.86	6.39-7.34
Jan-2018	981.61	785.29-1189.49	1378.02	1148.35-1642.15	1814.12	1538.56-2089.97	1.35	1.08-1.64	1.43	1.19-1.71	1.48	1.26-1.71
Feb-2018	2044.07	1755.36-2332.78	2521.53	2212.07-2865.37	3127.43	2772.3-3494.02	2.82	2.42-3.22	2.62	2.3-2.98	2.56	2.27-2.86
Mar-2018	1453.24	1199.5-1683.91	1883.30	1619.18-2170.39	2612.29	2301.57-2946.02	2.00	1.65-2.32	1.96	1.68-2.26	2.14	1.88-2.41
Apr-2018	184.77	103.94-277.16	344.51	218.19-470.82	608.99	448.13-781.64	0.25	0.14-0.38	0.36	0.23-0.49	0.50	0.37-0.64
May-2018	1587.13	1333.86-1858.13	2120.69	1829.83-2427.64	2434.57	2088.35-2760.35	2.19	1.84-2.56	2.21	1.9-2.52	1.99	1.71-2.26
Jun-2018	80.84	23.1-138.58	103.35	45.93-172.25	115.08	57.54-195.63	0.11	0.03-0.19	0.11	0.05-0.18	0.09	0.05-0.16
Jul-2018	8557.86	7982.29-9099.27	10257.28	9672.73-10921.32	13305.23	12563.05-13971.75	11.80	11.01-12.55	10.67	10.06-11.36	10.88	10.27-11.42

Table 12.10. Guillemot design based estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions and accounting for availability bias.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	2361.32	2010.55-2757.8	2991.76	2614.01-3414.84	4223.74	3725.95-4691.75	3.26	2.77-3.8	3.11	2.72-3.55	3.45	3.05-3.84
Sep-2016	2879.29	2498.43-3260.15	3583.17	3127.68-4023.47	4060.88	3577.8-4528.86	3.97	3.44-4.5	3.73	3.25-4.18	3.32	2.93-3.7
Oct-2016	959.76	731.25-1203.51	1296.96	1025.12-1583.5	1762.26	1476.08-2078.94	1.32	1.01-1.66	1.35	1.07-1.65	1.44	1.21-1.7
Nov-2016	1218.75	959.76-1477.73	1937.80	1604.74-2285.99	2862.33	2470.27-3284.15	1.68	1.32-2.04	2.02	1.67-2.38	2.34	2.02-2.69
Dec-2016	14920.28	14180.81-15674.77	18820.54	17873.4-19721.49	23769.16	22759.28-24763.75	20.57	19.55-21.61	19.57	18.59-20.51	19.43	18.61-20.25
Jan-2017	3063.13	2662.92-3478.73	3675.06	3263.33-4132.54	4489.83	4048.08-4992.08	4.22	3.67-4.8	3.82	3.39-4.3	3.67	3.31-4.08
Feb-2017	2787.88	2406.64-3168.74	3973.91	3535.34-4412.47	5719.32	5189.37-6279.15	3.84	3.32-4.37	4.13	3.68-4.59	4.68	4.24-5.13
Mar-2017	730.31	532.14-928.1	1010.42	769.13-1236.63	1253.93	996.72-1556.08	1.01	0.73-1.28	1.05	0.8-1.29	1.03	0.81-1.27
Apr-2017	2616.94	2267-3012.53	3142.86	2750-3581.05	3758.95	3336.26-4227.31	3.61	3.13-4.15	3.27	2.86-3.72	3.07	2.73-3.46
May-2017	15.23	0-45.7	15.08	0-45.24	15.10	0-45.29	0.02	0-0.06	0.02	0-0.05	0.01	0-0.04
Jun-2017	395.08	258.32-547.03	559.07	392.86-755.5	619.88	438.45-816.81	0.54	0.36-0.75	0.58	0.41-0.79	0.51	0.36-0.67
Jul-2017	1323.69	1065.03-1597.93	1994.51	1677.2-2342.41	2341.68	1979.1-2719.37	1.83	1.47-2.2	2.07	1.74-2.44	1.91	1.62-2.22
Aug-2017	1686.68	1382.77-1975.39	2281.60	1934.07-2644.23	2706.31	2343.45-3099.4	2.33	1.91-2.72	2.37	2.01-2.75	2.21	1.92-2.53
Sep-2017	426.56	274.22-594.14	498.15	332.1-664.2	724.07	543.05-935.26	0.59	0.38-0.82	0.52	0.35-0.69	0.59	0.44-0.76
Oct-2017	198.56	91.64-305.47	241.76	135.99-362.64	347.21	211.35-498.17	0.27	0.13-0.42	0.25	0.14-0.38	0.28	0.17-0.41
Nov-2017	5468.53	4932.4-5959.09	7919.86	7266.2-8558.31	12263.40	11482.59-13014.36	7.54	6.8-8.22	8.24	7.56-8.9	10.03	9.39-10.64
Dec-2017	6040.27	5462.1-6588	8674.66	8038.82-9310.5	11043.66	10288.28-11814.14	8.33	7.53-9.08	9.02	8.36-9.68	9.03	8.41-9.66
Jan-2018	1291.60	1033.28-1565.11	1813.19	1510.99-2160.72	2387.00	2024.42-2749.96	1.78	1.42-2.16	1.89	1.57-2.25	1.95	1.66-2.25
Feb-2018	2689.56	2309.68-3069.44	3317.80	2910.62-3770.23	4115.04	3647.77-4597.39	3.71	3.18-4.23	3.45	3.03-3.92	3.36	2.98-3.76
Mar-2018	1912.15	1578.28-2215.67	2478.03	2130.5-2855.77	3437.22	3028.39-3876.34	2.64	2.18-3.06	2.58	2.22-2.97	2.81	2.48-3.17
Apr-2018	243.12	136.76-364.69	453.30	287.09-619.51	801.31	589.64-1028.47	0.34	0.19-0.5	0.47	0.3-0.64	0.66	0.48-0.84
May-2018	2088.33	1755.08-2444.91	2790.38	2407.67-3194.26	3203.39	2747.83-3632.04	2.88	2.42-3.37	2.90	2.5-3.32	2.62	2.25-2.97
Jun-2018	106.37	30.39-182.34	135.99	60.44-226.65	151.42	75.71-257.41	0.15	0.04-0.25	0.14	0.06-0.24	0.12	0.06-0.21

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Jul-2018	11260.35	10503.01-11972.72	13496.42	12727.27-14370.15	17506.88	16530.33-18383.89	15.53	14.48-16.51	14.04	13.24-14.94	14.31	13.52-15.03

Table 13.1. Black Tern design based estimates of birds in flight and on sea.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	23.16	0-57.89	45.93	11.48-91.87	45.86	11.46-103.18	0.03	0-0.08	0.05	0.01-0.1	0.04	0.01-0.08
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 13.2. Black Tern design based estimates of birds in flight.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	23.16	0-57.89	45.93	0-91.87	45.86	11.46-91.72	0.03	0-0.08	0.05	0-0.1	0.04	0.01-0.07
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 13.3. Black Tern design based estimates of birds on the sea surface.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Sep-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Oct-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Nov-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Dec-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jan-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Feb-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Mar-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Apr-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
May-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jun-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jul-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Aug-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Sep-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Oct-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Nov-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Dec-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jan-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Feb-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Mar-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Apr-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
May-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jun-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jul-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0

Table 14.1. Sandwich Tern design based estimates of birds in flight and on sea.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	11.48	0-34.45	11.46	0-45.86	0.00	0-0	0.01	0-0.04	0.01	0-0.04
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	11.56	0-34.69	22.92	0-57.31	22.96	0-57.41	0.02	0-0.05	0.02	0-0.06	0.02	0-0.05
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	11.58	0-34.73	11.46	0-34.38	11.47	0-34.42	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Jun-2017	11.55	0-34.65	22.97	0-57.42	22.98	0-57.45	0.02	0-0.05	0.02	0-0.06	0.02	0-0.05
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	11.58	0-34.73	11.47	0-34.42	11.46	0-34.39	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	11.53	0-46.13	11.48	0-34.45	11.51	0-34.52	0.02	0-0.06	0.01	0-0.04	0.01	0-0.03
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	11.48	0-34.45	0.00	0-0	0.00	0-0	0.01	0-0.03
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	23.04	0-57.59	34.38	0-80.23	34.42	0-80.31	0.03	0-0.08	0.04	0-0.08	0.03	0-0.07

Table 14.2. Sandwich Tern design based estimates of birds in flight.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	11.48	0-34.45	11.46	0-34.39	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	11.56	0-34.69	22.92	0-57.31	22.96	0-57.7	0.02	0-0.05	0.02	0-0.06	0.02	0-0.05
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	11.58	0-34.73	11.46	0-34.38	11.47	0-34.71	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Jun-2017	11.55	0-34.65	22.97	0-57.42	22.98	0-57.45	0.02	0-0.05	0.02	0-0.06	0.02	0-0.05
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	11.58	0-34.73	11.47	0-34.42	11.46	0-34.39	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	11.53	0-34.6	11.48	0-34.45	11.51	0-34.52	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	11.48	0-34.45	0.00	0-0	0.00	0-0	0.01	0-0.03
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	23.04	0-57.59	34.38	0-80.23	34.42	0-80.31	0.03	0-0.08	0.04	0-0.08	0.03	0-0.07

Table 14.3. Sandwich Tern design based estimates of birds on the sea surface.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Sep-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Oct-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Nov-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Dec-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jan-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Feb-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Mar-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Apr-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
May-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jun-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jul-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Aug-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Sep-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Oct-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Nov-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Dec-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jan-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Feb-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Mar-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Apr-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
May-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jun-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jul-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0

Table 15.1. Commic Tern design based estimates of birds in flight and on sea.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	69.47	23.16-127.36	68.90	22.97-126.32	447.11	309.54-596.44	0.10	0.03-0.18	0.07	0.02-0.13	0.37	0.25-0.49
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.00	0-0	11.48	0-34.45	22.95	0-57.37	0.00	0-0	0.01	0-0.04	0.02	0-0.05
May-2017	69.47	22.87-127.36	68.77	22.92-137.54	68.84	22.95-126.2	0.10	0.03-0.18	0.07	0.02-0.14	0.06	0.02-0.1
Jun-2017	0.00	0-0	0.00	0-0	11.49	0-34.47	0.00	0-0	0.00	0-0	0.01	0-0.03
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	207.87	115.48-311.81	252.64	160.48-367.47	275.77	172.36-390.68	0.29	0.16-0.43	0.26	0.17-0.38	0.23	0.14-0.32
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	625.22	463.12-775.73	977.04	770.14-1183.94	1010.40	826.69-1228.55	0.86	0.64-1.07	1.02	0.8-1.23	0.83	0.68-1
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	426.20	299.49-564.42	618.92	447-790.84	722.81	539.24-906.38	0.59	0.41-0.78	0.64	0.46-0.82	0.59	0.44-0.74

Table 15.2. Commic Tern design based estimates of birds in flight.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	69.47	23.16-127.36	68.90	22.97-126.32	447.11	309.54-584.69	0.10	0.03-0.18	0.07	0.02-0.13	0.37	0.25-0.48
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.00	0-0	11.48	0-34.45	22.95	0-57.37	0.00	0-0	0.01	0-0.04	0.02	0-0.05
May-2017	69.47	23.16-127.36	68.77	22.92-126.08	68.84	22.95-126.2	0.10	0.03-0.18	0.07	0.02-0.13	0.06	0.02-0.1
Jun-2017	0.00	0-0	0.00	0-0	11.49	0-34.76	0.00	0-0	0.00	0-0	0.01	0-0.03
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	207.87	115.48-300.26	241.15	149.29-344.51	264.28	160.87-379.19	0.29	0.16-0.41	0.25	0.16-0.36	0.22	0.13-0.31
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	625.22	474.7-787.31	977.04	793.13-1183.94	1010.40	815.21-1217.36	0.86	0.65-1.09	1.02	0.82-1.23	0.83	0.67-1
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	426.20	299.49-564.42	596.00	435.54-756.46	619.55	470.11-780.17	0.59	0.41-0.78	0.62	0.45-0.79	0.51	0.38-0.64

Table 15.3. Commic Tern design based estimates of birds on the sea surface.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Sep-2016	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Oct-2016	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Nov-2016	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Dec-2016	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jan-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Feb-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Mar-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Apr-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
May-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jun-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jul-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Aug-2017	0	0-0	11.48	0-45.93	11.49	0-34.47	0	0-0	0.01	0-0.05	0.01	0-0.03
Sep-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Oct-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Nov-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Dec-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jan-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Feb-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Mar-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Apr-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
May-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jun-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jul-2018	0	0-0	0.00	0-0	80.31	22.95-149.15	0	0-0	0.00	0-0	0.07	0.02-0.12

Table 16.1. Kittiwake design based estimates of birds in flight and on sea.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	69.47	23.16-127.36	91.87	34.45-160.77	171.97	91.72-263.68	0.10	0.03-0.18	0.10	0.04-0.17	0.14	0.07-0.22
Sep-2016	127.36	57.89-208.41	184.62	92.31-288.76	252.41	149.15-367.14	0.18	0.08-0.29	0.19	0.1-0.3	0.21	0.12-0.3
Oct-2016	509.44	358.92-671.53	573.07	424.08-733.54	869.98	698.28-1076.32	0.70	0.49-0.93	0.60	0.44-0.76	0.71	0.57-0.88
Nov-2016	428.39	289.45-556.04	713.35	552.27-908.95	881.60	686.96-1087.69	0.59	0.4-0.77	0.74	0.57-0.95	0.72	0.56-0.89
Dec-2016	2328.73	2012.78-2632.99	3259.78	2911.47-3619.4	4091.84	3673.36-4487.08	3.21	2.78-3.63	3.39	3.03-3.76	3.35	3-3.67
Jan-2017	292.46	187.17-409.44	382.45	254.97-509.93	439.55	300.74-578.35	0.40	0.26-0.56	0.40	0.27-0.53	0.36	0.25-0.47
Feb-2017	335.76	219.69-463.12	597.14	459.34-769.4	1057.92	850.94-1265.2	0.46	0.3-0.64	0.62	0.48-0.8	0.87	0.7-1.03
Mar-2017	69.38	23.13-127.2	91.69	34.38-160.46	126.30	57.41-206.67	0.10	0.03-0.18	0.10	0.04-0.17	0.10	0.05-0.17
Apr-2017	150.32	69.38-231.26	183.74	91.87-287.09	240.94	148.86-344.19	0.21	0.1-0.32	0.19	0.1-0.3	0.20	0.12-0.28
May-2017	382.08	254.72-509.44	378.23	252.15-538.69	378.61	252.41-504.82	0.53	0.35-0.7	0.39	0.26-0.56	0.31	0.21-0.41
Jun-2017	288.71	184.77-404.19	287.09	183.74-401.92	310.24	195.34-436.64	0.40	0.25-0.56	0.30	0.19-0.42	0.25	0.16-0.36
Jul-2017	127.20	57.82-208.14	137.80	68.9-218.47	149.26	80.37-241.12	0.18	0.08-0.29	0.14	0.07-0.23	0.12	0.07-0.2
Aug-2017	92.39	34.65-161.68	160.77	80.38-241.15	183.85	91.92-275.77	0.13	0.05-0.22	0.17	0.08-0.25	0.15	0.08-0.23
Sep-2017	46.31	11.58-92.62	57.36	11.47-114.73	80.25	22.93-137.57	0.06	0.02-0.13	0.06	0.01-0.12	0.07	0.02-0.11
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	908.05	721.78-1117.6	1189.96	982-1398.2	1629.00	1373.01-1896.62	1.25	1-1.54	1.24	1.02-1.45	1.33	1.12-1.55
Dec-2017	1306.64	1086.94-1549.47	1863.92	1587.78-2151.56	1986.35	1710.78-2284.87	1.80	1.5-2.14	1.94	1.65-2.24	1.62	1.4-1.87
Jan-2018	1224.13	1004.71-1478.48	1504.34	1263.19-1768.46	1860.05	1595.97-2158.57	1.69	1.39-2.04	1.56	1.31-1.84	1.52	1.3-1.76
Feb-2018	161.68	80.84-242.52	217.77	126.08-321.21	355.13	229.12-481.14	0.22	0.11-0.33	0.23	0.13-0.33	0.29	0.19-0.39
Mar-2018	196.07	115.34-299.87	287.09	183.74-401.92	414.28	287.7-541.16	0.27	0.16-0.41	0.30	0.19-0.42	0.34	0.24-0.44
Apr-2018	173.23	92.39-265.61	275.60	172.25-390.44	482.60	333.22-643.75	0.24	0.13-0.37	0.29	0.18-0.41	0.39	0.27-0.53
May-2018	544.17	405.23-706.26	666.69	505.76-850.6	815.21	642.69-998.91	0.75	0.56-0.97	0.69	0.53-0.88	0.67	0.53-0.82
Jun-2018	34.65	0-80.84	34.45	0-80.38	80.56	23.02-149.6	0.05	0-0.11	0.04	0-0.08	0.07	0.02-0.12
Jul-2018	449.24	311.01-587.46	573.07	412.61-745	1307.93	1078.47-1560.34	0.62	0.43-0.81	0.60	0.43-0.77	1.07	0.88-1.28

Table 16.2. Kittiwake design based estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	139.13	72.91-225.25	223.47	136.65-330.61	313.81	216.36-426.93	0.19	0.1-0.31	0.23	0.14-0.34	0.26	0.18-0.35
Sep-2016	246.45	159.19-355.81	397.77	275.23-546	513.39	367.95-664.56	0.34	0.22-0.49	0.41	0.29-0.57	0.42	0.3-0.54
Oct-2016	568.02	407.74-732.69	720.00	555.52-885.4	1057.42	867.17-1284.75	0.78	0.56-1.01	0.75	0.58-0.92	0.86	0.71-1.05
Nov-2016	446.63	307.63-578.19	733.13	563.78-930.38	908.12	716.58-1127.26	0.62	0.42-0.8	0.76	0.59-0.97	0.74	0.59-0.92
Dec-2016	2328.73	2012.78-2632.99	3282.49	2922.87-3630.76	4091.84	3684.75-4498.48	3.21	2.78-3.63	3.41	3.04-3.78	3.35	3.01-3.68
Jan-2017	292.46	187.17-409.44	382.45	254.97-509.93	439.55	300.74-578.35	0.40	0.26-0.56	0.40	0.27-0.53	0.36	0.25-0.47
Feb-2017	335.76	219.69-463.12	597.14	459.34-769.4	1057.92	850.94-1265.2	0.46	0.3-0.64	0.62	0.48-0.8	0.87	0.7-1.03
Mar-2017	69.38	23.13-127.2	91.69	34.38-160.46	126.30	57.41-206.67	0.10	0.03-0.18	0.10	0.04-0.17	0.10	0.05-0.17
Apr-2017	150.32	69.38-231.26	183.74	91.87-287.09	240.94	148.86-344.19	0.21	0.1-0.32	0.19	0.1-0.3	0.20	0.12-0.28
May-2017	382.08	266.3-521.01	389.69	263.61-550.15	378.61	263.88-527.76	0.53	0.37-0.72	0.41	0.27-0.57	0.31	0.22-0.43
Jun-2017	288.71	184.77-404.19	287.09	183.74-401.92	310.24	195.34-436.64	0.40	0.25-0.56	0.30	0.19-0.42	0.25	0.16-0.36
Jul-2017	136.37	69.32-217.31	165.21	87.12-257.08	177.17	96.8-269.03	0.19	0.1-0.3	0.17	0.09-0.27	0.14	0.08-0.22
Aug-2017	92.39	34.65-161.68	160.77	80.38-241.15	183.85	91.92-275.77	0.13	0.05-0.22	0.17	0.08-0.25	0.15	0.08-0.23
Sep-2017	55.64	11.58-111.28	65.59	19.7-122.95	98.17	40.85-166.96	0.08	0.02-0.15	0.07	0.02-0.13	0.08	0.03-0.14
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	908.05	721.78-1117.6	1189.96	982-1398.2	1648.78	1395.65-1917.98	1.25	1-1.54	1.24	1.02-1.45	1.35	1.14-1.57
Dec-2017	1316.50	1098.49-1570.07	1868.76	1609.28-2162.47	1986.35	1722.25-2294.99	1.82	1.51-2.16	1.94	1.67-2.25	1.62	1.41-1.88
Jan-2018	1235.68	1016.26-1501.19	1515.65	1274.67-1779.77	1865.03	1604.2-2170.18	1.70	1.4-2.07	1.58	1.33-1.85	1.52	1.31-1.77
Feb-2018	184.77	103.94-277.16	240.69	149-355.31	378.04	252.03-504.06	0.25	0.14-0.38	0.25	0.15-0.37	0.31	0.21-0.41
Mar-2018	202.29	118.39-302.98	294.84	187.52-409.67	423.95	295.46-555.38	0.28	0.16-0.42	0.31	0.2-0.43	0.35	0.24-0.45
Apr-2018	173.23	92.39-265.61	275.60	172.25-390.44	482.60	333.22-643.75	0.24	0.13-0.37	0.29	0.18-0.41	0.39	0.27-0.53
May-2018	616.58	465.81-785.68	759.82	584.35-940.22	930.47	742.44-1120.45	0.85	0.64-1.08	0.79	0.61-0.98	0.76	0.61-0.92
Jun-2018	34.65	0-80.84	34.45	0-80.38	80.56	23.02-149.6	0.05	0-0.11	0.04	0-0.08	0.07	0.02-0.12
Jul-2018	607.84	469.78-763.94	750.77	565.84-936.96	1578.23	1340.44-1846.78	0.84	0.65-1.05	0.78	0.59-0.97	1.29	1.1-1.51

Table 16.3. Kittiwake design based estimates of birds in flight.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	11.58	0-34.73	11.48	0-34.45	34.39	0-80.25	0.02	0-0.05	0.01	0-0.04	0.03	0-0.07
Sep-2016	81.05	23.16-150.52	126.93	57.7-207.99	149.15	80.31-229.46	0.11	0.03-0.21	0.13	0.06-0.22	0.12	0.07-0.19
Oct-2016	277.87	173.67-393.94	320.92	217.77-447	320.52	217.5-446.44	0.38	0.24-0.54	0.33	0.23-0.46	0.26	0.18-0.37
Nov-2016	312.61	196.83-439.97	471.73	333.66-621.31	606.81	446.52-767.1	0.43	0.27-0.61	0.49	0.35-0.65	0.50	0.37-0.63
Dec-2016	1240.43	1018.09-1474.48	1484.88	1218.07-1728.5	1801.81	1522.53-2080.8	1.71	1.4-2.03	1.54	1.27-1.8	1.47	1.24-1.7
Jan-2017	257.36	152.08-374.35	336.09	220.2-451.99	393.28	266.04-520.81	0.35	0.21-0.52	0.35	0.23-0.47	0.32	0.22-0.43
Feb-2017	196.83	115.78-289.45	275.60	172.25-390.44	390.97	275.98-528.96	0.27	0.16-0.4	0.29	0.18-0.41	0.32	0.23-0.43
Mar-2017	23.13	0-57.82	45.85	11.46-91.69	80.37	22.96-149.26	0.03	0-0.08	0.05	0.01-0.1	0.07	0.02-0.12
Apr-2017	115.63	46.25-185.01	137.80	68.9-218.19	183.57	103.26-286.83	0.16	0.06-0.26	0.14	0.07-0.23	0.15	0.08-0.23
May-2017	138.94	69.47-219.98	137.54	68.77-217.77	137.68	68.84-217.99	0.19	0.1-0.3	0.14	0.07-0.23	0.11	0.06-0.18
Jun-2017	138.58	69.29-230.97	137.80	68.9-218.19	160.87	80.43-252.79	0.19	0.1-0.32	0.14	0.07-0.23	0.13	0.07-0.21
Jul-2017	69.38	23.13-127.2	80.38	34.16-149.29	91.85	34.45-149.26	0.10	0.03-0.18	0.08	0.04-0.16	0.08	0.03-0.12
Aug-2017	57.74	11.55-115.48	114.84	45.93-195.22	126.40	57.45-195.34	0.08	0.02-0.16	0.12	0.05-0.2	0.10	0.05-0.16
Sep-2017	23.16	0-57.89	34.42	0-80.31	57.32	11.46-114.64	0.03	0-0.08	0.04	0-0.08	0.05	0.01-0.09
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	605.37	442.38-768.35	785.60	600.75-982.29	1047.21	837.77-1268.29	0.83	0.61-1.06	0.82	0.62-1.02	0.86	0.68-1.04
Dec-2017	844.12	647.54-1040.69	1058.52	862.92-1277.42	1171.14	941.51-1389.58	1.16	0.89-1.43	1.10	0.9-1.33	0.96	0.77-1.14
Jan-2018	704.45	542.78-889.23	815.33	631.59-1010.55	918.54	711.87-1136.7	0.97	0.75-1.23	0.85	0.66-1.05	0.75	0.58-0.93
Feb-2018	103.94	46.19-173.23	137.54	57.31-229.23	229.12	126.01-343.67	0.14	0.06-0.24	0.14	0.06-0.24	0.19	0.1-0.28
Mar-2018	115.34	46.13-196.07	183.74	91.87-287.09	207.14	115.08-299.2	0.16	0.06-0.27	0.19	0.1-0.3	0.17	0.09-0.24
Apr-2018	115.48	57.74-196.32	172.25	91.87-275.6	195.34	114.9-298.75	0.16	0.08-0.27	0.18	0.1-0.29	0.16	0.09-0.24
May-2018	162.09	81.05-243.14	172.42	91.96-264.38	229.64	137.78-332.97	0.22	0.11-0.34	0.18	0.1-0.27	0.19	0.11-0.27
Jun-2018	23.10	0-57.74	22.97	0-57.42	57.54	11.51-115.08	0.03	0-0.08	0.02	0-0.06	0.05	0.01-0.09
Jul-2018	184.30	103.67-287.97	263.61	160.46-366.77	562.18	413.03-734.28	0.25	0.14-0.4	0.27	0.17-0.38	0.46	0.34-0.6

Table 16.4. Kittiwake design based estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	81.24	31.48-142.57	143.08	71.54-217.15	178.22	97.76-266.18	0.11	0.04-0.2	0.15	0.07-0.23	0.15	0.08-0.22
Sep-2016	90.82	34.73-158.48	178.89	94.96-270.77	229.19	140.86-328.99	0.13	0.05-0.22	0.19	0.1-0.28	0.19	0.12-0.27
Oct-2016	297.40	191.34-415	348.28	237.14-476.27	345.14	238.62-477.24	0.41	0.26-0.57	0.36	0.25-0.5	0.28	0.2-0.39
Nov-2016	301.03	196.83-439.97	471.73	333.66-621.31	595.36	446.52-767.1	0.42	0.27-0.61	0.49	0.35-0.65	0.49	0.37-0.63
Dec-2016	1240.43	1018.09-1474.48	1479.08	1218.07-1728.5	1790.18	1522.53-2080.8	1.71	1.4-2.03	1.54	1.27-1.8	1.46	1.24-1.7
Jan-2017	257.36	152.08-374.35	336.09	220.2-451.99	393.28	266.04-520.81	0.35	0.21-0.52	0.35	0.23-0.47	0.32	0.22-0.43
Feb-2017	196.83	115.78-289.45	275.60	172.25-390.44	390.97	275.98-528.96	0.27	0.16-0.4	0.29	0.18-0.41	0.32	0.23-0.43
Mar-2017	23.13	0-57.82	45.85	11.46-91.69	80.37	22.96-149.26	0.03	0-0.08	0.05	0.01-0.1	0.07	0.02-0.12
Apr-2017	115.63	46.25-185.01	137.80	68.9-218.19	183.57	103.26-286.83	0.16	0.06-0.26	0.14	0.07-0.23	0.15	0.08-0.23
May-2017	138.94	69.47-219.98	137.54	68.77-217.77	137.68	68.84-217.99	0.19	0.1-0.3	0.14	0.07-0.23	0.11	0.06-0.18
Jun-2017	138.58	69.29-230.97	137.80	68.9-218.19	160.87	80.43-252.79	0.19	0.1-0.32	0.14	0.07-0.23	0.13	0.07-0.21
Jul-2017	69.38	23.13-127.2	80.38	34.16-149.29	91.85	34.45-149.26	0.10	0.03-0.18	0.08	0.04-0.16	0.08	0.03-0.12
Aug-2017	57.74	11.55-115.48	114.84	45.93-195.22	126.40	57.45-195.34	0.08	0.02-0.16	0.12	0.05-0.2	0.10	0.05-0.16
Sep-2017	23.16	0-57.89	34.42	0-80.31	57.32	11.46-114.64	0.03	0-0.08	0.04	0-0.08	0.05	0.01-0.09
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	605.37	442.38-768.35	785.60	600.75-982.29	1047.21	837.77-1268.29	0.83	0.61-1.06	0.82	0.62-1.02	0.86	0.68-1.04
Dec-2017	844.12	647.54-1040.69	1047.01	862.92-1277.42	1171.14	941.51-1389.58	1.16	0.89-1.43	1.09	0.9-1.33	0.96	0.77-1.14
Jan-2018	715.90	554.22-900.78	826.29	643.08-1021.86	930.02	716.73-1145.01	0.99	0.76-1.24	0.86	0.67-1.06	0.76	0.59-0.94
Feb-2018	127.03	57.74-207.87	160.46	80.23-252.15	252.03	148.93-366.59	0.18	0.08-0.29	0.17	0.08-0.26	0.21	0.12-0.3
Mar-2018	118.45	57.61-196.07	187.61	99.62-287.09	211.98	124.63-310.71	0.16	0.08-0.27	0.20	0.1-0.3	0.17	0.1-0.25
Apr-2018	115.48	57.74-196.32	172.25	91.87-275.6	195.34	114.9-298.75	0.16	0.08-0.27	0.18	0.1-0.29	0.16	0.09-0.24
May-2018	162.09	88.05-254.78	175.94	99.46-271.43	237.63	142.3-341.06	0.22	0.12-0.35	0.18	0.1-0.28	0.19	0.12-0.28
Jun-2018	23.10	0-57.74	22.97	0-57.42	57.54	11.51-115.08	0.03	0-0.08	0.02	0-0.06	0.05	0.01-0.09
Jul-2018	194.74	112.8-306.7	271.34	170.68-385.96	621.39	462.11-806.41	0.27	0.16-0.42	0.28	0.18-0.4	0.51	0.38-0.66

Table 16.5. Kittiwake design based estimates of birds on the sea surface.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	57.89	11.58-115.78	80.38	34.45-149.29	137.57	68.79-217.82	0.08	0.02-0.16	0.08	0.04-0.16	0.11	0.06-0.18
Sep-2016	46.31	11.58-92.62	57.70	11.54-115.39	103.26	45.89-172.1	0.06	0.02-0.13	0.06	0.01-0.12	0.08	0.04-0.14
Oct-2016	231.56	138.94-335.76	252.15	149-366.77	549.46	400.65-698.28	0.32	0.19-0.46	0.26	0.15-0.38	0.45	0.33-0.57
Nov-2016	115.78	57.89-196.83	241.62	149.57-345.46	274.78	171.74-389.28	0.16	0.08-0.27	0.25	0.16-0.36	0.22	0.14-0.32
Dec-2016	1088.30	877.66-1310.64	1774.90	1508.09-2053.32	2290.04	1964.55-2580.65	1.50	1.21-1.81	1.85	1.57-2.14	1.87	1.61-2.11
Jan-2017	35.10	0-81.89	46.36	11.59-104.3	46.27	11.57-92.54	0.05	0-0.11	0.05	0.01-0.11	0.04	0.01-0.08
Feb-2017	138.94	57.89-219.98	321.54	206.7-447.86	666.95	494.46-851.23	0.19	0.08-0.3	0.33	0.21-0.47	0.55	0.4-0.7
Mar-2017	46.25	11.56-104.07	45.85	11.17-91.69	45.93	11.48-91.85	0.06	0.02-0.14	0.05	0.01-0.1	0.04	0.01-0.08
Apr-2017	34.69	0-80.94	45.93	11.48-91.87	57.37	11.47-114.73	0.05	0-0.11	0.05	0.01-0.1	0.05	0.01-0.09
May-2017	243.14	150.23-358.92	240.69	149-343.84	240.94	137.68-355.67	0.34	0.21-0.49	0.25	0.15-0.36	0.20	0.11-0.29
Jun-2017	150.13	80.55-242.52	149.29	80.38-241.15	149.38	80.43-229.81	0.21	0.11-0.33	0.16	0.08-0.25	0.12	0.07-0.19
Jul-2017	57.82	11.56-115.63	57.42	11.48-114.84	57.41	11.48-114.82	0.08	0.02-0.16	0.06	0.01-0.12	0.05	0.01-0.09
Aug-2017	34.65	0-80.84	45.93	11.48-92.16	57.45	11.49-114.9	0.05	0-0.11	0.05	0.01-0.1	0.05	0.01-0.09
Sep-2017	23.16	0-57.89	22.95	0-57.65	22.93	0-57.32	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	302.68	197.91-419.1	404.35	277.27-554.54	581.78	430.52-733.05	0.42	0.27-0.58	0.42	0.29-0.58	0.48	0.35-0.6
Dec-2017	462.53	323.77-612.85	805.40	621.31-1000.99	815.21	642.98-998.91	0.64	0.45-0.85	0.84	0.65-1.04	0.67	0.53-0.82
Jan-2018	519.68	369.55-670.1	689.01	528.24-849.78	941.51	746.32-1148.46	0.72	0.51-0.92	0.72	0.55-0.88	0.77	0.61-0.94
Feb-2018	57.74	11.55-115.48	80.23	22.92-137.54	126.01	57.28-206.2	0.08	0.02-0.16	0.08	0.02-0.14	0.10	0.05-0.17
Mar-2018	80.74	23.07-149.94	103.35	45.93-172.25	207.14	115.08-299.2	0.11	0.03-0.21	0.11	0.05-0.18	0.17	0.09-0.24
Apr-2018	57.74	11.55-115.48	103.35	34.45-172.25	287.26	172.36-402.17	0.08	0.02-0.16	0.11	0.04-0.18	0.23	0.14-0.33
May-2018	382.08	254.72-509.44	494.27	356.33-655.19	585.57	436.31-757.8	0.53	0.35-0.7	0.51	0.37-0.68	0.48	0.36-0.62
Jun-2018	11.55	0-34.65	11.48	0-45.93	23.02	0-57.54	0.02	0-0.05	0.01	0-0.05	0.02	0-0.05
Jul-2018	264.93	161.26-380.12	309.46	194.85-435.54	745.75	573.37-929.32	0.37	0.22-0.52	0.32	0.2-0.45	0.61	0.47-0.76

Table 16.6. Kittiwake design based estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	57.89	11.58-115.78	80.38	34.45-149.29	137.57	68.79-217.82	0.08	0.02-0.16	0.08	0.04-0.16	0.11	0.06-0.18
Sep-2016	161.79	89.77-250.81	221.99	140.3-321.49	280.75	179.8-395.97	0.22	0.12-0.35	0.23	0.15-0.33	0.23	0.15-0.32
Oct-2016	268.80	171.86-384.63	366.87	244.3-495.76	702.14	541.35-876.87	0.37	0.24-0.53	0.38	0.25-0.52	0.57	0.44-0.72
Nov-2016	136.48	69.41-220.07	261.40	161.08-371.69	302.87	191.51-420.54	0.19	0.1-0.3	0.27	0.17-0.39	0.25	0.16-0.34
Dec-2016	1088.30	877.66-1310.64	1786.50	1519.44-2064.43	2301.43	1975.94-2592.55	1.50	1.21-1.81	1.86	1.58-2.15	1.88	1.62-2.12
Jan-2017	35.10	0-81.89	46.36	11.59-104.3	46.27	11.57-92.54	0.05	0-0.11	0.05	0.01-0.11	0.04	0.01-0.08
Feb-2017	138.94	57.89-219.98	321.54	206.7-447.86	666.95	494.46-851.23	0.19	0.08-0.3	0.33	0.21-0.47	0.55	0.4-0.7
Mar-2017	46.25	11.56-104.07	45.85	11.17-91.69	45.93	11.48-91.85	0.06	0.02-0.14	0.05	0.01-0.1	0.04	0.01-0.08
Apr-2017	34.69	0-80.94	45.93	11.48-91.87	57.37	11.47-114.73	0.05	0-0.11	0.05	0.01-0.1	0.05	0.01-0.09
May-2017	254.72	150.52-370.5	252.15	160.46-355.31	252.41	149.15-367.14	0.35	0.21-0.51	0.26	0.17-0.37	0.21	0.12-0.3
Jun-2017	150.13	80.55-242.52	149.29	80.38-241.15	149.38	80.43-229.81	0.21	0.11-0.33	0.16	0.08-0.25	0.12	0.07-0.19
Jul-2017	66.99	23.13-127.2	82.48	32.1-144.64	83.14	30.09-147.1	0.09	0.03-0.18	0.09	0.03-0.15	0.07	0.02-0.12
Aug-2017	34.65	0-80.84	45.93	11.48-92.16	57.45	11.49-114.9	0.05	0-0.11	0.05	0.01-0.1	0.05	0.01-0.09
Sep-2017	32.48	0-76.54	31.17	0-70.66	40.85	8.96-88.15	0.04	0-0.11	0.03	0-0.07	0.03	0.01-0.07
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	302.68	197.91-419.1	404.35	277.27-554.54	603.15	453.16-766.07	0.42	0.27-0.58	0.42	0.29-0.58	0.49	0.37-0.63
Dec-2017	473.24	335.33-613.05	816.90	632.8-1011.89	826.00	653.75-1009.72	0.65	0.46-0.85	0.85	0.66-1.05	0.68	0.53-0.83
Jan-2018	508.13	369.55-670.1	689.01	528.24-849.78	941.51	746.32-1148.46	0.70	0.51-0.92	0.72	0.55-0.88	0.77	0.61-0.94
Feb-2018	57.74	11.55-115.48	80.23	22.92-137.54	126.01	57.28-206.2	0.08	0.02-0.16	0.08	0.02-0.14	0.10	0.05-0.17
Mar-2018	83.84	32.4-149.94	103.42	45.93-176.36	209.22	124.75-310.71	0.12	0.04-0.21	0.11	0.05-0.18	0.17	0.1-0.25
Apr-2018	57.74	11.55-115.48	103.35	34.45-172.25	287.26	172.36-402.17	0.08	0.02-0.16	0.11	0.04-0.18	0.23	0.14-0.33
May-2018	435.91	310.71-577.01	565.82	419.38-733.31	675.62	522.85-853.83	0.60	0.43-0.8	0.59	0.44-0.76	0.55	0.43-0.7
Jun-2018	11.55	0-34.65	11.48	0-45.93	23.02	0-57.54	0.02	0-0.05	0.01	0-0.05	0.02	0-0.05
Jul-2018	418.32	289.76-563.75	484.40	345.58-624.75	949.86	740.54-1160.9	0.58	0.4-0.78	0.50	0.36-0.65	0.78	0.61-0.95

Table 17.1. Black-headed Gull design based estimates of birds in flight and on sea.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	22.93	0-57.32	0.00	0-0	0.00	0-0	0.02	0-0.05
Sep-2016	23.16	0-57.89	23.08	0-57.7	22.95	0-57.37	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Oct-2016	0.00	0-0	0.00	0-0	34.34	0-80.13	0.00	0-0	0.00	0-0	0.03	0-0.07
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	11.70	0-35.1	11.59	0-34.77	11.57	0-34.7	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	11.56	0-34.69	11.46	0-34.38	11.48	0-34.45	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	11.56	0-34.69	11.48	0-34.45	11.48	0-34.45	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	11.56	0-34.69	11.51	0-34.52	11.48	0-45.93	0.02	0-0.05	0.01	0-0.04	0.01	0-0.04
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	519.01	380.61-668.95	516.76	378.67-666.04	517.85	379.47-667.46	0.72	0.52-0.92	0.54	0.39-0.69	0.42	0.31-0.55
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	34.56	0-80.63	57.31	11.46-114.61	252.41	149.15-367.14	0.05	0-0.11	0.06	0.01-0.12	0.21	0.12-0.3

Table 17.2. Black-headed Gull design based estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	39.12	13.7-78.52	0.00	0-0	0.00	0-0	0.03	0.01-0.06
Sep-2016	44.81	16.24-84.95	45.61	19.31-84.77	46.53	19.81-86.61	0.06	0.02-0.12	0.05	0.02-0.09	0.04	0.02-0.07
Oct-2016	0.00	0-0	0.00	0-0	41.17	6.82-86.59	0.00	0-0	0.00	0-0	0.03	0.01-0.07
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	11.70	0-35.1	11.59	0-34.77	11.57	0-34.7	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	11.56	0-34.69	11.46	0-34.38	11.48	0-34.45	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	11.56	0-37.16	13.93	0-39.34	12.95	0.73-38.84	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	11.56	0-35.08	11.51	0-34.65	11.48	0-45.93	0.02	0-0.05	0.01	0-0.04	0.01	0-0.04
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	531.71	393.28-681.65	528.24	386.39-684.52	524.37	379.76-674.47	0.73	0.54-0.94	0.55	0.4-0.71	0.43	0.31-0.55
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	44.97	12.82-94.25	74.94	31.2-132.28	303.01	204.59-420.82	0.06	0.02-0.13	0.08	0.03-0.14	0.25	0.17-0.34

Table 17.3. Black-headed Gull design based estimates of birds in flight.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	22.93	0-57.32	0.00	0-0	0.00	0-0	0.02	0-0.05
Sep-2016	23.16	0-57.89	23.08	0-57.7	22.95	0-57.37	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Oct-2016	0.00	0-0	0.00	0-0	34.34	0-80.13	0.00	0-0	0.00	0-0	0.03	0-0.07
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	11.70	0-35.1	11.59	0-34.77	11.57	0-46.27	0.02	0-0.05	0.01	0-0.04	0.01	0-0.04
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	11.56	0-34.69	11.46	0-34.38	11.48	0-34.45	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	11.56	0-34.69	11.48	0-34.45	11.48	0-45.93	0.02	0-0.05	0.01	0-0.04	0.01	0-0.04
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	11.56	0-34.69	11.51	0-34.52	11.48	0-34.45	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	519.01	369.08-680.48	516.76	367.47-677.53	517.85	368.25-678.96	0.72	0.51-0.94	0.54	0.38-0.7	0.42	0.3-0.56
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	34.56	0-80.63	57.31	11.46-103.15	252.41	160.62-355.67	0.05	0-0.11	0.06	0.01-0.11	0.21	0.13-0.29

Table 17.4. Black-headed Gull design based estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	39.12	14.94-79.74	0.00	0-0	0.00	0-0	0.03	0.01-0.07
Sep-2016	24.96	0-61.5	28.76	4.54-65.64	28.61	4.72-65.86	0.03	0-0.08	0.03	0-0.07	0.02	0-0.05
Oct-2016	0.00	0-0	0.00	0-0	35.10	1.14-80.51	0.00	0-0	0.00	0-0	0.03	0-0.07
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	11.70	0-35.1	11.59	0-34.77	11.57	0-46.27	0.02	0-0.05	0.01	0-0.04	0.01	0-0.04
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	11.56	0-34.69	11.46	0-34.38	11.48	0-34.45	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	11.56	0-34.69	11.48	0-34.45	11.48	0-45.93	0.02	0-0.05	0.01	0-0.04	0.01	0-0.04
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	11.56	0-34.69	11.51	0-34.52	11.48	0-34.45	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	519.01	377.15-685.19	523.74	374.46-689.01	518.36	374.26-679.61	0.72	0.52-0.94	0.54	0.39-0.72	0.42	0.31-0.56
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	35.36	0.8-80.65	57.31	12.5-106.27	262.40	169.52-368.23	0.05	0-0.11	0.06	0.01-0.11	0.21	0.14-0.3

Table 17.5. Black-headed Gull design based estimates of birds on the sea surface.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Sep-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Oct-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Nov-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Dec-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jan-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Feb-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Mar-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Apr-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
May-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jun-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jul-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Aug-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Sep-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Oct-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Nov-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Dec-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jan-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Feb-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Mar-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Apr-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
May-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jun-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jul-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0

Table 17.6. Black-headed Gull design based estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	21.65	10.83-34.28	19.31	10.22-29.53	16.98	9.43-25.47	0.03	0.01-0.05	0.02	0.01-0.03	0.01	0.01-0.02
Oct-2016	0.00	0-0	0.00	0-0	6.07	3.41-9.1	0.00	0-0	0.00	0-0	0.00	0-0.01
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.82	0-2.47	2.44	0-4.89	2.20	0-5.13	0.00	0-0	0.00	0-0.01	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.10	0-0.29	0.07	0-0.2	0.06	0-0.18	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	8.08	0-24.23	6.98	0-20.95	6.01	0-18.17	0.01	0-0.03	0.01	0-0.02	0.00	0-0.01
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	12.02	6.41-18.43	17.66	9.35-25.97	39.35	23.25-55.44	0.02	0.01-0.03	0.02	0.01-0.03	0.03	0.02-0.05

Table 18.1. Little Gull design based estimates of birds in flight and on sea.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	11.58	0-34.73	11.46	0-34.38	34.34	0-80.13	0.02	0-0.05	0.01	0-0.04	0.03	0-0.07
Nov-2016	115.78	46.31-196.83	115.06	57.24-195.6	137.39	68.7-217.54	0.16	0.06-0.27	0.12	0.06-0.2	0.11	0.06-0.18
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	11.56	0-46.25	11.46	0-34.38	11.48	0-34.45	0.02	0-0.06	0.01	0-0.04	0.01	0-0.03
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	11.47	0-34.42	11.46	0-34.39	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	11.64	0-34.93	23.11	0-57.76	23.27	0-58.18	0.02	0-0.05	0.02	0-0.06	0.02	0-0.05
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	23.07	0-57.67	34.45	0-80.38	46.03	11.51-103.57	0.03	0-0.08	0.04	0-0.08	0.04	0.01-0.08
Apr-2018	11.55	0-34.65	11.48	0-34.45	11.49	0-34.47	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
May-2018	358.92	242.85-486.28	356.33	241.39-482.77	355.94	229.64-493.72	0.49	0.33-0.67	0.37	0.25-0.5	0.29	0.19-0.4
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 18.2. Little Gull design based estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	12.69	0.67-36.96	14.19	1.95-37.9	41.26	7.68-86.29	0.02	0-0.05	0.01	0-0.04	0.03	0.01-0.07
Nov-2016	118.24	51.23-199.29	118.29	57.44-197.25	142.09	71.82-223.83	0.16	0.07-0.27	0.12	0.06-0.21	0.12	0.06-0.18
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	11.56	0-46.25	11.46	0-34.38	11.48	0-34.45	0.02	0-0.06	0.01	0-0.04	0.01	0-0.03
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	13.12	0-37.71	12.72	0-38.16	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	11.64	0-34.93	23.11	0-57.76	23.60	0.16-58.67	0.02	0-0.05	0.02	0-0.06	0.02	0-0.05
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	23.41	0.35-58.36	34.92	0.94-81.8	46.56	11.51-104.1	0.03	0-0.08	0.04	0-0.09	0.04	0.01-0.09
Apr-2018	11.55	0-34.65	11.48	0-34.45	11.49	0-34.47	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
May-2018	402.55	279.72-532.12	401.60	278.2-534.61	403.67	274.89-544.55	0.56	0.39-0.73	0.42	0.29-0.56	0.33	0.22-0.45
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 18.3. Little Gull design based estimates of birds in flight.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	11.58	0-34.73	11.46	0-34.38	34.34	0-80.13	0.02	0-0.05	0.01	0-0.04	0.03	0-0.07
Nov-2016	115.78	46.31-185.25	115.06	46.02-195.6	137.39	68.7-217.54	0.16	0.06-0.26	0.12	0.05-0.2	0.11	0.06-0.18
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	11.56	0-34.69	11.46	0-34.38	11.48	0-34.45	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	11.47	0-34.42	11.46	0-34.39	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	11.64	0-34.93	23.11	0-57.76	23.27	0-58.18	0.02	0-0.05	0.02	0-0.06	0.02	0-0.05
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	23.07	0-57.67	34.45	0-80.38	46.03	11.51-92.06	0.03	0-0.08	0.04	0-0.08	0.04	0.01-0.08
Apr-2018	11.55	0-34.65	11.48	0-45.93	11.49	0-34.47	0.02	0-0.05	0.01	0-0.05	0.01	0-0.03
May-2018	23.16	0-57.89	22.99	0-57.47	22.96	0-57.41	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 18.4. Little Gull design based estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	11.80	0-35.4	11.85	0.19-35.36	35.49	1.15-80.9	0.02	0-0.05	0.01	0-0.04	0.03	0-0.07
Nov-2016	115.78	46.31-185.25	115.06	46.02-195.6	137.39	68.7-217.54	0.16	0.06-0.26	0.12	0.05-0.2	0.11	0.06-0.18
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	11.56	0-34.69	11.46	0-34.38	11.48	0-34.45	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	11.47	0-34.42	11.46	0-34.39	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	11.64	0-34.93	23.11	0-57.76	23.27	0-58.18	0.02	0-0.05	0.02	0-0.06	0.02	0-0.05
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	23.07	0-58.37	34.92	0.47-80.38	46.03	11.51-93.13	0.03	0-0.08	0.04	0-0.08	0.04	0.01-0.08
Apr-2018	11.55	0-34.65	11.48	0-45.93	11.49	0-34.47	0.02	0-0.05	0.01	0-0.05	0.01	0-0.03
May-2018	27.74	0-62.47	26.98	0-65.45	22.96	0-64.38	0.04	0-0.09	0.03	0-0.07	0.02	0-0.05
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 18.5. Little Gull design based estimates of birds on the sea surface.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	335.76	219.98-451.55	333.34	229.89-459.78	332.97	218.15-459.27	0.46	0.3-0.62	0.35	0.24-0.48	0.27	0.18-0.38
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 18.6. Little Gull design based estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.89	0.22-1.78	2.34	1.17-3.7	6.15	3.46-9.22	0.00	0-0	0.00	0-0	0.01	0-0.01
Nov-2016	4.92	0-12.29	3.23	0-8.08	4.69	0-10.95	0.01	0-0.02	0.00	0-0.01	0.00	0-0.01
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	1.65	0-4.94	2.51	0-6.28	0.00	0-0	0.00	0-0.01	0.00	0-0.01
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.32	0-0.81	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.35	0-1.04	0.47	0-1.42	0.53	0-1.61	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	368.08	249.88-488.23	376.27	261.79-500.13	372.51	260.96-508.06	0.51	0.34-0.67	0.39	0.27-0.52	0.30	0.21-0.42
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 19.1. Mediterranean Gull design based estimates of birds in flight and on sea.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Sep-2016	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Oct-2016	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Nov-2016	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Dec-2016	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jan-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Feb-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Mar-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Apr-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
May-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jun-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jul-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Aug-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Sep-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Oct-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Nov-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Dec-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jan-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Feb-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Mar-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Apr-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
May-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jun-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jul-2018	0	0-0	11.46	0-34.38	22.95	0-57.37	0	0-0	0.01	0-0.04	0.02	0-0.05

Table 19.2. Mediterranean Gull design based estimates of birds in flight.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Sep-2016	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Oct-2016	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Nov-2016	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Dec-2016	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jan-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Feb-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Mar-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Apr-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
May-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jun-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jul-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Aug-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Sep-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Oct-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Nov-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Dec-2017	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jan-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Feb-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Mar-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Apr-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
May-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jun-2018	0	0-0	0.00	0-0	0.00	0-0	0	0-0	0.00	0-0	0.00	0-0
Jul-2018	0	0-0	11.46	0-34.38	22.95	0-57.37	0	0-0	0.01	0-0.04	0.02	0-0.05

Table 19.3. Mediterranean Gull design based estimates of birds on the sea surface.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Sep-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Oct-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Nov-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Dec-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jan-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Feb-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Mar-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Apr-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
May-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jun-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jul-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Aug-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Sep-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Oct-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Nov-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Dec-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jan-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Feb-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Mar-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Apr-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
May-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jun-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jul-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0

Table 20.1. Common Gull design based estimates of birds in flight and on sea.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	11.58	0-34.73	11.48	0-34.45	11.46	0-34.39	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Sep-2016	0.00	0-0	11.54	0-34.62	11.47	0-34.42	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Oct-2016	81.05	23.16-150.52	91.69	34.38-171.92	91.58	34.34-160.26	0.11	0.03-0.21	0.10	0.04-0.18	0.07	0.03-0.13
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	70.21	23.4-128.72	69.60	23.2-127.61	81.37	23.25-151.12	0.10	0.03-0.18	0.07	0.02-0.13	0.07	0.02-0.12
Jan-2017	93.59	35.1-163.78	115.89	46.36-197.02	127.24	57.84-196.93	0.13	0.05-0.23	0.12	0.05-0.2	0.10	0.05-0.16
Feb-2017	11.58	0-34.73	11.48	0-34.45	11.50	0-34.5	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Mar-2017	23.13	0-57.82	34.38	0-80.23	57.41	11.48-114.82	0.03	0-0.08	0.04	0-0.08	0.05	0.01-0.09
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	23.13	0-57.82	22.97	0-57.42	22.96	0-57.41	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Aug-2017	0.00	0-0	0.00	0-0	34.47	0-80.43	0.00	0-0	0.00	0-0	0.03	0-0.07
Sep-2017	11.58	0-34.73	11.47	0-34.42	11.46	0-34.39	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Oct-2017	0.00	0-0	11.48	0-34.45	11.47	0-34.42	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Nov-2017	34.93	0-81.49	57.76	11.55-115.53	69.81	23.27-127.99	0.05	0-0.11	0.06	0.01-0.12	0.06	0.02-0.1
Dec-2017	92.51	34.69-150.32	92.05	34.52-161.08	114.82	45.93-183.71	0.13	0.05-0.21	0.10	0.04-0.17	0.09	0.04-0.15
Jan-2018	11.55	0-34.65	22.97	0-57.42	734.83	551.13-930.02	0.02	0-0.05	0.02	0-0.06	0.60	0.45-0.76
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	11.48	0-34.45	11.51	0-34.52	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Apr-2018	11.55	0-34.65	11.48	0-34.45	11.49	0-34.47	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	11.52	0-34.56	11.46	0-34.38	57.37	11.47-114.73	0.02	0-0.05	0.01	0-0.04	0.05	0.01-0.09

Table 20.2. Common Gull design based estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	21.34	4.88-49.37	26.53	10.07-57.36	19.67	6.31-45.75	0.03	0.01-0.07	0.03	0.01-0.06	0.02	0.01-0.04
Sep-2016	0.00	0-0	24.87	10.15-53.04	21.56	8.34-47.58	0.00	0-0	0.03	0.01-0.06	0.02	0.01-0.04
Oct-2016	90.60	34.26-160.06	113.27	57.8-192.24	108.47	52.41-180.39	0.12	0.05-0.22	0.12	0.06-0.2	0.09	0.04-0.15
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	70.21	23.4-128.72	69.85	23.45-127.85	81.60	23.48-151.35	0.10	0.03-0.18	0.07	0.02-0.13	0.07	0.02-0.12
Jan-2017	93.59	35.1-163.78	115.89	46.36-197.02	127.24	57.84-196.93	0.13	0.05-0.23	0.12	0.05-0.2	0.10	0.05-0.16
Feb-2017	11.58	0-34.73	11.48	0-34.45	11.50	0-34.5	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Mar-2017	23.13	0-57.82	34.38	0-80.23	57.41	11.48-114.82	0.03	0-0.08	0.04	0-0.08	0.05	0.01-0.09
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	23.13	0-60.96	26.03	3.06-63.55	27.30	2.89-63.19	0.03	0-0.08	0.03	0-0.07	0.02	0-0.05
Aug-2017	0.00	0-0	0.00	0-0	34.47	0-80.43	0.00	0-0	0.00	0-0	0.03	0-0.07
Sep-2017	11.58	0-39.24	11.47	0-37.61	12.71	0-38.18	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Oct-2017	0.00	0-0	11.48	0-34.45	11.47	0-34.42	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Nov-2017	34.93	0-81.49	57.76	11.55-115.53	70.29	23.74-129.88	0.05	0-0.11	0.06	0.01-0.12	0.06	0.02-0.11
Dec-2017	92.51	34.69-151.84	92.58	35.06-161.62	115.13	46.56-185.6	0.13	0.05-0.21	0.10	0.04-0.17	0.09	0.04-0.15
Jan-2018	11.55	0-34.96	22.97	0-57.94	734.83	557.54-930.02	0.02	0-0.05	0.02	0-0.06	0.60	0.46-0.76
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	11.64	0-34.91	11.64	0-34.79	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Apr-2018	11.55	0-34.65	11.48	0-34.45	11.49	0-34.47	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	15.39	3.04-40.37	14.74	2.26-40.14	67.95	23.67-127.35	0.02	0-0.06	0.02	0-0.04	0.06	0.02-0.1

Table 20.3. Common Gull design based estimates of birds in flight.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	11.58	0-34.73	11.48	0-45.93	11.46	0-34.39	0.02	0-0.05	0.01	0-0.05	0.01	0-0.03
Sep-2016	0.00	0-0	11.54	0-34.62	11.47	0-45.89	0.00	0-0	0.01	0-0.04	0.01	0-0.04
Oct-2016	81.05	23.16-138.94	91.69	34.38-160.46	91.58	34.34-160.26	0.11	0.03-0.19	0.10	0.04-0.17	0.07	0.03-0.13
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	46.81	11.7-93.62	46.40	11.6-104.41	58.12	11.62-116.25	0.06	0.02-0.13	0.05	0.01-0.11	0.05	0.01-0.1
Jan-2017	23.40	0-58.49	46.36	11.3-92.72	46.27	11.57-92.54	0.03	0-0.08	0.05	0.01-0.1	0.04	0.01-0.08
Feb-2017	11.58	0-35.02	11.48	0-34.45	11.50	0-34.5	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Mar-2017	23.13	0-57.82	22.92	0-57.31	45.93	11.48-91.85	0.03	0-0.08	0.02	0-0.06	0.04	0.01-0.08
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	23.13	0-57.82	22.97	0-57.42	22.96	0-57.41	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Aug-2017	0.00	0-0	0.00	0-0	34.47	0-80.43	0.00	0-0	0.00	0-0	0.03	0-0.07
Sep-2017	11.58	0-34.73	11.47	0-45.89	11.46	0-34.39	0.02	0-0.05	0.01	0-0.05	0.01	0-0.03
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	11.64	0-34.93	34.66	0-80.87	46.54	11.64-93.09	0.02	0-0.05	0.04	0-0.08	0.04	0.01-0.08
Dec-2017	69.38	23.13-127.2	69.03	23.01-126.56	80.37	22.96-149.26	0.10	0.03-0.18	0.07	0.02-0.13	0.07	0.02-0.12
Jan-2018	0.00	0-0	11.48	0-34.45	34.45	0-80.37	0.00	0-0	0.01	0-0.04	0.03	0-0.07
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	11.48	0-34.45	11.51	0-34.52	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Apr-2018	11.55	0-34.65	11.48	0-34.45	11.49	0-34.47	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	11.52	0-34.56	11.46	0-34.38	57.37	11.47-114.73	0.02	0-0.05	0.01	0-0.04	0.05	0.01-0.09

Table 20.4. Common Gull design based estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	21.34	6.51-51	26.64	8.84-59.72	19.67	5.68-47.01	0.03	0.01-0.07	0.03	0.01-0.06	0.02	0-0.04
Sep-2016	0.00	0-0	14.39	1.27-40.96	14.54	1.76-47.65	0.00	0-0	0.01	0-0.04	0.01	0-0.04
Oct-2016	83.43	34.18-146.89	94.81	39.03-165.14	95.60	35.35-163.28	0.12	0.05-0.2	0.10	0.04-0.17	0.08	0.03-0.13
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	46.81	11.7-93.62	46.40	11.6-104.41	58.12	11.62-116.25	0.06	0.02-0.13	0.05	0.01-0.11	0.05	0.01-0.1
Jan-2017	23.40	0-58.49	46.36	11.3-92.72	46.27	11.57-92.54	0.03	0-0.08	0.05	0.01-0.1	0.04	0.01-0.08
Feb-2017	11.58	0-35.02	11.48	0-34.45	11.50	0-34.5	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Mar-2017	23.13	0-57.82	22.92	0-57.31	45.93	11.48-91.85	0.03	0-0.08	0.02	0-0.06	0.04	0.01-0.08
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	23.13	0-57.82	22.97	0-57.42	22.96	0-57.41	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Aug-2017	0.00	0-0	0.00	0-0	34.47	0-80.43	0.00	0-0	0.00	0-0	0.03	0-0.07
Sep-2017	11.58	0-34.73	11.47	0-45.89	11.46	0-34.39	0.02	0-0.05	0.01	0-0.05	0.01	0-0.03
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	11.64	0-34.93	34.66	0-80.87	46.54	11.64-93.09	0.02	0-0.05	0.04	0-0.08	0.04	0.01-0.08
Dec-2017	69.38	23.13-127.2	69.03	23.01-126.56	80.37	22.96-149.26	0.10	0.03-0.18	0.07	0.02-0.13	0.07	0.02-0.12
Jan-2018	0.10	0-0.31	11.57	0-34.8	34.45	3.17-83.62	0.00	0-0	0.01	0-0.04	0.03	0-0.07
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	11.64	0-34.92	11.51	0-34.79	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Apr-2018	11.55	0-34.65	11.48	0-34.45	11.49	0-34.47	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	11.52	0-35.39	11.46	0-35	59.81	13.91-116.77	0.02	0-0.05	0.01	0-0.04	0.05	0.01-0.1

Table 20.5. Common Gull design based estimates of birds on the sea surface.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	23.40	0-58.51	23.20	0-58	23.25	0-58.12	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Jan-2017	70.19	23.4-128.68	69.54	23.18-127.48	80.97	34.7-150.37	0.10	0.03-0.18	0.07	0.02-0.13	0.07	0.03-0.12
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	11.46	0-34.67	11.48	0-34.45	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.00	0-0	11.48	0-34.45	11.47	0-34.42	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Nov-2017	23.28	0-58.21	23.11	0-57.76	23.27	0-58.18	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Dec-2017	23.13	0-57.82	23.01	0-57.53	34.45	0-80.37	0.03	0-0.08	0.02	0-0.06	0.03	0-0.07
Jan-2018	11.55	0-34.65	11.48	0-34.45	700.39	539.36-872.62	0.02	0-0.05	0.01	0-0.04	0.57	0.44-0.71
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0

Table 20.6. Common Gull design based estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	10.79	5.71-16.5	7.90	4.39-11.85	0.00	0-0	0.01	0.01-0.02	0.01	0-0.01
Oct-2016	6.37	1.59-12.73	18.73	9.36-29.65	16.08	9.05-24.12	0.01	0-0.02	0.02	0.01-0.03	0.01	0.01-0.02
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	23.40	0-58.51	23.32	0-58.5	23.25	0-58.35	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Jan-2017	70.19	23.4-128.68	69.54	23.18-127.48	80.97	34.7-150.37	0.10	0.03-0.18	0.07	0.02-0.13	0.07	0.03-0.12
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	11.46	0-34.67	11.48	0-34.45	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	1.57	0-4.71	4.60	0-9.19	4.34	0-10.12	0.00	0-0.01	0.00	0-0.01	0.00	0-0.01
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	2.25	0-9.01	1.60	0-4.79	2.50	0-6.25	0.00	0-0.01	0.00	0-0	0.00	0-0.01
Oct-2017	0.00	0-0	11.48	0-34.45	11.47	0-34.42	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Nov-2017	23.28	0-58.21	23.11	0-57.76	23.74	0.47-59.6	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Dec-2017	23.89	0-59.33	23.55	0-58.61	35.08	0.63-80.37	0.03	0-0.08	0.02	0-0.06	0.03	0-0.07
Jan-2018	11.55	0-34.65	11.48	0-34.45	700.39	539.36-872.62	0.02	0-0.05	0.01	0-0.04	0.57	0.44-0.71
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	0.15	0-0.46	0.13	0-0.4	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	4.15	2.21-6.36	3.49	1.85-5.13	8.95	5.29-12.62	0.01	0-0.01	0.00	0-0.01	0.01	0-0.01

Table 21.1. Lesser Black-backed Gull design based estimates of birds in flight and on sea.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	937.83	729.42-1134.94	1067.97	849.78-1297.64	1513.31	1261.09-1776.99	1.29	1.01-1.56	1.11	0.88-1.35	1.24	1.03-1.45
Sep-2016	694.69	532.59-868.36	1015.43	796.19-1223.13	1284.99	1055.53-1502.98	0.96	0.73-1.2	1.06	0.83-1.27	1.05	0.86-1.23
Oct-2016	69.47	23.16-127.65	91.69	34.38-160.46	286.18	171.71-400.65	0.10	0.03-0.18	0.10	0.04-0.17	0.23	0.14-0.33
Nov-2016	34.73	0-81.05	46.02	11.51-103.55	171.74	91.59-263.33	0.05	0-0.11	0.05	0.01-0.11	0.14	0.07-0.22
Dec-2016	46.81	11.7-93.62	46.40	11.6-92.81	46.50	11.62-93	0.06	0.02-0.13	0.05	0.01-0.1	0.04	0.01-0.08
Jan-2017	46.79	11.7-93.59	46.36	11.59-92.72	57.84	11.57-115.67	0.06	0.02-0.13	0.05	0.01-0.1	0.05	0.01-0.09
Feb-2017	11.58	0-34.73	11.48	0-34.45	23.00	0-57.5	0.02	0-0.05	0.01	0-0.04	0.02	0-0.05
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	34.69	0-80.94	45.93	11.48-91.87	57.37	11.47-114.73	0.05	0-0.11	0.05	0.01-0.1	0.05	0.01-0.09
May-2017	11.58	0-34.73	22.92	0-57.31	80.31	22.95-149.15	0.02	0-0.05	0.02	0-0.06	0.07	0.02-0.12
Jun-2017	127.03	57.74-207.87	149.29	80.38-229.67	183.85	103.41-275.77	0.18	0.08-0.29	0.16	0.08-0.24	0.15	0.08-0.23
Jul-2017	115.63	46.25-196.57	137.80	57.42-218.19	149.26	80.37-229.64	0.16	0.06-0.27	0.14	0.06-0.23	0.12	0.07-0.19
Aug-2017	115.48	57.74-196.32	114.84	57.42-195.22	126.40	57.45-206.83	0.16	0.08-0.27	0.12	0.06-0.2	0.10	0.05-0.17
Sep-2017	34.73	0-81.05	34.42	0-80.31	45.86	11.46-91.72	0.05	0-0.11	0.04	0-0.08	0.04	0.01-0.07
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	34.93	0-69.85	46.21	11.55-92.42	58.18	11.64-105.01	0.05	0-0.1	0.05	0.01-0.1	0.05	0.01-0.09
Dec-2017	127.20	57.82-208.14	126.56	57.53-207.1	137.78	68.89-218.15	0.18	0.08-0.29	0.13	0.06-0.22	0.11	0.06-0.18
Jan-2018	23.10	0-57.74	45.93	11.48-91.87	45.93	11.48-91.85	0.03	0-0.08	0.05	0.01-0.1	0.04	0.01-0.08
Feb-2018	34.65	0-80.84	34.38	0-80.23	45.82	11.46-91.65	0.05	0-0.11	0.04	0-0.08	0.04	0.01-0.07
Mar-2018	11.53	0-34.6	11.48	0-34.45	23.02	0-57.54	0.02	0-0.05	0.01	0-0.04	0.02	0-0.05
Apr-2018	0.00	0-0	22.97	0-57.42	34.47	0-80.43	0.00	0-0	0.02	0-0.06	0.03	0-0.07
May-2018	23.16	0-57.89	22.99	0-57.47	22.96	0-57.41	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	2925.79	2579.94-3271.36	2922.68	2590.3-3266.52	2948.59	2615.87-3315.73	4.03	3.56-4.51	3.04	2.69-3.4	2.41	2.14-2.71

Table 21.2. Lesser Black-backed Gull design based estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	966.56	766.74-1177.62	1122.54	910.1-1355.09	1602.85	1354.17-1862.7	1.33	1.06-1.62	1.17	0.95-1.41	1.31	1.11-1.52
Sep-2016	807.62	637.76-983.03	1126.68	909.17-1353.98	1670.66	1436.28-1922.77	1.11	0.88-1.36	1.17	0.95-1.41	1.37	1.17-1.57
Oct-2016	153.81	84.5-234.7	135.96	69.51-204.61	419.21	307.37-553.75	0.21	0.12-0.32	0.14	0.07-0.21	0.34	0.25-0.45
Nov-2016	34.73	0-81.05	46.02	11.51-103.55	171.74	91.59-263.33	0.05	0-0.11	0.05	0.01-0.11	0.14	0.07-0.22
Dec-2016	46.81	11.7-93.62	46.40	11.6-92.81	46.50	11.62-93	0.06	0.02-0.13	0.05	0.01-0.1	0.04	0.01-0.08
Jan-2017	46.79	11.7-93.59	46.36	11.59-92.72	57.84	11.57-115.67	0.06	0.02-0.13	0.05	0.01-0.1	0.05	0.01-0.09
Feb-2017	11.58	0-34.73	11.48	0-34.45	23.00	0-57.5	0.02	0-0.05	0.01	0-0.04	0.02	0-0.05
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	34.69	0-80.94	45.93	11.48-91.87	57.37	11.47-114.73	0.05	0-0.11	0.05	0.01-0.1	0.05	0.01-0.09
May-2017	11.58	0-34.73	22.92	0-57.31	80.31	22.95-149.15	0.02	0-0.05	0.02	0-0.06	0.07	0.02-0.12
Jun-2017	127.03	57.74-207.87	149.29	80.38-229.67	183.85	103.41-275.77	0.18	0.08-0.29	0.16	0.08-0.24	0.15	0.08-0.23
Jul-2017	115.63	46.25-196.57	137.80	57.42-218.19	149.26	80.37-229.64	0.16	0.06-0.27	0.14	0.06-0.23	0.12	0.07-0.19
Aug-2017	115.48	57.74-196.32	114.84	57.42-195.22	126.40	57.45-206.83	0.16	0.08-0.27	0.12	0.06-0.2	0.10	0.05-0.17
Sep-2017	36.69	2.35-83	36.38	2.16-82.46	47.56	13.41-95.13	0.05	0-0.11	0.04	0-0.09	0.04	0.01-0.08
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	38.74	5.34-78.25	52.50	15.56-102.16	65.51	20.66-116.68	0.05	0.01-0.11	0.05	0.02-0.11	0.05	0.02-0.1
Dec-2017	127.20	58.73-209.05	127.42	58.38-209.66	138.69	69.78-221.81	0.18	0.08-0.29	0.13	0.06-0.22	0.11	0.06-0.18
Jan-2018	23.31	0.21-58.38	46.62	11.83-93.24	46.52	11.78-93.33	0.03	0-0.08	0.05	0.01-0.1	0.04	0.01-0.08
Feb-2018	34.65	0-80.84	38.79	4.41-84.64	50.42	11.46-100.84	0.05	0-0.11	0.04	0-0.09	0.04	0.01-0.08
Mar-2018	11.53	0-34.6	11.48	0-34.45	23.02	0-57.54	0.02	0-0.05	0.01	0-0.04	0.02	0-0.05
Apr-2018	0.00	0-0	24.05	1.08-60.65	36.04	3.13-82	0.00	0-0	0.03	0-0.06	0.03	0-0.07
May-2018	28.41	2.63-67.35	33.00	7.51-71.04	34.58	7.7-72.81	0.04	0-0.09	0.03	0.01-0.07	0.03	0.01-0.06
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	3243.96	2872.01-3598.33	3236.74	2891.84-3614.76	3219.44	2883.85-3589.32	4.47	3.96-4.96	3.37	3.01-3.76	2.63	2.36-2.93

Table 21.3. Lesser Black-backed Gull design based estimates of birds in flight.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	104.20	46.31-173.67	126.32	57.42-206.7	149.04	68.79-240.75	0.14	0.06-0.24	0.13	0.06-0.21	0.12	0.06-0.2
Sep-2016	428.39	301.03-567.33	669.26	495.89-830.81	871.96	688.39-1055.53	0.59	0.42-0.78	0.70	0.52-0.86	0.71	0.56-0.86
Oct-2016	34.73	0-81.05	34.38	0-80.23	34.34	0-80.13	0.05	0-0.11	0.04	0-0.08	0.03	0-0.07
Nov-2016	23.16	0-57.89	34.52	0-80.54	80.15	22.9-148.84	0.03	0-0.08	0.04	0-0.08	0.07	0.02-0.12
Dec-2016	23.40	0-70.21	23.20	0-58	23.25	0-58.12	0.03	0-0.1	0.02	0-0.06	0.02	0-0.05
Jan-2017	35.10	0-81.89	34.77	0-81.13	46.27	11.57-104.1	0.05	0-0.11	0.04	0-0.08	0.04	0.01-0.09
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	34.69	0-81.23	45.93	11.48-91.87	57.37	11.47-114.73	0.05	0-0.11	0.05	0.01-0.1	0.05	0.01-0.09
May-2017	11.58	0-34.73	22.92	0-57.31	80.31	22.95-137.68	0.02	0-0.05	0.02	0-0.06	0.07	0.02-0.11
Jun-2017	34.65	0-80.84	57.42	11.48-114.84	80.43	22.98-149.38	0.05	0-0.11	0.06	0.01-0.12	0.07	0.02-0.12
Jul-2017	92.51	34.69-150.32	91.87	34.45-160.77	103.34	45.93-183.71	0.13	0.05-0.21	0.10	0.04-0.17	0.08	0.04-0.15
Aug-2017	80.84	23.1-138.58	80.38	22.97-149.29	80.43	22.98-149.38	0.11	0.03-0.19	0.08	0.02-0.16	0.07	0.02-0.12
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	11.56	0-34.69	11.51	0-34.52	11.48	0-34.45	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Jan-2018	11.55	0-34.65	11.48	0-34.45	11.48	0-34.45	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Feb-2018	11.55	0-34.65	11.46	0-34.38	11.46	0-34.37	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Mar-2018	11.53	0-34.6	11.48	0-34.45	23.02	0-57.54	0.02	0-0.05	0.01	0-0.04	0.02	0-0.05
Apr-2018	0.00	0-0	11.48	0-34.45	22.98	0-57.45	0.00	0-0	0.01	0-0.04	0.02	0-0.05
May-2018	11.58	0-34.73	11.49	0-34.48	11.48	0-34.45	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	34.56	0-80.63	45.85	0-91.69	45.89	11.47-103.26	0.05	0-0.11	0.05	0-0.1	0.04	0.01-0.08

Table 21.4. Lesser Black-backed Gull design based estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	112.78	46.31-185.25	134.94	66.03-215.32	166.95	89.21-265.17	0.16	0.06-0.26	0.14	0.07-0.22	0.14	0.07-0.22
Sep-2016	478.64	346.22-624.33	729.96	550.05-912.81	969.96	762.42-1154.97	0.66	0.48-0.86	0.76	0.57-0.95	0.79	0.62-0.94
Oct-2016	34.73	0-81.05	34.38	0-80.23	34.34	0-80.13	0.05	0-0.11	0.04	0-0.08	0.03	0-0.07
Nov-2016	23.16	0-57.89	34.52	0-80.54	80.15	22.9-148.84	0.03	0-0.08	0.04	0-0.08	0.07	0.02-0.12
Dec-2016	23.40	0-70.21	23.20	0-58	23.25	0-58.12	0.03	0-0.1	0.02	0-0.06	0.02	0-0.05
Jan-2017	35.10	0-81.89	34.77	0-81.13	46.27	11.57-104.1	0.05	0-0.11	0.04	0-0.08	0.04	0.01-0.09
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	34.69	0-81.23	45.93	11.48-91.87	57.37	11.47-114.73	0.05	0-0.11	0.05	0.01-0.1	0.05	0.01-0.09
May-2017	11.58	0-34.73	22.92	0-57.31	80.31	22.95-137.68	0.02	0-0.05	0.02	0-0.06	0.07	0.02-0.11
Jun-2017	34.65	0-80.84	57.42	11.48-114.84	80.43	22.98-149.38	0.05	0-0.11	0.06	0.01-0.12	0.07	0.02-0.12
Jul-2017	92.51	34.69-150.32	91.87	34.45-160.77	103.34	45.93-183.71	0.13	0.05-0.21	0.10	0.04-0.17	0.08	0.04-0.15
Aug-2017	80.84	23.1-138.58	80.38	22.97-149.29	80.43	22.98-149.38	0.11	0.03-0.19	0.08	0.02-0.16	0.07	0.02-0.12
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	12.48	0-36.52	12.36	0-37.08	12.39	0-39.01	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Jan-2018	11.55	0-34.65	11.48	0-34.45	11.48	0-34.45	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Feb-2018	11.55	0-34.65	11.46	0-34.38	11.46	0-34.37	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Mar-2018	11.53	0-34.6	11.48	0-34.45	23.02	0-57.54	0.02	0-0.05	0.01	0-0.04	0.02	0-0.05
Apr-2018	0.00	0-0	11.48	0-34.45	22.98	0-57.45	0.00	0-0	0.01	0-0.04	0.02	0-0.05
May-2018	11.58	0-34.73	11.49	0-34.48	11.48	0-34.45	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	34.56	0-80.63	45.85	0-91.69	45.89	11.47-103.26	0.05	0-0.11	0.05	0-0.1	0.04	0.01-0.08

Table 21.5. Lesser Black-backed Gull design based estimates of birds on the sea surface.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	833.62	659.95-1007.29	941.65	723.46-1159.84	1364.27	1123.52-1616.49	1.15	0.91-1.39	0.98	0.75-1.21	1.12	0.92-1.32
Sep-2016	266.30	162.09-370.5	346.17	230.78-484.64	413.03	286.83-551	0.37	0.22-0.51	0.36	0.24-0.5	0.34	0.23-0.45
Oct-2016	34.73	0-81.05	57.31	11.46-114.61	251.84	159.97-354.86	0.05	0-0.11	0.06	0.01-0.12	0.21	0.13-0.29
Nov-2016	11.58	0-34.73	11.51	0-34.52	91.59	34.35-160.29	0.02	0-0.05	0.01	0-0.04	0.07	0.03-0.13
Dec-2016	23.40	0-58.51	23.20	0-58	23.25	0-58.12	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Jan-2017	11.70	0-35.1	11.59	0-35.06	11.57	0-34.7	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Feb-2017	11.58	0-34.73	11.48	0-34.45	23.00	0-57.5	0.02	0-0.05	0.01	0-0.04	0.02	0-0.05
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	92.39	34.65-161.68	91.87	34.45-160.77	103.41	45.96-183.85	0.13	0.05-0.22	0.10	0.04-0.17	0.08	0.04-0.15
Jul-2017	23.13	0-57.82	45.93	11.48-92.16	45.93	11.48-103.34	0.03	0-0.08	0.05	0.01-0.1	0.04	0.01-0.08
Aug-2017	34.65	0-80.84	34.45	0-80.38	45.96	11.2-103.41	0.05	0-0.11	0.04	0-0.08	0.04	0.01-0.08
Sep-2017	34.73	0-81.05	34.42	0-80.31	45.86	11.46-91.72	0.05	0-0.11	0.04	0-0.08	0.04	0.01-0.07
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	34.93	0-81.49	46.21	11.55-103.98	58.18	11.64-104.72	0.05	0-0.11	0.05	0.01-0.11	0.05	0.01-0.09
Dec-2017	115.63	46.25-196.57	115.06	46.02-195.6	126.30	57.41-195.19	0.16	0.06-0.27	0.12	0.05-0.2	0.10	0.05-0.16
Jan-2018	11.55	0-34.65	34.45	0-80.38	34.45	0-80.37	0.02	0-0.05	0.04	0-0.08	0.03	0-0.07
Feb-2018	23.10	0-57.74	22.92	0-57.31	34.37	0-80.19	0.03	0-0.08	0.02	0-0.06	0.03	0-0.07
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	11.48	0-34.45	11.49	0-34.47	0.00	0-0	0.01	0-0.04	0.01	0-0.03
May-2018	11.58	0-34.73	11.49	0-34.48	11.48	0-45.93	0.02	0-0.05	0.01	0-0.04	0.01	0-0.04
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	2891.24	2556.9-3225.28	2876.83	2521.53-3209.5	2902.70	2558.5-3223.94	3.99	3.53-4.45	2.99	2.62-3.34	2.37	2.09-2.64

Table 21.6. Lesser Black-backed Gull design based estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	856.36	677.11-1030.58	990.49	775.09-1211.7	1433.94	1197.6-1688.18	1.18	0.93-1.42	1.03	0.81-1.26	1.17	0.98-1.38
Sep-2016	321.82	217.17-438.89	399.11	277.68-532.1	709.51	565.11-878.73	0.44	0.3-0.61	0.42	0.29-0.55	0.58	0.46-0.72
Oct-2016	119.08	65.25-185.02	104.38	52.44-167.54	386.67	274.89-510.8	0.16	0.09-0.26	0.11	0.05-0.17	0.32	0.22-0.42
Nov-2016	11.58	0-34.73	11.51	0-34.52	91.59	34.35-160.29	0.02	0-0.05	0.01	0-0.04	0.07	0.03-0.13
Dec-2016	23.40	0-58.51	23.20	0-58	23.25	0-58.12	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Jan-2017	11.70	0-35.1	11.59	0-35.06	11.57	0-34.7	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Feb-2017	11.58	0-34.73	11.48	0-34.45	23.00	0-57.5	0.02	0-0.05	0.01	0-0.04	0.02	0-0.05
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	92.39	34.65-161.68	91.87	34.45-160.77	103.41	45.96-183.85	0.13	0.05-0.22	0.10	0.04-0.17	0.08	0.04-0.15
Jul-2017	23.13	0-57.82	45.93	11.48-92.16	45.93	11.48-103.34	0.03	0-0.08	0.05	0.01-0.1	0.04	0.01-0.08
Aug-2017	34.65	0-80.84	34.45	0-80.38	45.96	11.2-103.41	0.05	0-0.11	0.04	0-0.08	0.04	0.01-0.08
Sep-2017	36.50	2.15-83.01	36.38	2.16-82.27	48.05	12.68-95.61	0.05	0-0.11	0.04	0-0.09	0.04	0.01-0.08
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	38.74	5.33-86.84	53.07	15.54-106.35	65.51	20.08-116.02	0.05	0.01-0.12	0.06	0.02-0.11	0.05	0.02-0.09
Dec-2017	115.63	46.25-196.57	115.06	46.02-195.6	126.30	57.41-195.19	0.16	0.06-0.27	0.12	0.05-0.2	0.10	0.05-0.16
Jan-2018	11.76	0-35.49	35.13	1.03-81.41	34.89	0.59-81.26	0.02	0-0.05	0.04	0-0.08	0.03	0-0.07
Feb-2018	23.10	0-57.74	27.33	0-66.12	34.37	4.6-84.79	0.03	0-0.08	0.03	0-0.07	0.03	0-0.07
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	12.56	0-39.84	13.06	0-42.3	0.00	0-0	0.01	0-0.04	0.01	0-0.03
May-2018	19.46	2.63-48.98	21.50	5-52	21.75	5.13-54.97	0.03	0-0.07	0.02	0.01-0.05	0.02	0-0.04
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	3204.84	2848.1-3569.81	3202.77	2843.82-3542.21	3167.13	2830.5-3509.04	4.42	3.93-4.92	3.33	2.96-3.68	2.59	2.31-2.87

Table 22.1. Herring Gull design based estimates of birds in flight and on sea.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	185.25	104.2-277.87	195.22	114.84-298.57	217.82	126.11-321	0.26	0.14-0.38	0.20	0.12-0.31	0.18	0.1-0.26
Sep-2016	34.73	0-81.05	150.01	80.77-242.32	183.57	103.26-275.35	0.05	0-0.11	0.16	0.08-0.25	0.15	0.08-0.23
Oct-2016	11.58	0-46.31	11.46	0-34.38	11.45	0-45.79	0.02	0-0.06	0.01	0-0.04	0.01	0-0.04
Nov-2016	34.73	0-69.47	34.52	0-80.54	80.15	34.35-148.84	0.05	0-0.1	0.04	0-0.08	0.07	0.03-0.12
Dec-2016	315.96	210.64-444.68	429.22	301.33-568.43	499.86	360.36-662.6	0.44	0.29-0.61	0.45	0.31-0.59	0.41	0.29-0.54
Jan-2017	23.40	0-58.49	23.18	0-57.95	23.13	0-57.84	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Feb-2017	11.58	0-34.73	11.48	0-34.45	11.50	0-34.5	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Mar-2017	0.00	0-0	11.46	0-34.38	11.48	0-34.45	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Apr-2017	23.13	0-57.82	57.42	11.48-114.84	57.37	11.47-103.26	0.03	0-0.08	0.06	0.01-0.12	0.05	0.01-0.08
May-2017	0.00	0-0	11.46	0-34.38	11.47	0-34.42	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Jun-2017	11.55	0-34.65	11.48	0-34.45	11.49	0-34.47	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Jul-2017	34.69	0-69.38	34.45	0-80.38	34.45	0-68.89	0.05	0-0.1	0.04	0-0.08	0.03	0-0.06
Aug-2017	11.55	0-34.65	22.97	0-57.42	22.98	0-57.45	0.02	0-0.05	0.02	0-0.06	0.02	0-0.05
Sep-2017	289.45	185.25-405.23	286.81	183.56-413.01	332.47	217.82-458.58	0.40	0.26-0.56	0.30	0.19-0.43	0.27	0.18-0.37
Oct-2017	11.61	0-34.82	137.80	68.9-218.19	137.68	68.84-217.99	0.02	0-0.05	0.14	0.07-0.23	0.11	0.06-0.18
Nov-2017	314.33	197.91-442.38	392.80	265.72-531.44	477.06	325.8-616.69	0.43	0.27-0.61	0.41	0.28-0.55	0.39	0.27-0.5
Dec-2017	647.54	485.66-832.55	678.83	517.75-851.42	700.39	539.64-872.62	0.89	0.67-1.15	0.71	0.54-0.89	0.57	0.44-0.71
Jan-2018	115.48	46.19-184.77	126.32	57.42-206.7	160.74	91.85-252.6	0.16	0.06-0.25	0.13	0.06-0.21	0.13	0.08-0.21
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	11.53	0-34.6	11.48	0-34.45	11.51	0-34.52	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	57.89	11.58-115.78	57.47	11.49-114.95	57.41	11.48-114.82	0.08	0.02-0.16	0.06	0.01-0.12	0.05	0.01-0.09
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	195.82	103.67-287.97	240.69	137.54-355.31	240.94	137.68-344.19	0.27	0.14-0.4	0.25	0.14-0.37	0.20	0.11-0.28

Table 22.2. Herring Gull design based estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	188.65	109.26-284.68	204.76	125.93-306.19	230.19	144.06-336.72	0.26	0.15-0.39	0.21	0.13-0.32	0.19	0.12-0.28
Sep-2016	39.02	4.9-86.57	164.51	93.72-252.72	237.31	152.12-333.13	0.05	0.01-0.12	0.17	0.1-0.26	0.19	0.12-0.27
Oct-2016	25.28	9.59-58.65	17.26	3.87-44.83	16.71	4.01-50.8	0.03	0.01-0.08	0.02	0-0.05	0.01	0-0.04
Nov-2016	34.73	0-69.47	34.52	0-80.54	80.15	34.35-148.84	0.05	0-0.1	0.04	0-0.08	0.07	0.03-0.12
Dec-2016	315.96	210.64-444.68	429.22	301.33-568.43	499.86	360.36-662.6	0.44	0.29-0.61	0.45	0.31-0.59	0.41	0.29-0.54
Jan-2017	23.40	0-58.49	23.18	0-57.95	23.13	0-57.84	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Feb-2017	11.58	0-34.73	11.48	0-34.45	11.50	0-34.5	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Mar-2017	0.00	0-0	11.46	0-34.38	11.48	0-34.45	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Apr-2017	23.13	0-57.82	57.42	11.48-114.84	57.37	11.47-103.26	0.03	0-0.08	0.06	0.01-0.12	0.05	0.01-0.08
May-2017	0.00	0-0	11.46	0-34.38	11.47	0-34.42	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Jun-2017	11.55	0-34.65	11.48	0-34.45	11.49	0-34.47	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Jul-2017	34.69	0-69.38	34.45	0-80.38	34.45	0-68.89	0.05	0-0.1	0.04	0-0.08	0.03	0-0.06
Aug-2017	11.55	0-34.65	22.97	0-57.42	22.98	0-57.45	0.02	0-0.05	0.02	0-0.06	0.02	0-0.05
Sep-2017	307.49	198.27-424.86	304.75	198.29-429.35	350.68	239.68-472.71	0.42	0.27-0.59	0.32	0.21-0.45	0.29	0.2-0.39
Oct-2017	16.07	2.68-41.97	170.57	96.21-261.33	150.31	81.44-235.74	0.02	0-0.06	0.18	0.1-0.27	0.12	0.07-0.19
Nov-2017	353.31	232.09-483.4	456.82	328.22-602.12	540.50	401.09-691.76	0.49	0.32-0.67	0.48	0.34-0.63	0.44	0.33-0.57
Dec-2017	652.27	485.66-832.67	678.89	526.93-858.43	709.59	548.85-877.33	0.90	0.67-1.15	0.71	0.55-0.89	0.58	0.45-0.72
Jan-2018	116.54	48.3-187.93	127.27	61.23-208.63	162.82	92.89-253.66	0.16	0.07-0.26	0.13	0.06-0.22	0.13	0.08-0.21
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	11.53	0-34.6	11.48	0-34.45	11.51	0-34.52	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	71.64	24.24-131.75	89.49	35.8-149.6	89.19	40.8-151.72	0.10	0.03-0.18	0.09	0.04-0.16	0.07	0.03-0.12
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	213.76	127.55-308.39	266.93	171.91-377.41	261.04	163.68-364.62	0.29	0.18-0.43	0.28	0.18-0.39	0.21	0.13-0.3

Table 22.3. Herring Gull design based estimates of birds in flight.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	34.73	0-81.05	34.45	0-68.9	45.86	11.46-91.72	0.05	0-0.11	0.04	0-0.07	0.04	0.01-0.07
Sep-2016	23.16	0-57.89	34.62	0-80.77	45.89	11.47-91.78	0.03	0-0.08	0.04	0-0.08	0.04	0.01-0.08
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	34.73	0-81.05	34.52	0-80.54	34.35	0-68.98	0.05	0-0.11	0.04	0-0.08	0.03	0-0.06
Dec-2016	11.70	0-35.11	34.80	0-81.2	34.87	0-81.37	0.02	0-0.05	0.04	0-0.08	0.03	0-0.07
Jan-2017	11.70	0-35.1	11.59	0-34.77	11.57	0-34.7	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	11.46	0-34.67	11.48	0-34.45	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	11.55	0-34.65	11.48	0-34.45	11.49	0-34.47	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	58.21	11.64-116.42	69.32	23.11-127.08	69.81	23.27-139.63	0.08	0.02-0.16	0.07	0.02-0.13	0.06	0.02-0.11
Dec-2017	127.20	57.82-208.14	126.56	57.53-207.1	126.30	57.41-206.67	0.18	0.08-0.29	0.13	0.06-0.22	0.10	0.05-0.17
Jan-2018	92.39	34.65-161.68	91.87	34.45-160.77	91.85	34.45-160.74	0.13	0.05-0.22	0.10	0.04-0.17	0.08	0.03-0.13
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	11.53	0-34.6	11.48	0-34.45	11.51	0-34.52	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	23.04	0-57.59	22.92	0-57.31	22.95	0-57.37	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05

Table 22.4. Herring Gull design based estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	34.73	1.7-82.75	36.04	1.59-75.26	47.16	12.77-96.96	0.05	0-0.11	0.04	0-0.08	0.04	0.01-0.08
Sep-2016	25.30	1.84-60.36	41.52	6.9-86.81	57.04	18.33-107.21	0.03	0-0.08	0.04	0.01-0.09	0.05	0.01-0.09
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	34.73	0-81.05	34.52	0-80.54	34.35	0-68.98	0.05	0-0.11	0.04	0-0.08	0.03	0-0.06
Dec-2016	11.70	0-35.11	34.80	0-81.2	34.87	0-81.37	0.02	0-0.05	0.04	0-0.08	0.03	0-0.07
Jan-2017	11.70	0-35.1	11.59	0-34.77	11.57	0-34.7	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	11.46	0-34.67	11.48	0-34.45	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	11.55	0-34.65	11.48	0-34.45	11.49	0-34.47	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	58.21	11.64-116.42	69.32	23.11-127.08	69.81	23.27-139.63	0.08	0.02-0.16	0.07	0.02-0.13	0.06	0.02-0.11
Dec-2017	131.93	62.55-212.87	131.21	66.76-214.05	135.51	66.62-215.94	0.18	0.09-0.29	0.14	0.07-0.22	0.11	0.05-0.18
Jan-2018	92.39	34.65-161.68	91.87	34.45-160.77	91.85	34.45-160.74	0.13	0.05-0.22	0.10	0.04-0.17	0.08	0.03-0.13
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	11.53	0-34.6	11.48	0-34.45	11.51	0-34.52	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	23.04	0-57.59	22.92	0-57.31	22.95	0-57.37	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05

Table 22.5. Herring Gull design based estimates of birds on the sea surface.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	150.52	69.47-243.14	160.77	80.38-252.64	171.97	91.72-263.68	0.21	0.1-0.34	0.17	0.08-0.26	0.14	0.07-0.22
Sep-2016	11.58	0-34.73	115.39	46.16-184.62	137.68	68.84-217.99	0.02	0-0.05	0.12	0.05-0.19	0.11	0.06-0.18
Oct-2016	11.58	0-34.73	11.46	0-34.38	11.45	0-34.34	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Nov-2016	0.00	0-0	0.00	0-0	45.80	11.45-91.59	0.00	0-0	0.00	0-0	0.04	0.01-0.07
Dec-2016	304.26	187.23-421.28	394.42	266.82-522.03	464.98	337.11-604.48	0.42	0.26-0.58	0.41	0.28-0.54	0.38	0.28-0.49
Jan-2017	11.70	0-35.1	11.59	0-34.77	11.57	0-34.7	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Feb-2017	11.58	0-34.73	11.48	0-34.45	11.50	0-34.5	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	23.13	0-57.82	57.42	11.48-114.84	57.37	11.47-114.73	0.03	0-0.08	0.06	0.01-0.12	0.05	0.01-0.09
May-2017	0.00	0-0	11.46	0-34.38	11.47	0-34.42	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Jun-2017	11.55	0-34.93	11.48	0-34.45	11.49	0-34.47	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Jul-2017	34.69	0-80.94	34.45	0-80.38	34.45	0-80.37	0.05	0-0.11	0.04	0-0.08	0.03	0-0.07
Aug-2017	0.00	0-0	11.48	0-34.45	11.49	0-34.47	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Sep-2017	289.45	185.25-416.81	286.81	183.56-401.54	332.47	217.82-458.58	0.40	0.26-0.57	0.30	0.19-0.42	0.27	0.18-0.37
Oct-2017	11.61	0-34.82	137.80	57.42-218.19	137.68	57.37-217.99	0.02	0-0.05	0.14	0.06-0.23	0.11	0.05-0.18
Nov-2017	256.12	151.34-360.89	323.48	207.95-450.57	407.25	278.97-546.88	0.35	0.21-0.5	0.34	0.22-0.47	0.33	0.23-0.45
Dec-2017	520.35	370.02-670.96	552.27	402.7-713.35	574.09	424.83-734.83	0.72	0.51-0.93	0.57	0.42-0.74	0.47	0.35-0.6
Jan-2018	23.10	0-57.74	34.45	0-80.38	68.89	22.96-137.78	0.03	0-0.08	0.04	0-0.08	0.06	0.02-0.11
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	57.89	11.58-104.2	57.47	11.49-114.95	57.41	11.48-114.82	0.08	0.02-0.14	0.06	0.01-0.12	0.05	0.01-0.09
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	172.78	92.15-264.93	217.77	126.08-320.92	217.99	114.73-321.25	0.24	0.13-0.37	0.23	0.13-0.33	0.18	0.09-0.26

Table 22.6. Herring Gull design based estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	155.62	79.67-244.84	167.13	91.52-262.22	180.55	95.62-272.8	0.21	0.11-0.34	0.17	0.1-0.27	0.15	0.08-0.22
Sep-2016	13.72	1.23-39.34	122.29	53.92-195.86	176.25	107.4-255.4	0.02	0-0.05	0.13	0.06-0.2	0.14	0.09-0.21
Oct-2016	25.28	9.59-55.29	17.26	3.87-43.67	16.46	4.26-41.87	0.03	0.01-0.08	0.02	0-0.05	0.01	0-0.03
Nov-2016	0.00	0-0	0.00	0-0	45.80	11.45-91.59	0.00	0-0	0.00	0-0	0.04	0.01-0.07
Dec-2016	304.26	187.23-421.28	382.82	266.82-522.03	464.98	337.11-604.48	0.42	0.26-0.58	0.40	0.28-0.54	0.38	0.28-0.49
Jan-2017	11.70	0-35.1	11.59	0-34.77	11.57	0-34.7	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Feb-2017	11.58	0-34.73	11.48	0-34.45	11.50	0-34.5	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	23.13	0-57.82	57.42	11.48-114.84	57.37	11.47-114.73	0.03	0-0.08	0.06	0.01-0.12	0.05	0.01-0.09
May-2017	0.00	0-0	11.46	0-34.38	11.47	0-34.42	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Jun-2017	11.55	0-34.93	11.48	0-34.45	11.49	0-34.47	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03
Jul-2017	34.69	0-80.94	34.45	0-80.38	34.45	0-80.37	0.05	0-0.11	0.04	0-0.08	0.03	0-0.07
Aug-2017	0.00	0-0	11.48	0-34.45	11.49	0-34.47	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Sep-2017	305.85	196.73-439.77	303.05	198.23-419.61	347.04	237.86-479.91	0.42	0.27-0.61	0.32	0.21-0.44	0.28	0.19-0.39
Oct-2017	16.07	1.79-42.86	175.75	96.77-261.33	152.84	78.94-238.23	0.02	0-0.06	0.18	0.1-0.27	0.12	0.06-0.19
Nov-2017	295.10	192.36-401.96	387.50	267.01-522.73	472.06	340.47-626.93	0.41	0.27-0.55	0.40	0.28-0.54	0.39	0.28-0.51
Dec-2017	520.35	370.02-670.96	563.78	402.7-713.35	562.61	424.83-734.83	0.72	0.51-0.93	0.59	0.42-0.74	0.46	0.35-0.6
Jan-2018	24.15	1.05-59.85	36.36	2.86-82.29	70.97	22.96-139.86	0.03	0-0.08	0.04	0-0.09	0.06	0.02-0.11
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	75.80	24.24-135.86	84.40	38.39-144.53	87.96	35.68-152.95	0.10	0.03-0.19	0.09	0.04-0.15	0.07	0.03-0.13
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	191.78	114.61-281.13	241.71	156.18-347.65	237.37	142.4-340.2	0.26	0.16-0.39	0.25	0.16-0.36	0.19	0.12-0.28

Table 23.1. Great Black-backed Gull design based estimates of birds in flight and on sea.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	138.94	69.47-219.98	160.77	80.38-241.15	206.36	114.64-309.54	0.19	0.1-0.3	0.17	0.08-0.25	0.17	0.09-0.25
Sep-2016	567.33	416.81-729.42	830.81	657.72-1003.89	963.74	757.23-1181.73	0.78	0.57-1.01	0.86	0.68-1.04	0.79	0.62-0.97
Oct-2016	23.16	0-57.89	252.15	149-366.77	251.84	160.26-366.31	0.03	0-0.08	0.26	0.15-0.38	0.21	0.13-0.3
Nov-2016	150.52	69.47-243.14	161.08	80.54-253.12	320.58	206.09-446.52	0.21	0.1-0.34	0.17	0.08-0.26	0.26	0.17-0.37
Dec-2016	292.55	187.23-409.58	522.03	371.22-672.84	895.09	720.72-1104.33	0.40	0.26-0.56	0.54	0.39-0.7	0.73	0.59-0.9
Jan-2017	46.79	11.7-93.59	69.54	23.18-127.48	80.97	34.41-138.8	0.06	0.02-0.13	0.07	0.02-0.13	0.07	0.03-0.11
Feb-2017	69.47	23.16-127.36	91.87	34.45-160.77	137.99	68.99-218.48	0.10	0.03-0.18	0.10	0.04-0.17	0.11	0.06-0.18
Mar-2017	23.13	0-57.82	22.92	0-57.31	22.96	0-57.41	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Apr-2017	23.13	0-57.82	22.97	0-57.42	22.95	0-57.37	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
May-2017	34.73	0-81.05	34.38	0-80.23	34.42	0-80.31	0.05	0-0.11	0.04	0-0.08	0.03	0-0.07
Jun-2017	34.65	0-80.84	34.45	0-80.38	103.41	45.96-183.85	0.05	0-0.11	0.04	0-0.08	0.08	0.04-0.15
Jul-2017	46.25	11.56-92.51	45.93	11.48-103.35	57.41	11.48-114.82	0.06	0.02-0.13	0.05	0.01-0.11	0.05	0.01-0.09
Aug-2017	46.19	11.55-92.39	45.93	11.48-91.87	57.45	11.49-114.9	0.06	0.02-0.13	0.05	0.01-0.1	0.05	0.01-0.09
Sep-2017	1725.14	1458.55-2003.01	1709.40	1457.01-1973.27	1719.67	1455.98-1994.81	2.38	2.01-2.76	1.78	1.52-2.05	1.41	1.19-1.63
Oct-2017	139.30	69.65-232.16	149.29	80.1-229.67	481.87	344.19-631.02	0.19	0.1-0.32	0.16	0.08-0.24	0.39	0.28-0.52
Nov-2017	186.27	104.78-279.4	485.22	346.3-635.41	639.96	477.06-814.5	0.26	0.14-0.39	0.50	0.36-0.66	0.52	0.39-0.67
Dec-2017	809.43	612.85-1017.56	885.94	701.85-1081.53	907.06	711.87-1113.73	1.12	0.85-1.4	0.92	0.73-1.12	0.74	0.58-0.91
Jan-2018	1120.20	912.32-1339.9	1343.57	1113.62-1596.21	1573.00	1331.89-1860.05	1.54	1.26-1.85	1.40	1.16-1.66	1.29	1.09-1.52
Feb-2018	46.19	11.55-92.39	57.31	11.46-114.61	68.73	22.91-126.01	0.06	0.02-0.13	0.06	0.01-0.12	0.06	0.02-0.1
Mar-2018	46.13	11.53-92.27	57.42	11.48-114.84	103.57	46.03-172.62	0.06	0.02-0.13	0.06	0.01-0.12	0.08	0.04-0.14
Apr-2018	57.74	11.55-103.94	218.19	126.32-321.54	218.32	126.4-321.73	0.08	0.02-0.14	0.23	0.13-0.33	0.18	0.1-0.26
May-2018	23.16	0-57.89	22.99	0-57.47	22.96	0-57.41	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Jun-2018	161.68	80.84-265.61	172.25	91.87-264.12	172.62	92.06-264.68	0.22	0.11-0.37	0.18	0.1-0.27	0.14	0.08-0.22
Jul-2018	57.59	11.52-115.19	57.31	11.46-114.61	596.60	447.16-757.22	0.08	0.02-0.16	0.06	0.01-0.12	0.49	0.37-0.62

Table 23.2. Great Black-backed Gull design based estimates of birds in flight and on sea including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	142.83	74.66-227.77	163.96	89.32-250.12	214.82	126.73-321.05	0.20	0.1-0.31	0.17	0.09-0.26	0.18	0.1-0.26
Sep-2016	655.51	501.81-830.66	926.33	746.28-1117.04	1264.00	1050.81-1479.64	0.90	0.69-1.15	0.96	0.78-1.16	1.03	0.86-1.21
Oct-2016	49.68	20.32-92.05	379.21	259.73-515	370.13	266.93-490.02	0.07	0.03-0.13	0.39	0.27-0.54	0.30	0.22-0.4
Nov-2016	150.52	69.47-243.14	161.08	80.54-253.12	320.58	206.09-446.52	0.21	0.1-0.34	0.17	0.08-0.26	0.26	0.17-0.37
Dec-2016	292.55	187.23-409.58	522.03	371.22-672.84	895.09	720.72-1104.33	0.40	0.26-0.56	0.54	0.39-0.7	0.73	0.59-0.9
Jan-2017	46.79	11.7-93.59	69.54	23.18-127.48	80.97	34.41-138.8	0.06	0.02-0.13	0.07	0.02-0.13	0.07	0.03-0.11
Feb-2017	69.47	23.16-127.36	91.87	34.45-160.77	137.99	68.99-218.48	0.10	0.03-0.18	0.10	0.04-0.17	0.11	0.06-0.18
Mar-2017	23.13	0-57.82	22.92	0-57.31	22.96	0-57.41	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Apr-2017	23.13	0-57.82	22.97	0-57.42	22.95	0-57.37	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
May-2017	34.73	0-81.05	34.38	0-80.23	34.42	0-80.31	0.05	0-0.11	0.04	0-0.08	0.03	0-0.07
Jun-2017	34.65	0-80.84	34.45	0-80.38	103.41	45.96-183.85	0.05	0-0.11	0.04	0-0.08	0.08	0.04-0.15
Jul-2017	46.25	11.56-92.51	45.93	11.48-103.35	57.41	11.48-114.82	0.06	0.02-0.13	0.05	0.01-0.11	0.05	0.01-0.09
Aug-2017	46.19	11.55-92.39	45.93	11.48-91.87	57.45	11.49-114.9	0.06	0.02-0.13	0.05	0.01-0.1	0.05	0.01-0.09
Sep-2017	1822.56	1552-2121.75	1804.69	1541.94-2087.21	1820.54	1556.18-2100.33	2.51	2.14-2.93	1.88	1.6-2.17	1.49	1.27-1.72
Oct-2017	202.69	112.51-304.49	190.32	110.48-279.05	542.55	404.29-702.59	0.28	0.16-0.42	0.20	0.11-0.29	0.44	0.33-0.57
Nov-2017	206.48	124.45-303.75	563.40	407.7-720.22	730.13	563.02-908.88	0.28	0.17-0.42	0.59	0.42-0.75	0.60	0.46-0.74
Dec-2017	815.34	624.68-1023.48	892.83	707.75-1088.14	918.99	729.32-1125.66	1.12	0.86-1.41	0.93	0.74-1.13	0.75	0.6-0.92
Jan-2018	1140.76	932.83-1371.8	1374.14	1147.06-1625.55	1602.11	1362.26-1886.55	1.57	1.29-1.89	1.43	1.19-1.69	1.31	1.11-1.54
Feb-2018	46.19	11.55-92.39	59.96	18.52-121.67	75.59	22.91-139.73	0.06	0.02-0.13	0.06	0.02-0.13	0.06	0.02-0.11
Mar-2018	46.13	11.53-92.27	57.42	11.48-114.84	103.57	46.03-172.62	0.06	0.02-0.13	0.06	0.01-0.12	0.08	0.04-0.14
Apr-2018	69.29	23.1-127.03	239.00	148.21-341.3	237.38	146.24-346.93	0.10	0.03-0.18	0.25	0.15-0.35	0.19	0.12-0.28
May-2018	28.40	2.62-65.79	35.93	7.76-71.89	34.52	7.68-74.12	0.04	0-0.09	0.04	0.01-0.07	0.03	0.01-0.06
Jun-2018	161.68	80.84-265.61	172.25	91.87-264.12	172.62	92.06-264.68	0.22	0.11-0.37	0.18	0.1-0.27	0.14	0.08-0.22
Jul-2018	63.47	17.6-121.91	63.41	17.56-121.33	645.90	499.64-816.68	0.09	0.02-0.17	0.07	0.02-0.13	0.53	0.41-0.67

Table 23.3. Great Black-backed Gull design based estimates of birds in flight.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	34.73	0-81.05	57.42	11.48-114.84	80.25	22.93-137.57	0.05	0-0.11	0.06	0.01-0.12	0.07	0.02-0.11
Sep-2016	451.55	312.61-602.06	565.41	415.4-726.96	688.39	516.29-860.48	0.62	0.43-0.83	0.59	0.43-0.76	0.56	0.42-0.7
Oct-2016	11.58	0-34.73	22.92	0-57.31	22.89	0-57.24	0.02	0-0.05	0.02	0-0.06	0.02	0-0.05
Nov-2016	138.94	69.47-219.98	149.57	69.03-230.11	194.64	103.04-297.68	0.19	0.1-0.3	0.16	0.07-0.24	0.16	0.08-0.24
Dec-2016	187.23	105.32-280.85	266.82	162.41-382.82	371.99	244.12-499.86	0.26	0.15-0.39	0.28	0.17-0.4	0.30	0.2-0.41
Jan-2017	35.10	0-81.89	46.36	11.3-104.3	57.84	11.57-115.67	0.05	0-0.11	0.05	0.01-0.11	0.05	0.01-0.09
Feb-2017	69.47	23.16-127.36	68.90	22.97-126.32	80.49	23-137.99	0.10	0.03-0.18	0.07	0.02-0.13	0.07	0.02-0.11
Mar-2017	23.13	0-57.82	22.92	0-57.59	22.96	0-68.89	0.03	0-0.08	0.02	0-0.06	0.02	0-0.06
Apr-2017	23.13	0-57.82	22.97	0-57.42	22.95	0-57.37	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
May-2017	34.73	0-81.05	34.38	0-80.23	34.42	0-80.31	0.05	0-0.11	0.04	0-0.08	0.03	0-0.07
Jun-2017	0.00	0-0	0.00	0-0	11.49	0-34.47	0.00	0-0	0.00	0-0	0.01	0-0.03
Jul-2017	46.25	11.56-92.79	45.93	11.48-91.87	57.41	11.48-114.82	0.06	0.02-0.13	0.05	0.01-0.1	0.05	0.01-0.09
Aug-2017	46.19	11.55-92.39	45.93	11.48-91.87	57.45	11.49-114.9	0.06	0.02-0.13	0.05	0.01-0.1	0.05	0.01-0.09
Sep-2017	0.00	0-0	0.00	0-0	11.46	0-34.39	0.00	0-0	0.00	0-0	0.01	0-0.03
Oct-2017	23.22	0-58.04	22.97	0-57.42	22.95	0-57.37	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Nov-2017	128.06	58.21-209.55	219.51	127.08-335.04	302.53	186.17-407.25	0.18	0.08-0.29	0.23	0.13-0.35	0.25	0.15-0.33
Dec-2017	161.89	80.94-254.39	184.09	92.05-276.14	195.19	103.34-298.81	0.22	0.11-0.35	0.19	0.1-0.29	0.16	0.08-0.24
Jan-2018	381.10	265.61-519.68	401.92	264.12-539.73	459.27	321.49-597.05	0.53	0.37-0.72	0.42	0.27-0.56	0.38	0.26-0.49
Feb-2018	46.19	11.55-92.39	45.85	11.46-91.69	45.82	11.46-91.65	0.06	0.02-0.13	0.05	0.01-0.1	0.04	0.01-0.07
Mar-2018	46.13	11.53-92.27	57.42	11.48-114.84	103.57	45.74-172.62	0.06	0.02-0.13	0.06	0.01-0.12	0.08	0.04-0.14
Apr-2018	23.10	0-57.74	34.45	0-80.38	34.47	0-68.94	0.03	0-0.08	0.04	0-0.08	0.03	0-0.06
May-2018	23.16	0-57.89	22.99	0-57.47	22.96	0-57.41	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Jun-2018	0.00	0-0	11.48	0-34.45	11.51	0-34.52	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Jul-2018	34.56	0-80.63	34.38	0-80.23	539.24	401.56-688.39	0.05	0-0.11	0.04	0-0.08	0.44	0.33-0.56

Table 23.4. Great Black-backed Gull design based estimates of birds in flight including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	36.03	1.3-82.34	58.69	12.76-117.39	82.67	26.55-143.61	0.05	0-0.11	0.06	0.01-0.12	0.07	0.02-0.12
Sep-2016	492.19	361-649.94	616.84	461.02-772.48	753.35	588.17-944.15	0.68	0.5-0.9	0.64	0.48-0.8	0.62	0.48-0.77
Oct-2016	11.58	0-34.73	22.92	0-57.31	22.89	0-57.24	0.02	0-0.05	0.02	0-0.06	0.02	0-0.05
Nov-2016	138.94	69.47-219.98	149.57	69.03-230.11	194.64	103.04-297.68	0.19	0.1-0.3	0.16	0.07-0.24	0.16	0.08-0.24
Dec-2016	175.53	105.32-280.85	266.82	162.41-382.82	371.99	244.12-499.86	0.24	0.15-0.39	0.28	0.17-0.4	0.30	0.2-0.41
Jan-2017	35.10	0-81.89	46.36	11.3-104.3	57.84	11.57-115.67	0.05	0-0.11	0.05	0.01-0.11	0.05	0.01-0.09
Feb-2017	69.47	23.16-127.36	68.90	22.97-126.32	80.49	23-137.99	0.10	0.03-0.18	0.07	0.02-0.13	0.07	0.02-0.11
Mar-2017	23.13	0-57.82	22.92	0-57.59	22.96	0-68.89	0.03	0-0.08	0.02	0-0.06	0.02	0-0.06
Apr-2017	23.13	0-57.82	22.97	0-57.42	22.95	0-57.37	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
May-2017	34.73	0-81.05	34.38	0-80.23	34.42	0-80.31	0.05	0-0.11	0.04	0-0.08	0.03	0-0.07
Jun-2017	0.00	0-0	0.00	0-0	11.49	0-34.47	0.00	0-0	0.00	0-0	0.01	0-0.03
Jul-2017	46.25	11.56-92.79	45.93	11.48-91.87	57.41	11.48-114.82	0.06	0.02-0.13	0.05	0.01-0.1	0.05	0.01-0.09
Aug-2017	46.19	11.55-92.39	45.93	11.48-91.87	57.45	11.49-114.9	0.06	0.02-0.13	0.05	0.01-0.1	0.05	0.01-0.09
Sep-2017	0.00	0-0	0.00	0-0	11.46	0-34.39	0.00	0-0	0.00	0-0	0.01	0-0.03
Oct-2017	23.22	0-58.04	22.97	0-57.42	22.95	0-57.37	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Nov-2017	128.06	58.21-209.55	219.51	127.08-335.04	302.53	186.17-407.25	0.18	0.08-0.29	0.23	0.13-0.35	0.25	0.15-0.33
Dec-2017	167.80	81.22-260.31	195.60	109.59-294.83	207.12	121.22-310.47	0.23	0.11-0.36	0.20	0.11-0.31	0.17	0.1-0.25
Jan-2018	381.10	265.61-519.68	401.92	264.12-539.73	447.79	321.49-597.05	0.53	0.37-0.72	0.42	0.27-0.56	0.37	0.26-0.49
Feb-2018	46.19	11.55-92.39	45.85	11.46-91.69	45.82	11.46-91.65	0.06	0.02-0.13	0.05	0.01-0.1	0.04	0.01-0.07
Mar-2018	46.13	11.53-92.27	57.42	11.48-114.84	103.57	45.74-172.62	0.06	0.02-0.13	0.06	0.01-0.12	0.08	0.04-0.14
Apr-2018	23.10	0-57.74	34.45	0-80.38	34.47	0-68.94	0.03	0-0.08	0.04	0-0.08	0.03	0-0.06
May-2018	23.16	0-57.89	22.99	0-57.47	22.96	0-57.41	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05
Jun-2018	0.00	0-0	11.48	0-34.45	11.51	0-34.52	0.00	0-0	0.01	0-0.04	0.01	0-0.03
Jul-2018	34.56	0-80.63	34.38	0-80.23	539.24	401.56-688.39	0.05	0-0.11	0.04	0-0.08	0.44	0.33-0.56

Table 23.5. Great Black-backed Gull design based estimates of birds on the sea surface.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	104.20	46.31-173.67	103.35	45.93-172.25	126.11	57.32-206.36	0.14	0.06-0.24	0.11	0.05-0.18	0.10	0.05-0.17
Sep-2016	115.78	57.89-196.83	265.40	161.55-380.79	275.35	183.57-390.09	0.16	0.08-0.27	0.28	0.17-0.4	0.23	0.15-0.32
Oct-2016	11.58	0-34.73	229.23	137.54-343.84	228.94	137.37-331.97	0.02	0-0.05	0.24	0.14-0.36	0.19	0.11-0.27
Nov-2016	11.58	0-34.73	11.51	0-46.02	125.94	57.25-206.09	0.02	0-0.05	0.01	0-0.05	0.10	0.05-0.17
Dec-2016	105.32	46.81-175.53	255.21	162.41-371.22	523.11	383.61-685.85	0.15	0.06-0.24	0.27	0.17-0.39	0.43	0.31-0.56
Jan-2017	11.70	0-35.1	23.18	0-57.95	23.13	0-57.84	0.02	0-0.05	0.02	0-0.06	0.02	0-0.05
Feb-2017	0.00	0-0	22.97	0-57.42	57.50	11.5-114.99	0.00	0-0	0.02	0-0.06	0.05	0.01-0.09
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	34.65	0-80.84	34.45	0-80.38	91.92	34.47-160.87	0.05	0-0.11	0.04	0-0.08	0.08	0.03-0.13
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	1725.14	1447.26-2003.01	1709.40	1422.59-1984.74	1708.20	1444.52-1994.81	2.38	2-2.76	1.78	1.48-2.06	1.40	1.18-1.63
Oct-2017	116.08	46.43-197.33	126.32	57.42-206.7	458.92	321.25-596.6	0.16	0.06-0.27	0.13	0.06-0.21	0.38	0.26-0.49
Nov-2017	58.21	11.64-104.78	265.72	161.74-381.25	337.43	221.08-465.43	0.08	0.02-0.14	0.28	0.17-0.4	0.28	0.18-0.38
Dec-2017	647.54	485.37-820.99	701.85	540.48-885.94	711.87	551.13-895.58	0.89	0.67-1.13	0.73	0.56-0.92	0.58	0.45-0.73
Jan-2018	739.10	565.58-912.32	941.65	746.43-1148.35	1113.73	895.58-1332.17	1.02	0.78-1.26	0.98	0.78-1.19	0.91	0.73-1.09
Feb-2018	0.00	0-0	11.46	0-34.67	22.91	0-57.28	0.00	0-0	0.01	0-0.04	0.02	0-0.05
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	34.65	0-80.84	183.74	103.35-275.6	183.85	91.92-275.77	0.05	0-0.11	0.19	0.11-0.29	0.15	0.08-0.23
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	161.68	80.84-254.06	160.77	91.58-241.44	161.11	80.56-253.17	0.22	0.11-0.35	0.17	0.1-0.25	0.13	0.07-0.21
Jul-2018	23.04	0-57.59	22.92	0-57.31	22.95	0-57.37	0.03	0-0.08	0.02	0-0.06	0.02	0-0.05

Table 23.6. Great Black-backed Gull design based estimates of birds on the sea surface including unidentified birds assigned using positively identified proportions.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	108.10	48.91-180.16	109.73	49.76-181.19	133.36	62.77-214.88	0.15	0.07-0.25	0.11	0.05-0.19	0.11	0.05-0.18
Sep-2016	157.69	93.27-243.84	305.82	206.76-423.19	496.83	384.44-640.88	0.22	0.13-0.34	0.32	0.22-0.44	0.41	0.31-0.52
Oct-2016	36.98	17.78-68.88	361.12	243.73-503.22	347.06	248.27-467.15	0.05	0.02-0.09	0.38	0.25-0.52	0.28	0.2-0.38
Nov-2016	11.58	0-34.73	11.51	0-46.02	125.94	57.25-206.09	0.02	0-0.05	0.01	0-0.05	0.10	0.05-0.17
Dec-2016	105.32	46.81-175.53	255.21	162.41-371.22	523.11	383.61-685.85	0.15	0.06-0.24	0.27	0.17-0.39	0.43	0.31-0.56
Jan-2017	11.70	0-35.1	23.18	0-57.95	23.13	0-57.84	0.02	0-0.05	0.02	0-0.06	0.02	0-0.05
Feb-2017	0.00	0-0	22.97	0-57.42	57.50	11.5-114.99	0.00	0-0	0.02	0-0.06	0.05	0.01-0.09
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	34.65	0-80.84	34.45	0-80.38	91.92	34.47-160.87	0.05	0-0.11	0.04	0-0.08	0.08	0.03-0.13
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	1830.47	1544.63-2119.96	1805.87	1528.16-2085.6	1812.17	1545.82-2097.34	2.52	2.13-2.92	1.88	1.59-2.17	1.48	1.26-1.71
Oct-2017	179.03	100.9-272.34	167.91	93.55-254.33	520.39	368.44-672.13	0.25	0.14-0.38	0.17	0.1-0.26	0.43	0.3-0.55
Nov-2017	81.98	31.85-141.15	345.01	222.87-471.54	427.60	311.25-573.65	0.11	0.04-0.19	0.36	0.23-0.49	0.35	0.25-0.47
Dec-2017	647.54	485.37-820.99	701.85	540.48-885.94	711.87	551.13-895.58	0.89	0.67-1.13	0.73	0.56-0.92	0.58	0.45-0.73
Jan-2018	749.38	565.87-934.16	973.51	766.81-1187.81	1134.03	926.02-1369.91	1.03	0.78-1.29	1.01	0.8-1.24	0.93	0.76-1.12
Feb-2018	0.00	0-0	18.52	0-48.56	29.77	0-66.46	0.00	0-0	0.02	0-0.05	0.02	0-0.05
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	46.19	11.55-92.39	201.31	114.84-307.93	202.13	111.77-305.54	0.06	0.02-0.13	0.21	0.12-0.32	0.17	0.09-0.25
May-2018	7.86	0-18.35	12.94	2.59-23.29	12.80	2.56-25.6	0.01	0-0.03	0.01	0-0.02	0.01	0-0.02
Jun-2018	161.68	80.84-254.06	160.77	91.58-241.44	161.11	80.56-253.17	0.22	0.11-0.35	0.17	0.1-0.25	0.13	0.07-0.21
Jul-2018	28.70	5.24-63.68	28.62	5.09-63.82	77.64	47.49-119.28	0.04	0.01-0.09	0.03	0.01-0.07	0.06	0.04-0.1

Table 24.1. Shearwater Species design based estimates of birds in flight and on sea.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	11.52	0-34.56	11.46	0-34.38	11.47	0-34.42	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03

Table 24.2. Shearwater Species design based estimates of birds in flight.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2016	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Aug-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Sep-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Oct-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Nov-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Dec-2017	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jan-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Feb-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Mar-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Apr-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
May-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jun-2018	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0	0.00	0-0
Jul-2018	11.52	0-34.56	11.46	0-34.38	11.47	0-34.42	0.02	0-0.05	0.01	0-0.04	0.01	0-0.03

Table 24.3. Shearwater Species design based estimates of birds on the sea surface.

Date	Abundance						Density					
	Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer		Wind farm		Wind farm & 2km buffer		Wind farm & 4km buffer	
	Abundance	Confidence interval	Abundance	Confidence interval	Abundance	Confidence interval	Density	Confidence interval	Density	Confidence interval	Density	Confidence interval
Aug-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Sep-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Oct-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Nov-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Dec-2016	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jan-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Feb-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Mar-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Apr-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
May-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jun-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jul-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Aug-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Sep-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Oct-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Nov-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Dec-2017	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jan-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Feb-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Mar-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Apr-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
May-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jun-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0
Jul-2018	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0	0	0-0

Norfolk Boreas Offshore Wind Farm

Appendix 13.1

Offshore Ornithology

Annex 3

Collision risk model input parameters

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Document Quality Record.

Version	Status	Person Responsible	Date
1	Draft	Nicola Goodship	20/02/2019
2	Reviewed	Mark Trinder	22/02/2019
3	Updated	Mark Trinder	22/02/2019
3.1	Updated	Nicola Goodship	27/03/2019
4	Internal Approval	Mark Trinder	30/03/2019

1 INTRODUCTION

1. This appendix provides tables of the input parameters for Norfolk Boreas used in the deterministic Collision Risk Modelling (CRM), comprising the following tables.

    - Table 1: density of birds in flight in Norfolk Boreas in each month, presented as the mean and upper and lower 95% confidence range derived from 1,000 nonparametric bootstrap simulations (the monthly values were derived as the mean of two months of survey density data and the 95% confidence intervals are derived from bootstrap data);
    - Table 2: the maximum proportion of each species estimated to be at rotor height (>= 22m) from the survey data and the sample sizes available (for use in Band Option 1 modelling);
    - Table 3: the proportion of each species estimated to be at rotor height (>= 22m) derived from Johnston et al. 2014[1] (this corresponds to the proportion at rotor height used in Band Option 2 modelling);
    - Table 4: biometrics of each species modelled (e.g. wingspan, body length, etc.), and
    - Table 5: the wind farm and turbine data.

2. For the avoidance of doubt, the avoidance rates used for CRM were those advised by Natural England, as follows:

    - Gannet = 98.9% (SD = 0.2%)
    - Kittiwake = 98.9% (SD = 0.2%)
    - Herring gull, lesser black-backed gull, great black-backed gull = 99.5% (SD = 0.1%)
    - Little gull, common gull, black-headed gull = 99.2% (SD = 0.2%)
    - All other species = 98% (SD = 0.2%)

3. Nocturnal Activity Factors (NAF) used for CRM were those advised by Natural England; these factors were derived from reviews of seabird activity reported in Garthe and Hüppop (2004)[2] which ranked species from 1 to 5 (1 low, 5 high) for relative nocturnal activity. These rates were subsequently modified for the purposes of CRM into 1 = 0%, 2 = 25%, 3 = 50%, 4 = 75% and 5 = 100% flying activity at night. Standard and reduced NAF were used for gannet (25% and 0%), kittiwake, lesser black-backed gull, herring gull and great black-backed gull (50% and 25% for all). In addition, evidence based nocturnal activity rates were used for gannet (Furness et al. 2018[3]) during the breeding season (8% between March and September) and nonbreeding season (4%

[1] Johnston, A., Cook, A.S.C.P., Wright, L.J., Humphreys, E.M. & Burton, E.H.K. (2014). Modelling flight heights of marine birds to more accurately assess collision risk with offshore wind turbines. Journal of Applied Ecology, 51, 31-41.

[2] Garthe, S & Hüppop, O. (2004). Scaling possible adverse effects of marine wind farms on seabirds: developing and applying a vulnerability index. Journal of Applied Ecology, 41, 724-734.

[3] Furness, R.W., Garthe, S., Trinder, M., Matthiopoulos, J., Wanless, S. & Jeglinski, J. (2018). Nocturnal flight activity of northern gannets *Morus bassanus* and implications for modelling collision risk at offshore wind farms. Environmental Impact Assessment Review, 73, https://doi.org/10.1016/j.eiar.2018.06.006

during the nonbreeding season between October and February). Unless otherwise stated the higher NAF rates were used for each species.

Table 1. Norfolk Boreas monthly mean densities (and 95% confidence intervals) of birds in flight used in the deterministic collision risk modelling.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Red-throated Diver	0.02 (0-0.06)	0 (0-0)	0.02 (0-0.08)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)
Fulmar	0.55 (0.02-1.26)	0.06 (0-0.18)	0.04 (0-0.13)	0.05 (0-0.11)	0.03 (0-0.08)	0.03 (0-0.08)	0.06 (0-0.11)	0.06 (0-0.16)	0.17 (0.05-0.32)	0.04 (0-0.14)	0.02 (0-0.1)	0.14 (0.03-0.27)
Gannet	0.02 (0-0.08)	0.04 (0-0.1)	0.04 (0-0.11)	0.02 (0-0.06)	0.06 (0.02-0.13)	0.02 (0-0.1)	0.02 (0-0.06)	0.66 (0-1.58)	0.13 (0.03-0.27)	0.18 (0.02-0.42)	0.97 (0.53-1.47)	0.32 (0.18-0.48)
Arctic Skua	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0.02 (0-0.1)	0.01 (0-0.05)	0 (0-0)	0 (0-0)	0 (0-0)
Great Skua	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0.06 (0-0.13)	0.01 (0-0.05)	0 (0-0)	0.01 (0-0.05)
Kittiwake	0.66 (0.23-1.18)	0.21 (0.06-0.38)	0.1 (0-0.24)	0.16 (0.08-0.27)	0.2 (0.1-0.32)	0.11 (0-0.29)	0.18 (0.03-0.38)	0.05 (0-0.14)	0.07 (0-0.19)	0.19 (0-0.51)	0.63 (0.3-1.03)	1.44 (0.94-1.98)
Black-headed Gull	0.01 (0-0.05)	0 (0-0)	0.36 (0-0.89)	0 (0-0)	0 (0-0)	0 (0-0)	0.03 (0-0.1)	0 (0-0)	0.02 (0-0.08)	0 (0-0)	0 (0-0)	0.01 (0-0.05)
Little Gull	0 (0-0)	0 (0-0)	0.02 (0-0.08)	0.01 (0-0.05)	0.02 (0-0.08)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0.01 (0-0.05)	0.09 (0-0.24)	0 (0-0)
Common Gull	0.02 (0-0.08)	0.01 (0-0.05)	0.02 (0-0.06)	0.01 (0-0.05)	0 (0-0)	0 (0-0)	0.02 (0-0.06)	0.01 (0-0.05)	0.01 (0-0.05)	0.06 (0-0.18)	0.01 (0-0.05)	0.08 (0.02-0.16)
Lesser Black-backed Gull	0.03 (0-0.1)	0.01 (0-0.05)	0.01 (0-0.05)	0.02 (0-0.11)	0.02 (0-0.05)	0.02 (0-0.1)	0.09 (0.02-0.21)	0.13 (0.05-0.22)	0.29 (0-0.75)	0.02 (0-0.1)	0.02 (0-0.08)	0.03 (0-0.08)
Herring Gull	0.07 (0-0.21)	0 (0-0)	0.01 (0-0.05)	0 (0-0)	0 (0-0)	0 (0-0)	0.02 (0-0.06)	0.03 (0-0.1)	0.02 (0-0.08)	0 (0-0)	0.06 (0-0.14)	0.1 (0-0.27)
Great Black-backed Gull	0.29 (0-0.67)	0.08 (0.02-0.16)	0.05 (0-0.11)	0.03 (0-0.08)	0.04 (0-0.1)	0 (0-0)	0.06 (0-0.13)	0.06 (0-0.13)	0.31 (0-0.8)	0.02 (0-0.06)	0.19 (0.08-0.3)	0.24 (0.13-0.37)

Table 2. Proportions of birds at potential collision height (>=22m) derived from the survey data for Norfolk Boreas. Figures present total number of birds with an estimated flight height, number at collision height (>=22m) and proportion at collision height. Figures are provided for all birds within the wind farm for use in Band Option 1 modelling.

	Within 4km buffer			Within wind farm		
Species	**No. height estimates**	**No. >=22m**	**Proportion >=22m**	**No. height estimates**	**No. >=22m**	**Proportion >=22m**
Red-throated Diver	5	2	0.400	4	2	0.500
Fulmar	140	55	0.393	77	31	0.403
Gannet	212	62	0.292	106	34	0.321
Arctic Skua	1	0	0	0	0	0
Great Skua	6	2	0.333	4	1	0.250
Kittiwake	653	429	0.657	364	227	0.624
Black-headed Gull	50	39	0.780	29	20	0.690
Little Gull	19	8	0.421	9	4	0.444
Common Gull	37	23	0.622	23	14	0.609
Lesser Black-backed Gull	69	34	0.493	39	16	0.410
Herring Gull	24	18	0.750	19	16	0.842
Great Black-backed Gull	153	90	0.588	74	34	0.459

Table 3. Proportions of birds at potential collision height (>=22m) from Johnston et al. (2014) for use in Band Option 2 modelling. Note that these figures were summed across rows of the flight height data, however the collision modelling used the method specified in the Band (2012) spreadsheet (i.e. integration across the flight height rows).

Species	**Proportion >=22m**
Red-throated Diver	0.041
Fulmar	0.005
Gannet	0.091
Arctic Skua	0.015
Great Skua	0.038
Kittiwake	0.111
Black-headed Gull	0.102
Little Gull	0.112
Common Gull	0.173
Lesser Black-backed Gull	0.231
Herring Gull	0.267
Great Black-backed Gull	0.272

Table 4. Species biometrics used in the collision risk modelling.

Species	Body length (m)	Wingspan (m)	Flight speed (m/s)	Nocturnal activity factor				Flight type (flapping=0, gliding=1)
				Standard	Reduced	Ev. BR*	Ev.NB**	
Red-throated Diver	0.73	1.30	17.0	0.50	-	-	-	0
Fulmar	0.48	1.07	13.0	0.75	-	-	-	0
Gannet	0.94	1.72	14.9	0.25	0.00	0.08	0.04	0
Arctic Skua	0.44	1.18	13.3	0.00	-	-	-	0
Great Skua	0.56	1.36	14.9	0.00	-	-	-	0
Kittiwake	0.39	1.08	13.1	0.50	0.25	-	-	0
Black-headed Gull	0.37	1.10	11.9	0.50	-	-	-	0
Little Gull	0.26	0.78	12.2	0.25	-	-	-	0
Common Gull	0.42	1.30	13.4	0.50	-	-	-	0
Lesser Black-backed Gull	0.58	1.42	13.1	0.50	0.25	-	-	0
Herring Gull	0.60	1.44	12.8	0.50	0.25	-	-	0
Great Black-backed Gull	0.71	1.58	13.7	0.50	0.25	-	-	0

*Ev. BR: Evidence based nocturnal activity factor for gannet is based on 8% flying activity at night during the breeding season (March to September) from Furness et al. (2018).

**Ev. NB: Evidence based nocturnal activity factor for gannet is based on 4% flying activity at night during the nonbreeding season (October to February) from Furness et al. (2018).

Table 5. Wind farm and turbine specifications used in the collision risk modelling.

Turbine output (MW)	No. of rotor blades	RPM	Rotor radius (m)	Hub height above HAT (m)	Predicted operation time (%)	Max. blade width (m)	Mean blade pitch (°)	No. of turbines	Latitude (°)	Wind Farm Width (km)	Tidal offset (m)
10	3	10.00	95.0	117.0	0.9	7.5	15	180	53.03	45.85	0.8

Norfolk Boreas Offshore Wind Farm

Appendix 13.1

Offshore Ornithology

Annex 4

Seabird collision modelling – tabulated results

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Document Quality Record.

Version	Status	Person Responsible	Date
1	Draft	Nicola Goodship	20/02/2019
2	Reviewed	Mark Trinder	22/02/2019
3	Updated	Mark Trinder	22/02/2019
3.1	Revisions	Nicola Goodship	26/03/2019
4	Internal Approval	Mark Trinder	30/03/2019

1 INTRODUCTION

1. This appendix provides results of Collision Risk Modelling (CRM) for the Norfolk Boreas wind farm.

2. Collision mortality estimates are presented for each month and summed across the year, produced using the Band CRM (2012) option 2 (generic flight heights) and option 1 (site-based flight heights).

3. Model results are presented for the worst case 10MW turbine option.

4. The Band (2012) deterministic CRM was used to produce monthly collision mortality estimates using the mean density and upper and lower 95% confidence intervals. Annual totals were calculated as the sum of the monthly values.

5. As well as upper and lower density estimates, modelling was conducted using upper and lower flight height distributions and upper and lower avoidance rates. Variation in nocturnal activity was also included. The following range of values for each of these parameters were used:

   - Avoidance rate, using the mean and variance advised by Natural England, as follows:
     - Gannet = 98.9% (SD = 0.2%);
     - Kittiwake = 98.9% (SD = 0.2%);
     - Herring gull, lesser black-backed gull, great black-backed gull = 99.5% (SD = 0.1%);
     - Little gull, common gull, black-headed gull = 99.2% (SD = 0.2%); and
     - All other species = 98% (SD = 0.2%).

   - Proportions at Potential Collision Height (PCH; height > 22m):
     - Band CRM 2012 option 2 using collision flight height data from Johnston et al. 2014[1]; and
     - Band CRM 2012 option 1 using aerial survey flight height data collected for East Anglia TWO.

   - Nocturnal Activity Factors (NAFS) including both standard and reduced rates were advised by Natural England. Evidenced based nocturnal factors were additionally used for gannet (Furness et al. 2018[2]):
     -Gannet = standard (25%), reduced (0%) and season specific evidence-based values (8% in breeding season months and 4% in nonbreeding season months);
     -Kittiwake, lesser black-backed gull, herring gull, great black-backed gull = standard (50%) and reduced (25%); and
     -All other species: one fixed value (see Annex 3 for values).

6. For Band CRM Option 2 models (Tables 1 – 12), for each species the mean estimate is provided (using the mean rates for each parameter and standard NAF values), along with the upper and lower estimates for flight height distributions, densities, and avoidance rates. For species which have alternative NAF values specified, collision estimates are provided using the alternative NAF with the mean value for each other parameter.

[1] Johnston, A., Cook, A.S.C.P., Wright, L.J., Humphreys, E.M. & Burton, E.H.K. (2014). Modelling flight heights of marine birds to more accurately assess collision risk with offshore wind turbines. Journal of Applied Ecology, 51, 31-41.

[2] Furness, R.W., Garthe, S., Trinder, M., Matthiopoulos, J., Wanless, S. & Jeglinski, J. (2018). Nocturnal flight activity of northern gannets *Morus bassanus* and implications for modelling collision risk at offshore wind farms. Environmental Impact Assessment Review, 73, https://doi.org/10.1016/j.eiar.2018.06.006

7. For Band CRM Option 1 models (Table 13), all parameters were single fixed values; mean monthly collision mortality estimates were produced using mean avoidance rates, surveyed collision heights and the upper (standard) nocturnal activity factors.

8. The input parameter values are provided in Technical Appendix 13.1 Annex 3.

9. Table A4a provides a key to table contents.

Table A4a. Key to collision mortality output table numbers, for all combinations of turbine model and input parameters.

Species	Band Option	Table no.
Red-throated diver	2	1
Fulmar		2
Gannet		3
Arctic skua		4
Great skua		5
Kittiwake		6
Black-headed gull		7
Little gull		8
Common gull		9
Lesser black-backed gull		10
Herring gull		11
Great black-backed gull		12
All species	1	13

Table 1. Red-throated diver collision mortality for the 10MW turbine calculated using deterministic CRM with Band Option 2. Monthly values are the mean and 95% confidence intervals. The range of values for Potential Collision Height (PCH) variables are presented. Annual totals are calculated as the summed totals of the monthly means.

Deterministic CRM	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual: mean (95% c.i.)**
Mean	0.70	0	1.15	0	0	0	0	0	0	0	0	0	1.85
95% c.i.	0-2.80	0-0	0-3.84	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-6.64
Variables													
PCH (95% c.i.)	0.06-5.14	0 - 0	0.11-8.53	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0.17-13.67

Table 2. Fulmar collision mortality for the 10MW turbine calculated using deterministic CRM with Band Option 2. Monthly values are the mean and 95% confidence intervals. The range of values for Potential Collision Height (PCH) variables are presented. Annual totals are calculated as the summed totals of the monthly means.

Deterministic CRM	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual: mean (95% c.i.)**
Mean	3.04	0.28	0.23	0.27	0.19	0.19	0.34	0.37	0.95	0.23	0.13	0.74	6.97
95% c.i.	0.09-6.94	0-0.89	0-0.74	0-0.64	0-0.48	0-0.47	0-0.68	0-0.95	0.27-1.80	0-0.82	0-0.52	0.18-1.49	0.54-16.42
Variables													
PCH (95% c.i.)	0-36.74	0-3.41	0-2.76	0-3.27	0-2.35	0-2.29	0-4.07	0-4.52	0-11.47	0-2.82	0-1.54	0-8.98	0-84.21

Table 3. Gannet collision mortality for the 10MW turbine calculated using deterministic CRM with Band Option 2. Monthly values are the mean and 95% confidence intervals. The range of values for avoidance rate, Potential Collision Height (PCH) and Nocturnal Activity Factor (NAF) variables are presented. Annual totals are calculated as the summed totals of the monthly means.

Deterministic CRM		**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual: mean (95% c.i.)**
Mean		0.67	1.67	2.07	0.85	3.77	1.46	0.98	38.43	6.57	8.37	40.13	12.65	117.63
95% c.i.		0-3.29	0-3.93	0-5.64	0-3.46	0.97-7.78	0-5.87	0-3.96	0-91.82	1.64-13.94	0.76-19.86	21.96-60.89	32.45-19.17	32.45-239.62
Variables														
Avoidance rate (95% c.i.)		0.55-0.80	1.37-1.97	1.69-2.45	0.70-1.01	3.08-4.45	1.20-1.73	0.80-1.16	31.45-45.42	5.37-7.76	6.85-9.89	32.84-47.43	10.35-14.95	96.24-139.01
PCH (95% c.i.)		0-1.17	0-2.88	0-3.58	0-1.47	0-6.51	0-2.53	0-1.69	0-66.39	0-11.34	0-14.46	0-69.32	0-21.85	0-203.18
NAF	Reduced (0%)	0.45	1.23	1.65	0.72	3.33	1.32	0.88	33.24	5.38	6.37	27.95	8.25	90.78
	Evidence based*	0.49	1.30	1.78	0.76	3.47	1.37	0.91	34.90	5.76	6.69	29.90	8.96	96.29

*Evidence based mean for gannet is based on 8% flying activity at night during the breeding season (March to September) and 4% flying activity at night during the nonbreeding season (October to February).

Table 4. Arctic skua collision mortality for the 10MW turbine calculated using deterministic CRM with Band Option 2. Monthly values are the mean and 95% confidence intervals. The range of values for Potential Collision Height (PCH) variables are presented. Annual totals are calculated as the summed totals of the monthly means.

Deterministic CRM	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual: mean (95% c.i.)**
Mean	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.08	0.00	0.00	0.00	0.35
95% c.i.	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-1.11	0-0.46	0-0	0-0	0-0	0-1.57
Variables													
PCH (95% c.i.)	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0.15-1.36	0.04-0.38	0-0	0-0	0-0	0.2-1.74

Table 5. Great skua collision mortality for the 10MW turbine calculated using deterministic CRM with Band Option 2. Monthly values are the mean and 95% confidence intervals. The range of values for Potential Collision Height (PCH) variables are presented. Annual totals are calculated as the summed totals of the monthly means.

Deterministic CRM	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual: mean (95% c.i.)
Mean	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53	0.18	0.00	0.14	1.86
95% c.i.	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-3.48	0-1.13	0-0	0-0.82	0-5.43
Variables													
PCH (95% c.i.)	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0.84-5.52	0.1-0.65	0-0	0.08-0.51	1.01-6.69

Table 6. Kittiwake collision mortality for the 10MW turbine calculated using deterministic CRM with Band Option 2. Monthly values are the mean and 95% confidence intervals. The range of values for avoidance rate, Potential Collision Height (PCH) and Nocturnal Activity Factor (NAF) variables are presented. Annual totals are calculated as the summed totals of the monthly means.

Deterministic CRM		**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual: mean (95% c.i.)**
Mean		32.52	9.64	5.23	8.90	12.39	6.69	10.84	2.85	3.90	10.08	30.38	69.38	202.80
95% c.i.		11.06-57.7	2.96-17.81	0-13.03	4.43-15.12	5.8-19.34	0-17.24	1.96-23.44	0-8.46	0-10.37	0-26.95	14.61-49.56	45.34-95.66	86.16-354.67
Variables														
Avoidance rate (95% c.i.)		26.61-38.44	7.89-11.4	4.28-6.18	7.28-10.52	10.14-14.64	5.47-7.91	8.87-12.81	2.33-3.37	3.19-4.61	8.25-11.91	24.85-35.9	56.76-81.99	165.93-239.68
PCH (95% c.i.)		24.25-39.03	7.19-11.57	3.9-6.28	6.64-10.68	9.24-14.87	4.99-8.03	8.08-13.01	2.13-3.42	2.91-4.68	7.51-12.1	22.65-36.46	51.73-83.27	151.21-243.42
NAF	Reduced (25%)	24.52	7.62	4.34	7.72	11.11	6.10	9.82	2.51	3.30	8.14	23.30	51.49	159.98

Table 7. Black-headed gull collision mortality for the 10MW turbine calculated using deterministic CRM with Band Option 2. Monthly values are the mean and 95% confidence intervals. The range of values for avoidance rate and Potential Collision Height (PCH) variables are presented. Annual totals are calculated as the summed totals of the monthly means.

Deterministic CRM	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual: mean (95% c.i.)**
Mean	0.26	0.00	12.58	0.00	0.00	0.00	1.27	0.00	0.55	0.00	0.00	0.26	14.91
95% c.i.	0-1.51	0-0	0-30.89	0-0	0-0	0-0	0-3.73	0-0	0-2.75	0-0	0-0	0-1.47	0-40.34
Variables													
Avoidance rate (95% c.i.)	0.19-0.32	0-0	9.44-15.73	0-0	0-0	0-0	0.95-1.59	0-0	0.41-0.68	0-0	0-0	0.19-0.32	11.18-18.64
PCH (95% c.i.)	0.09-0.54	0-0	4.51-26.39	0-0	0-0	0-0	0.45-2.66	0-0	0.2-1.15	0-0	0-0	0.09-0.54	5.34-31.28

Table 8. Little Gull collision mortality for the 10MW turbine calculated using deterministic CRM with Band Option 2. Monthly values are the mean and 95% confidence intervals. The range of values for avoidance rate and Potential Collision Height (PCH) variables are presented. Annual totals are calculated as the summed totals of the monthly means.

Deterministic CRM	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual: mean (95% c.i.)**
Mean	0.00	0.00	0.71	0.25	0.58	0.00	0.00	0.00	0.00	0.22	2.11	0.00	3.88
95% c.i.	0-0	0-0	0-2.36	0-1.52	0-2.84	0-0	0-0	0-0	0-0	0-1.34	0-5.81	0-0	0-13.87
Variables													
Avoidance rate (95% c.i.)	0-0	0-0	0.54-0.89	0.19-0.32	0.44-0.73	0-0	0-0	0-0	0-0	0.16-0.27	1.58-2.64	0-0	2.91-4.85
PCH (95% c.i.)	0-0	0-0	0.22-1.45	0.08-0.51	0.18-1.18	0-0	0-0	0-0	0-0	0.07-0.44	0.66-4.29	0-0	1.22-7.87

Table 9. Common gull collision mortality for the 10MW turbine calculated using deterministic CRM with Band Option 2. Monthly values are the mean and 95% confidence intervals. The range of values for avoidance rate and Potential Collision Height (PCH) variables are presented. Annual totals are calculated as the summed totals of the monthly means.

Deterministic CRM	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual: mean (95% c.i.)**
Mean	0.95	0.44	1.01	0.52	0.00	0.00	1.72	0.53	0.51	3.45	0.45	4.42	14.02
95% c.i.	0-4.62	0-2.6	0-4.07	0-3.12	0-0	0-0	0-4.61	0-3.3	0-3.03	0-10.86	0-2.72	0.91-8.99	0.91-47.92
Variables													
Avoidance rate (95% c.i.)	0.72-1.19	0.33-0.55	0.75-1.26	0.39-0.65	0-0	0-0	1.29-2.16	0.4-0.67	0.38-0.64	2.59-4.31	0.34-0.57	3.32-5.53	10.51-17.52
PCH (95% c.i.)	0.8-1.43	0.37-0.66	0.84-1.5	0.44-0.78	0-0	0-0	1.45-2.58	0.45-0.8	0.43-0.77	2.9-5.15	0.38-0.68	3.71-6.61	11.76-20.94

Table 10. Lesser Black-backed Gull collision mortality for the 10MW turbine calculated using deterministic CRM with Band Option 2. Monthly values are the mean and 95% confidence intervals. The range of values for avoidance rate, Potential Collision Height (PCH) and Nocturnal Activity Factor (NAF) variables are presented. Annual totals are calculated as the summed totals of the monthly means.

Deterministic CRM		**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual: mean (95% c.i.)**
Mean		1.67	0.38	0.46	1.45	1.01	1.47	5.54	7.83	16.57	1.31	0.82	1.27	39.78
95% c.i.		0-4.94	0-2.32	0-2.71	0-6.51	0-3.03	0-6	1.02-13.3	2.94-13.76	0-42.37	0-5.27	0-4.02	0-4.06	3.96-108.27
Variables														
Avoidance rate (95% c.i.)		1.34-2.01	0.31-0.46	0.37-0.55	1.16-1.74	0.81-1.21	1.17-1.76	4.43-6.65	6.26-9.4	13.26-19.88	1.05-1.58	0.66-0.98	1.01-1.52	31.83-47.74
PCH (95% c.i.)		1.13-2.82	0.26-0.65	0.31-0.77	0.98-2.44	0.68-1.7	1-2.47	3.76-9.32	5.31-13.18	11.23-27.89	0.89-2.21	0.56-1.38	0.86-2.13	26.97-66.96
NAF	Reduced (25%)	1.26	0.30	0.38	1.26	0.91	1.34	5.02	6.90	14.03	1.06	0.63	0.94	**34.03**

Table 11. Herring Gull collision mortality for the 10MW turbine calculated using deterministic CRM with Band Option 2. Monthly values are the mean and 95% confidence intervals. The range of values for avoidance rate, Potential Collision Height (PCH) and Nocturnal Activity Factor (NAF) variables are presented. Annual totals are calculated as the summed totals of the monthly means.

Deterministic CRM		**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual: mean (95% c.i.)**
Mean		4.14	0.00	0.52	0.00	0.00	0.00	1.18	2.23	1.06	0.00	3.74	5.57	18.43
95% c.i.		0-12.22	0-0	0-3.14	0-0	0-0	0-0	0-4.71	0-6.81	0-5.21	0-0	0-8.4	0-15.75	0-56.23
Variables														
Avoidance rate (95% c.i.)		3.31-4.97	0-0	0.42-0.62	0-0	0-0	0-0	0.94-1.41	1.78-2.67	0.84-1.27	0-0	3-4.49	4.45-6.68	14.74-22.12
PCH (95% c.i.)		3.1-5.9	0-0	0.39-0.74	0-0	0-0	0-0	0.88-1.68	1.67-3.17	0.79-1.5	0-0	2.8-5.33	4.17-7.93	13.8-26.25
NAF	Reduced (25%)	3.12	0.00	0.43	0.00	0.00	0.00	1.07	1.96	0.89	0.00	2.87	4.13	14.48

Table 12. Great Black-backed Gull collision mortality for the 10MW turbine calculated using deterministic CRM with Band Option 2. Monthly values are the mean and 95% confidence intervals. The range of values for avoidance rate, Potential Collision Height (PCH) and Nocturnal Activity Factor (NAF) variables are presented. Annual totals are calculated as the summed totals of the monthly means.

Deterministic CRM		**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual: mean (95% c.i.)**
Mean		18.78	4.92	3.48	2.29	3.13	0.00	4.62	4.42	22.44	1.66	11.93	15.43	93.11
95% c.i.		0-43.74	0.99-9.91	0-8.11	0-5.94	0-7.75	0-0	0-10.47	0-10.04	0-57.71	0-4.51	5.17-19.54	8.21-23.89	14.37-201.62
Variables														
Avoidance rate	+/- 2SD	15.03-22.54	3.94-5.91	2.78-4.17	1.83-2.75	2.5-3.75	0-0	3.7-5.54	3.54-5.3	17.95-26.93	1.33-2	9.55-14.32	12.34-18.52	74.49-111.73
PCH	95% c.i.	15.82-27.46	4.14-7.2	2.93-5.09	1.93-3.35	2.63-4.57	0-0	3.89-6.75	3.72-6.46	18.9-32.81	1.4-2.43	10.05-17.45	13-22.56	78.42-136.13
NAF	Reduced (25%)	14.16	3.89	2.89	1.98	2.80	0.00	4.19	3.89	19.00	1.34	9.15	11.45	74.76

Table 13. All species collision mortality for the 10MW turbine calculated using deterministic CRM with Band Option 1. Monthly values are the mean and 95% confidence intervals. The range of values for avoidance rate and Potential Collision Height (PCH) variables are presented. Annual totals are calculated as the summed totals of the monthly means.

Species	Deterministic CRM (Mean ± 95% c.i.)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual: mean (95% c.i.)
Red-throated diver	8.55 (0-34.4)	0 (0-0)	14.18 (0-47.21)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	22.73 (0-81.61)
Fulmar	230.37 (6.74-525.71)	21.36 (0-67.62)	17.29 (0-55.73)	20.48 (0-48.38)	14.76 (0-36.53)	14.39 (0-35.68)	25.5 (0-51.42)	28.31 (0-72.21)	71.94 (20.47-136.49)	17.67 (0-61.9)	9.62 (0-39.02)	56.3 (13.4-112.56)	527.99 (40.62-1243.25)
Gannet	2.38 (0-11.6)	5.88 (0-13.84)	7.29 (0-19.87)	3 (0-12.17)	13.26 (3.42-27.38)	5.15 (0-20.69)	3.45 (0-13.96)	135.33 (0-323.31)	23.12 (5.77-49.08)	29.47 (2.68-69.92)	141.32 (77.33-214.42)	44.53 (25.05-67.5)	414.19 (114.26-843.75)
Arctic skua	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0.18 (0-0.73)	0.05 (0-0.3)	0 (0-0)	0 (0-0)	0 (0-0)	0.23 (0-1.03)
Great skua	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	10.06 (0-22.81)	1.19 (0-7.41)	0 (0-0)	0.92 (0-5.38)	12.17 (0-35.6)
Kittiwake	182.49 (62.05-323.78)	54.11 (16.61-99.92)	29.34 (0-73.1)	49.94 (24.84-84.86)	69.53 (32.56-108.53)	37.54 (0-96.75)	60.84 (11-131.51)	16.01 (0-47.45)	21.88 (0-58.18)	56.55 (0-151.21)	170.46 (81.99-278.08)	389.31 (254.43-536.8)	1137.98 (483.48-1990.17)
Black-headed gull	1.73 (0-10.15)	0 (0-0)	84.74 (0-208.06)	0 (0-0)	0 (0-0)	0 (0-0)	8.56 (0-25.11)	0 (0-0)	3.69 (0-18.51)	0 (0-0)	0 (0-0)	1.72 (0-9.88)	100.44 (0-271.71)
Little gull	0 (0-0)	0 (0-0)	2.83 (0-9.34)	1 (0-6.01)	2.3 (0-11.26)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0.85 (0-5.29)	8.36 (0-23)	0 (0-0)	15.34 (0-54.89)
Common gull	3.37 (0-16.3)	1.55 (0-9.19)	3.55 (0-14.35)	1.83 (0-11.02)	0 (0-0)	0 (0-0)	6.09 (0-16.29)	1.88 (0-11.67)	1.81 (0-10.7)	12.18 (0-38.33)	1.6 (0-9.59)	15.62 (3.21-31.73)	49.49 (3.21-169.16)
Lesser black-backed gull	2.97 (0-8.79)	0.68 (0-4.12)	0.82 (0-4.82)	2.57 (0-11.56)	1.79 (0-5.38)	2.61 (0-10.66)	9.85 (1.81-23.63)	13.92 (5.23-24.46)	29.45 (0-75.31)	2.33 (0-9.37)	1.46 (0-7.14)	2.25 (0-7.21)	70.72 (7.04-192.45)

Species	Deterministic CRM (Mean ± 95% c.i.)												
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual: mean (95% c.i.)**
Herring gull	13.08 (0-38.59)	0 (0-0)	1.64 (0-9.9)	0 (0-0)	0 (0-0)	0 (0-0)	3.72 (0-14.87)	7.03 (0-21.52)	3.33 (0-16.45)	0 (0-0)	11.83 (0-26.53)	17.58 (0-49.74)	58.22 (0-177.62)
Great black-backed gull	31.65 (0-73.69)	8.29 (1.67-16.7)	5.86 (0-13.66)	3.86 (0-10.01)	5.27 (0-13.06)	0 (0-0)	7.78 (0-17.65)	7.45 (0-16.91)	37.81 (0-97.22)	2.8 (0-7.6)	20.1 (8.71-32.92)	25.99 (13.83-40.25)	156.86 (24.21-339.66)

Norfolk Boreas Offshore Wind Farm

Appendix 13.1

Offshore Ornithology

Annex 5

Species abundance plots

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Document Quality Record.

Version	Status	Person Responsible	Date
1	Draft	Nicola Goodship	20/02/2019
2	Reviewed	Mark Trinder	22/02/2019
3	Updated	Mark Trinder	22/02/2019
3.1	Updated	Nicola Goodship	28/03/2019
4	Internal Approval	Mark Trinder	30/03/2019

1 INTRODUCTION

1. This appendix provides plots of species abundance in each month for the Norfolk Boreas wind farm site alone and with the inclusion of the 4km buffer. Where appropriate the abundance estimates include unidentified birds (e.g. large gulls, small gulls), added to the positively identified species totals using species and survey specific proportions. Razorbill and guillemot totals have also been adjusted to account for availability bias. Details on analysis methods are provided in Appendix 13.1.

2. Table A5 provides a key to figure numbering.

Table A5. Key to figure numbering.

Species	Figure number
Long-tailed duck	1
Red-throated diver	2
Great northern diver	3
Fulmar	4
Gannet	5
Cormorant	6
Shag	7
Arctic skua	8
Great skua	9
Puffin	10
Razorbill	11
Guillemot	12
Black tern	13
Sandwich tern	14
Commic tern	15
Kittiwake	16
Black-headed gull	17
Little gull	18
Mediterranean gull	19
Common gull	20
Lesser black-backed gull	21
Herring gull	22
Great black-backed gull	23
Shearwater species	24

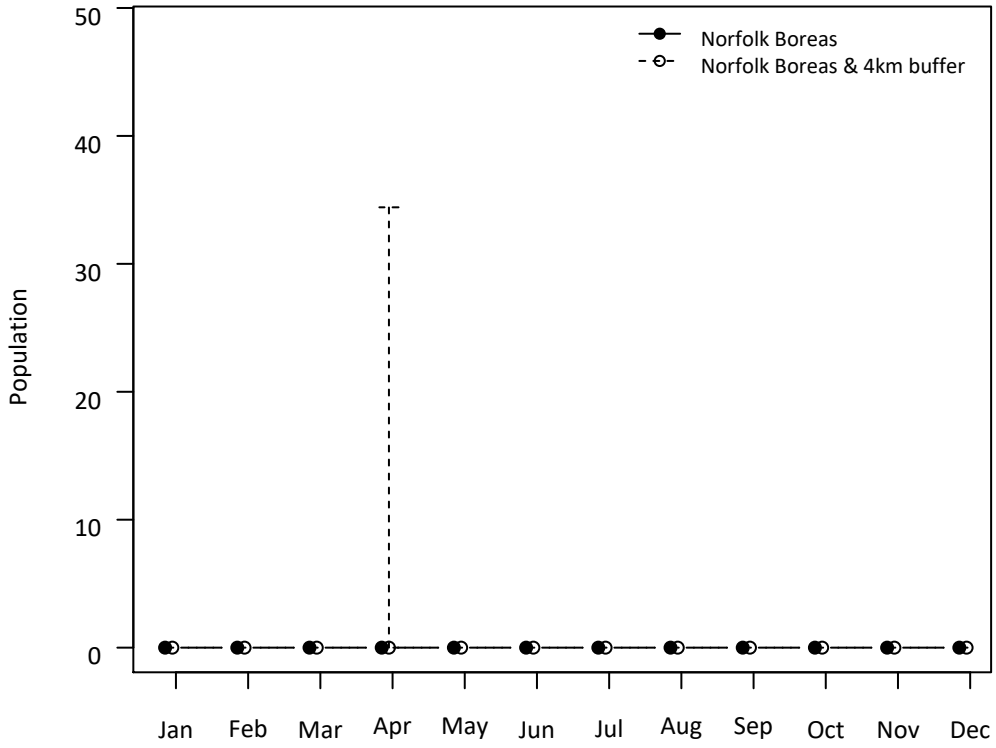

Figure 1. Long-tailed Duck. Mean design based abundance estimates (plus 95% confidence intervals) of birds in flight and on the sea in Norfolk Boreas (filled circles, solid lines) and Norfolk Boreas plus 4km buffer (open circles, dashed lines).

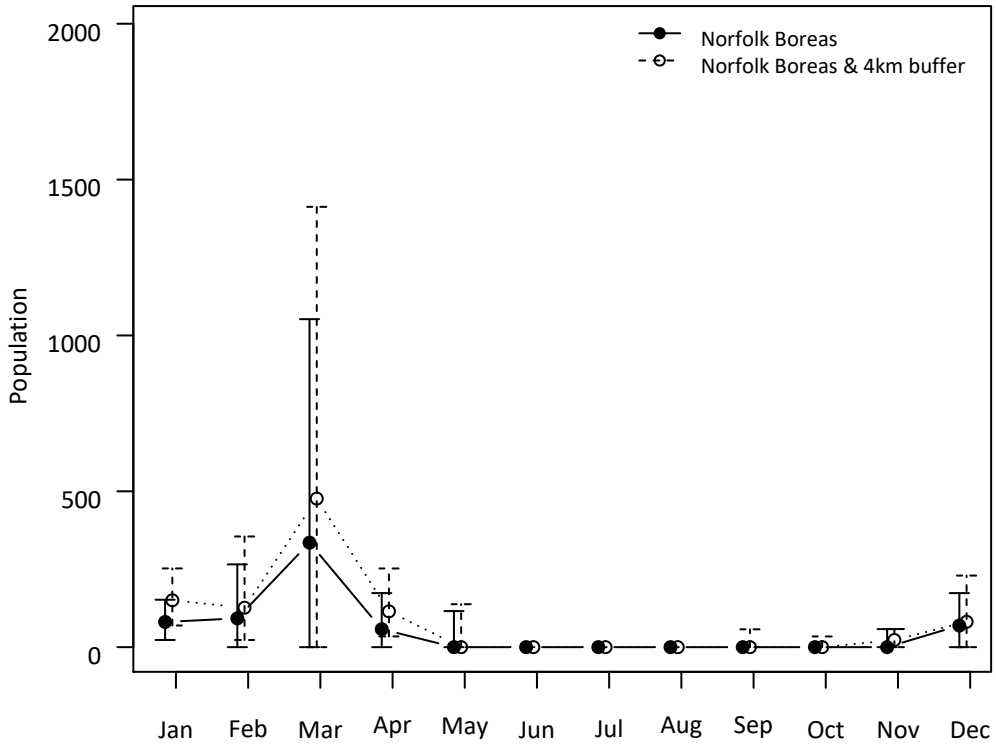

Figure 2. Red-throated Diver. Mean design based abundance estimates (plus 95% confidence intervals) of birds in flight and on the sea in Norfolk Boreas (filled circles, solid lines) and Norfolk Boreas plus 4km buffer (open circles, dashed lines).

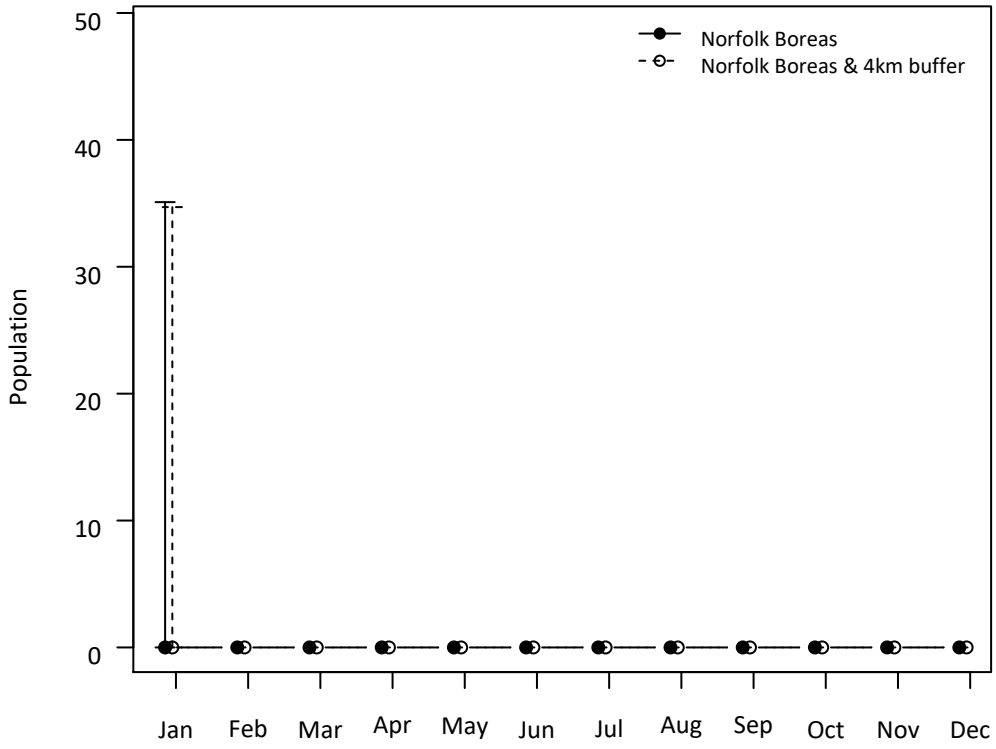

Figure 3. Great Northern Diver. Mean design based abundance estimates (plus 95% confidence intervals) of birds in flight and on the sea in Norfolk Boreas (filled circles, solid lines) and Norfolk Boreas plus 4km buffer (open circles, dashed lines).

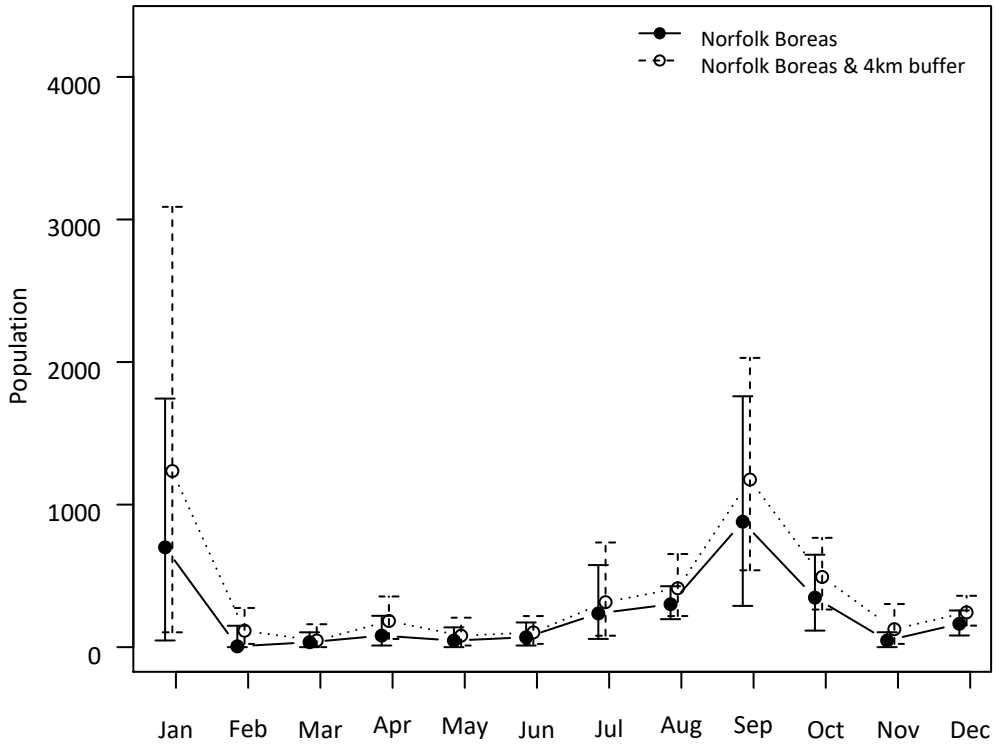

Figure 4. Fulmar. Mean design based abundance estimates (plus 95% confidence intervals) of birds in flight and on the sea in Norfolk Boreas (filled circles, solid lines) and Norfolk Boreas plus 4km buffer (open circles, dashed lines).

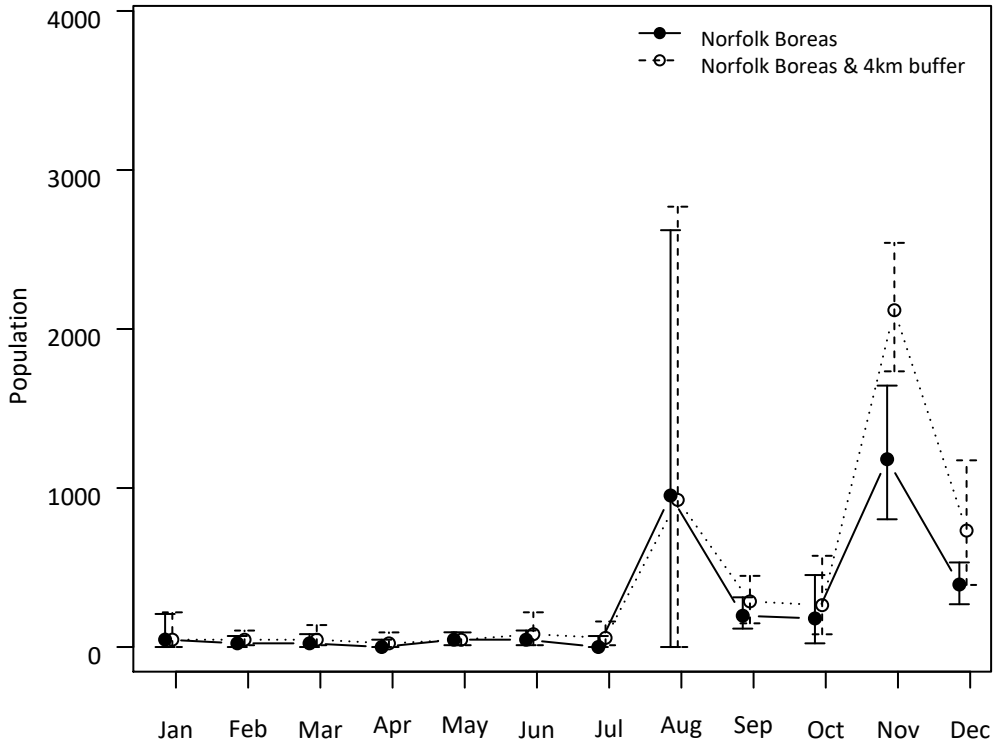

Figure 5. Gannet. Mean design based abundance estimates (plus 95% confidence intervals) of birds in flight and on the sea in Norfolk Boreas (filled circles, solid lines) and Norfolk Boreas plus 4km buffer (open circles, dashed lines).

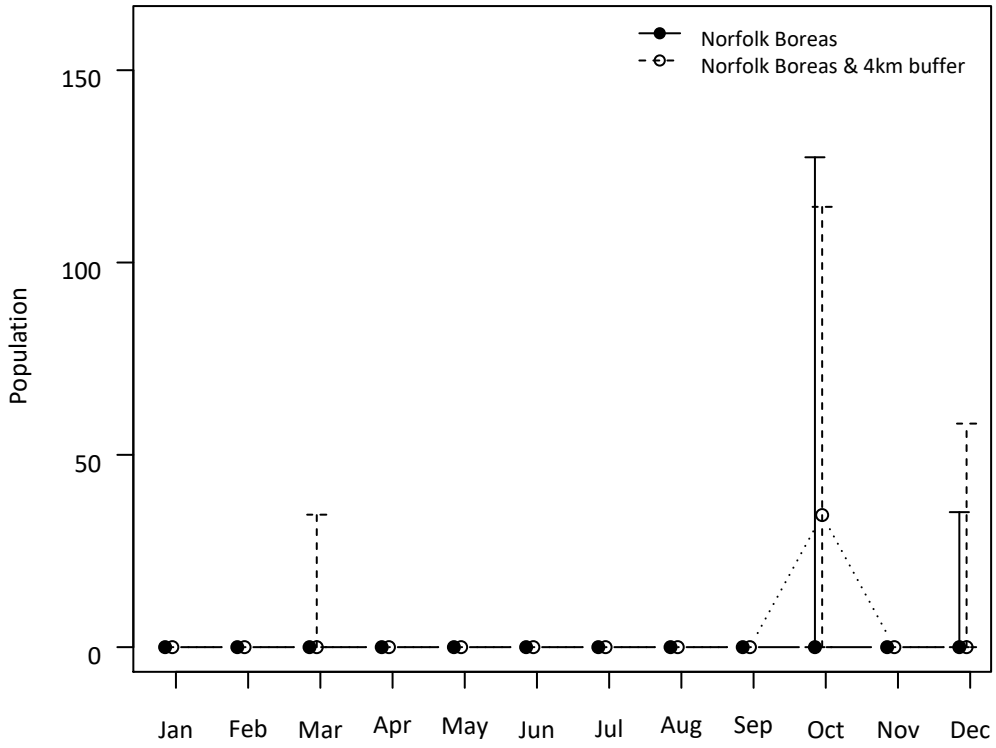

Figure 6. Cormorant. Mean design based abundance estimates (plus 95% confidence intervals) of birds in flight and on the sea in Norfolk Boreas (filled circles, solid lines) and Norfolk Boreas plus 4km buffer (open circles, dashed lines).

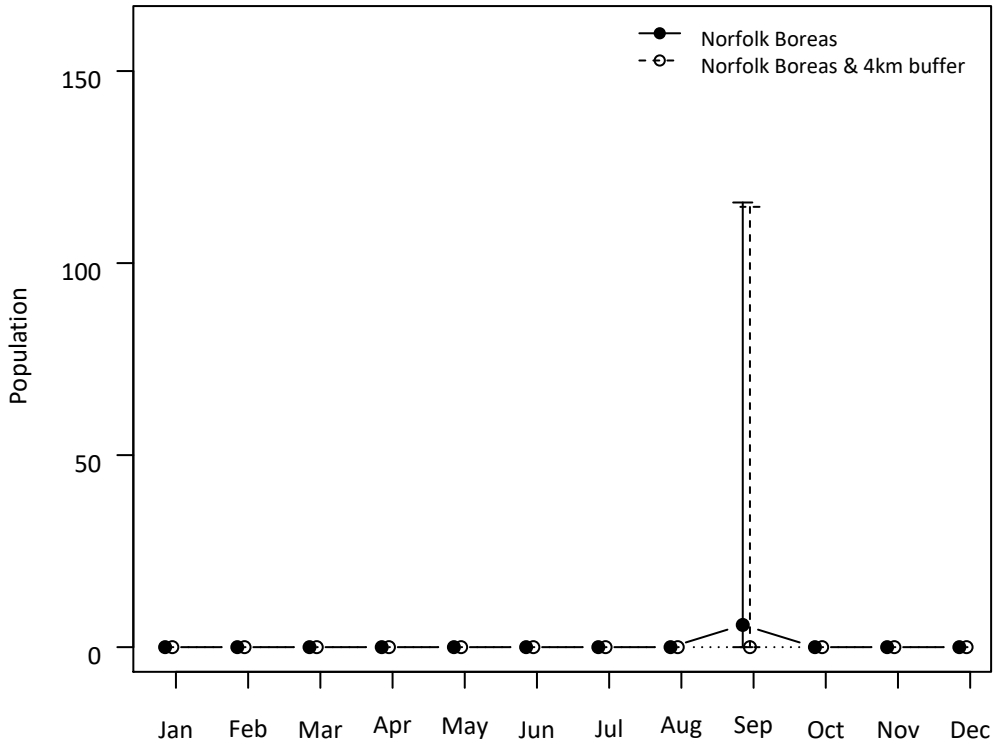

Figure 7. Shag. Mean design based abundance estimates (plus 95% confidence intervals) of birds in flight and on the sea in Norfolk Boreas (filled circles, solid lines) and Norfolk Boreas plus 4km buffer (open circles, dashed lines).

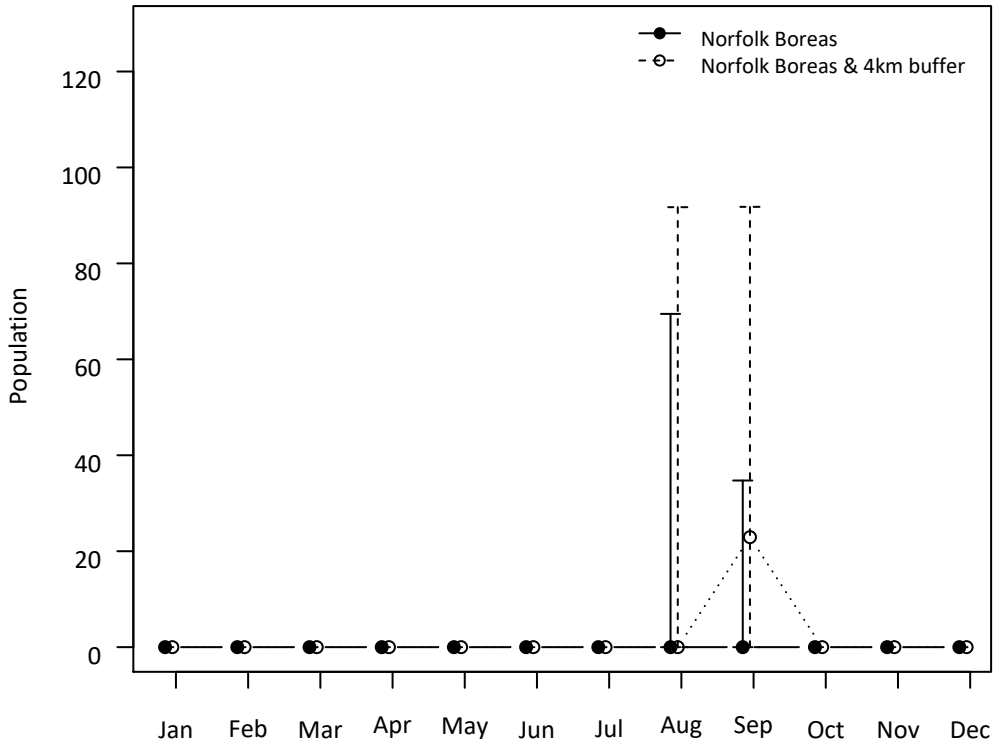

Figure 8. Arctic Skua. Mean design based abundance estimates (plus 95% confidence intervals) of birds in flight and on the sea in Norfolk Boreas (filled circles, solid lines) and Norfolk Boreas plus 4km buffer (open circles, dashed lines).

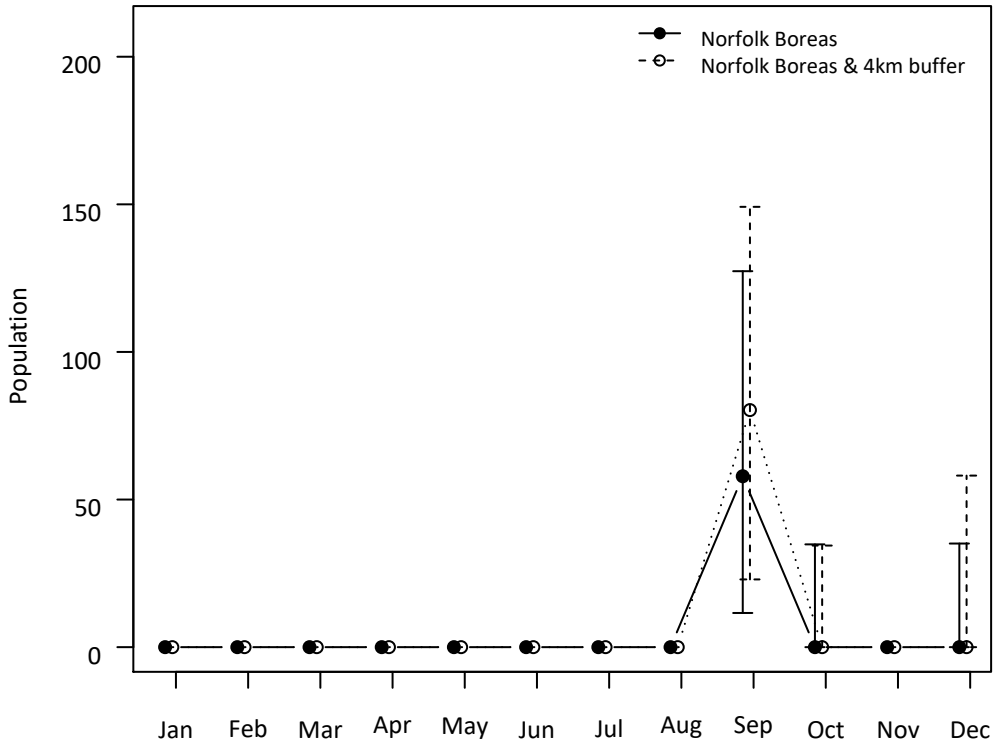

Figure 9. Great Skua. Mean design based abundance estimates (plus 95% confidence intervals) of birds in flight and on the sea in Norfolk Boreas (filled circles, solid lines) and Norfolk Boreas plus 4km buffer (open circles, dashed lines).

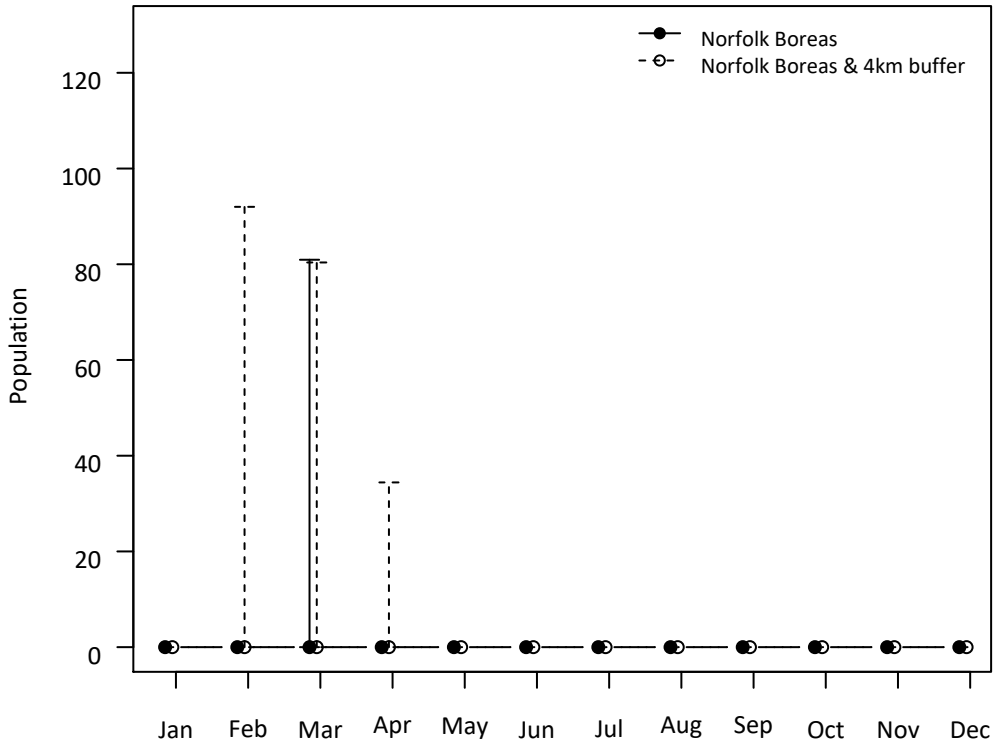

Figure 10. Puffin. Mean design based abundance estimates (plus 95% confidence intervals) of birds in flight and on the sea in Norfolk Boreas (filled circles, solid lines) and Norfolk Boreas plus 4km buffer (open circles, dashed lines).

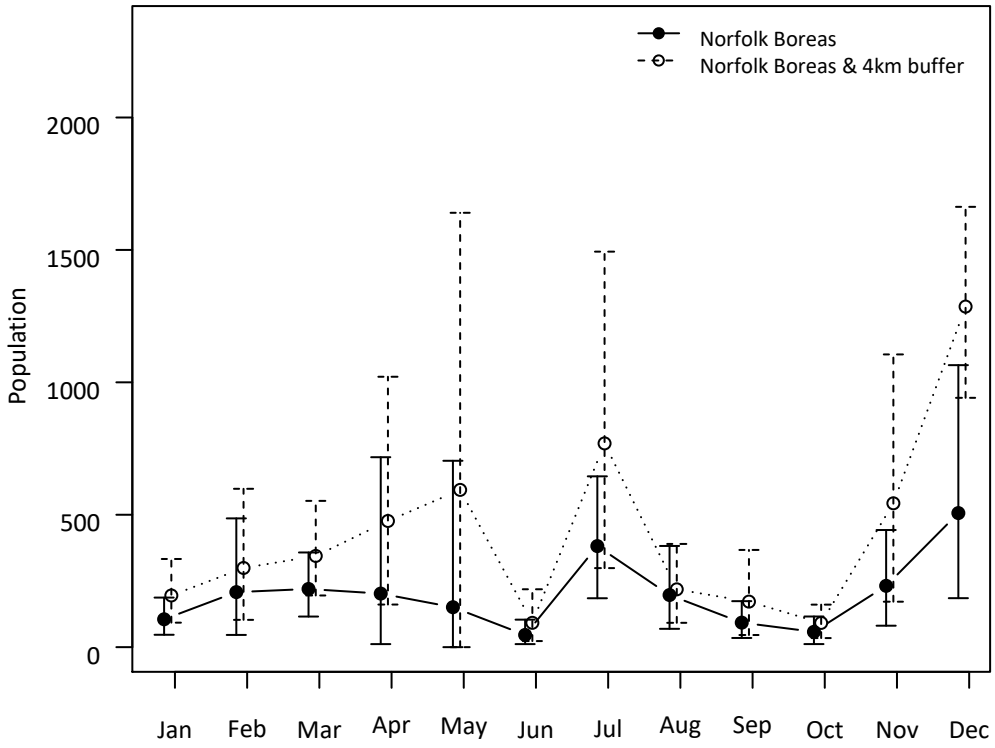

Figure 11. Razorbill. Mean design based abundance estimates (plus 95% confidence intervals) of birds in flight and on the sea in Norfolk Boreas (filled circles, solid lines) and Norfolk Boreas plus 4km buffer (open circles, dashed lines).

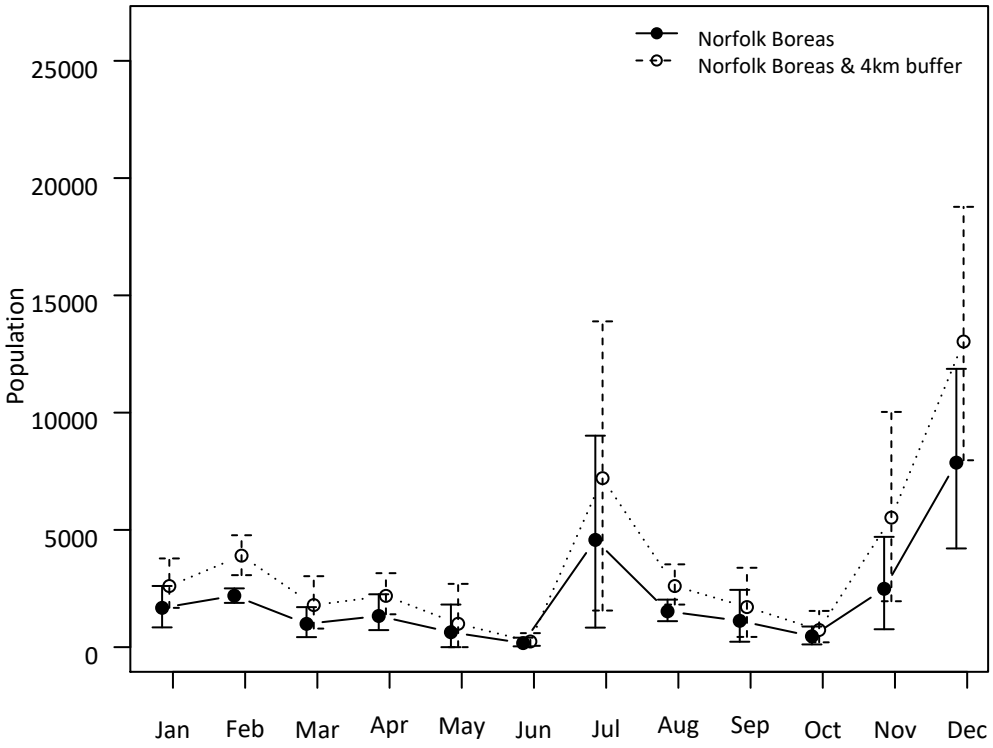

Figure 12. Guillemot. Mean design based abundance estimates (plus 95% confidence intervals) of birds in flight and on the sea in Norfolk Boreas (filled circles, solid lines) and Norfolk Boreas plus 4km buffer (open circles, dashed lines).

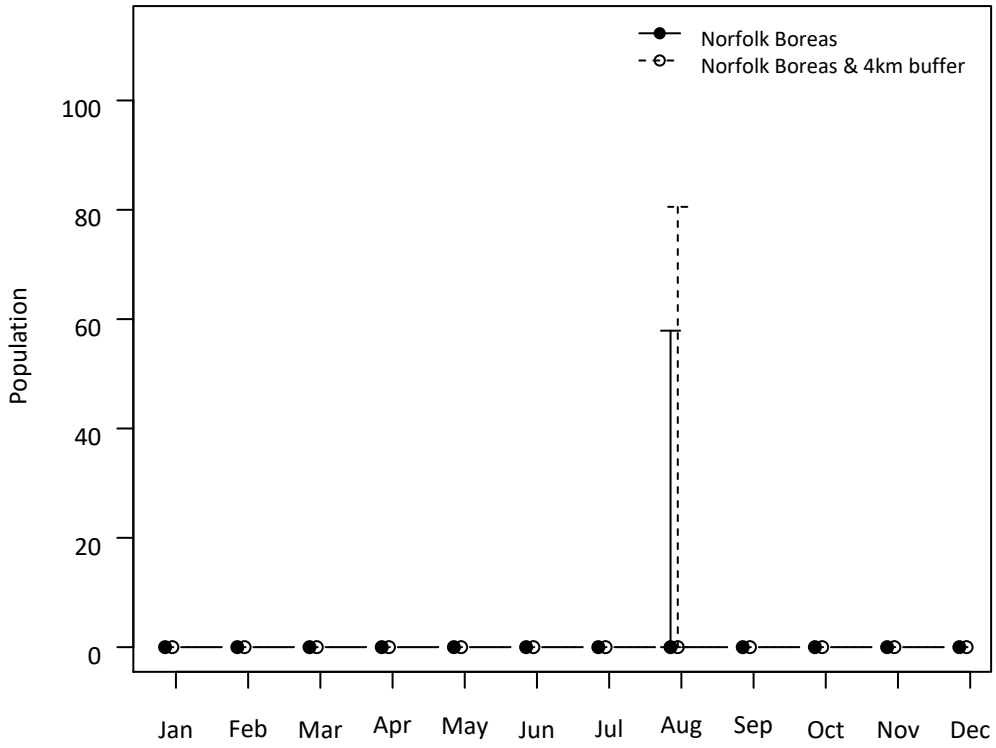

Figure 13. Black Tern. Mean design based abundance estimates (plus 95% confidence intervals) of birds in flight and on the sea in Norfolk Boreas (filled circles, solid lines) and Norfolk Boreas plus 4km buffer (open circles, dashed lines).

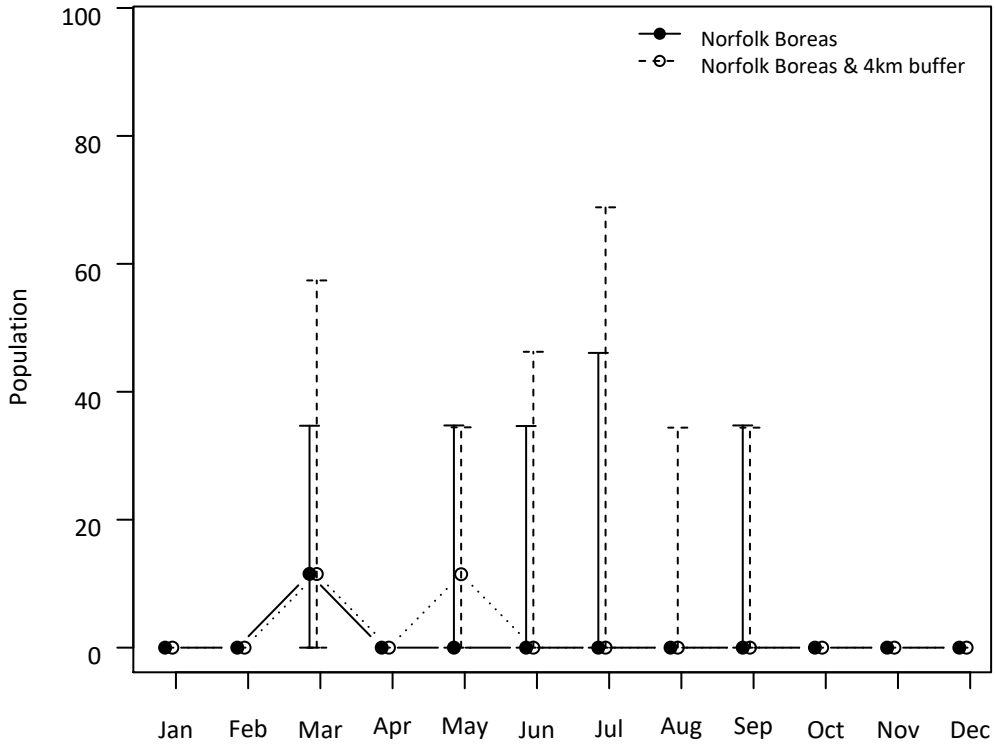

Figure 14. Sandwich Tern. Mean design based abundance estimates (plus 95% confidence intervals) of birds in flight and on the sea in Norfolk Boreas (filled circles, solid lines) and Norfolk Boreas plus 4km buffer (open circles, dashed lines).

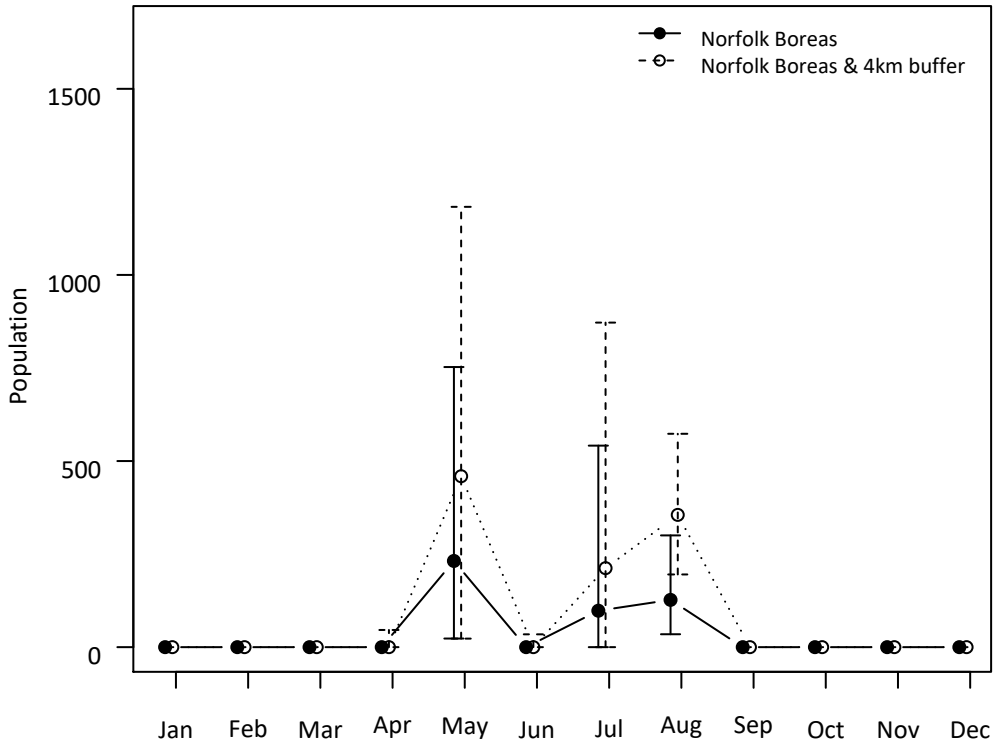

Figure 15. Commic Tern. Mean design based abundance estimates (plus 95% confidence intervals) of birds in flight and on the sea in Norfolk Boreas (filled circles, solid lines) and Norfolk Boreas plus 4km buffer (open circles, dashed lines).

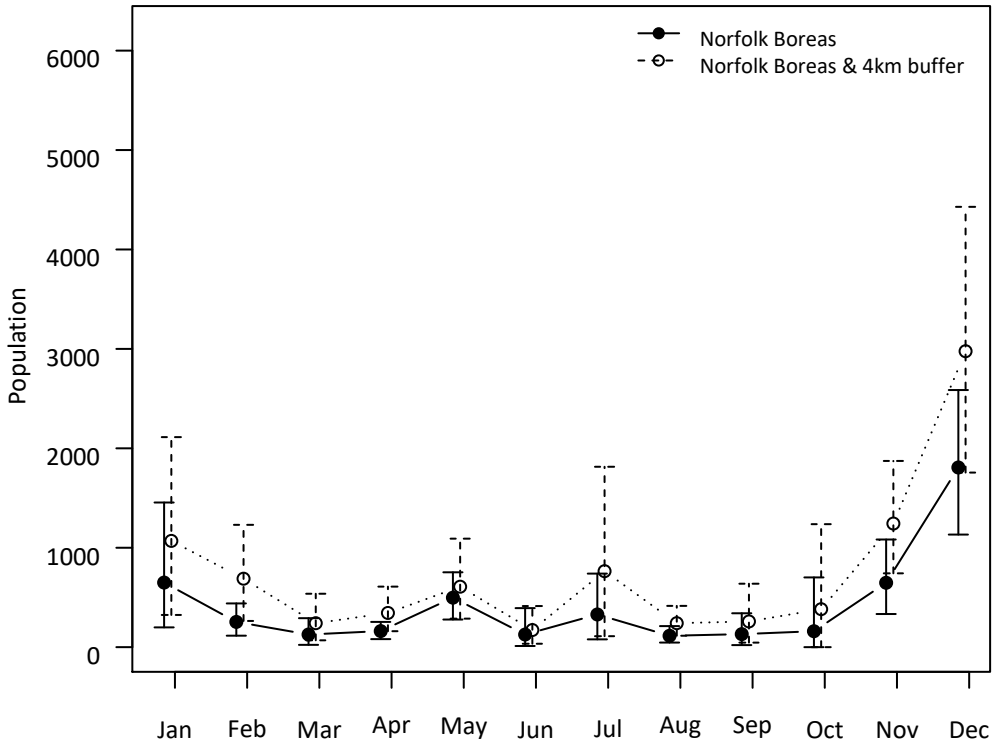

Figure 16. Kittiwake. Mean design based abundance estimates (plus 95% confidence intervals) of birds in flight and on the sea in Norfolk Boreas (filled circles, solid lines) and Norfolk Boreas plus 4km buffer (open circles, dashed lines).

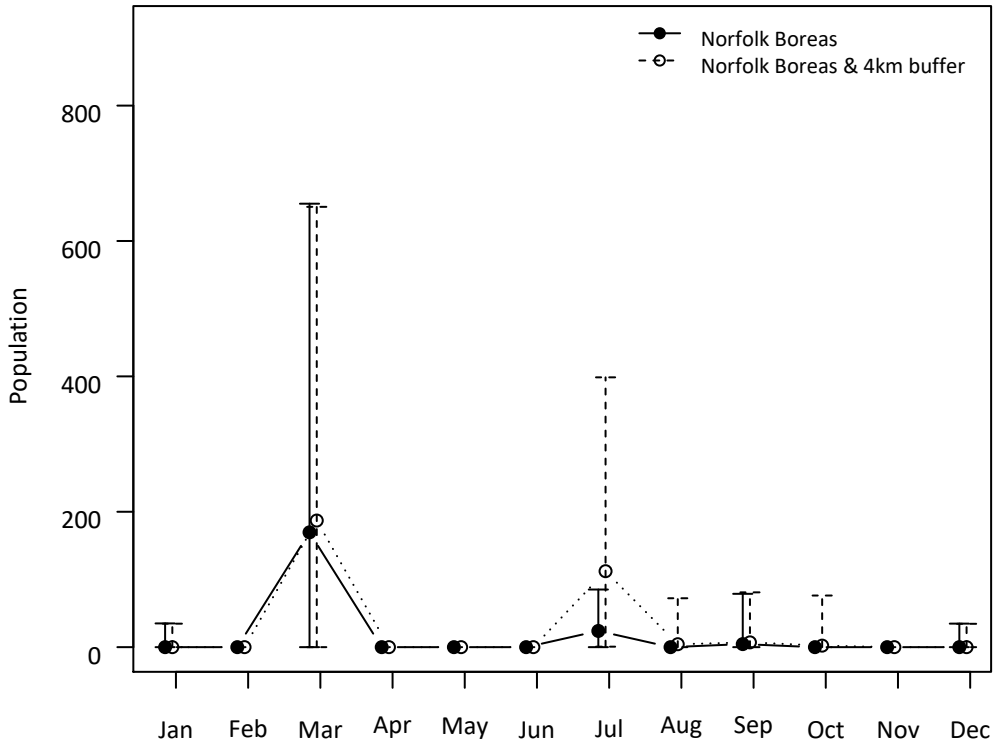

Figure 17. Black-headed Gull. Mean design based abundance estimates (plus 95% confidence intervals) of birds in flight and on the sea in Norfolk Boreas (filled circles, solid lines) and Norfolk Boreas plus 4km buffer (open circles, dashed lines).

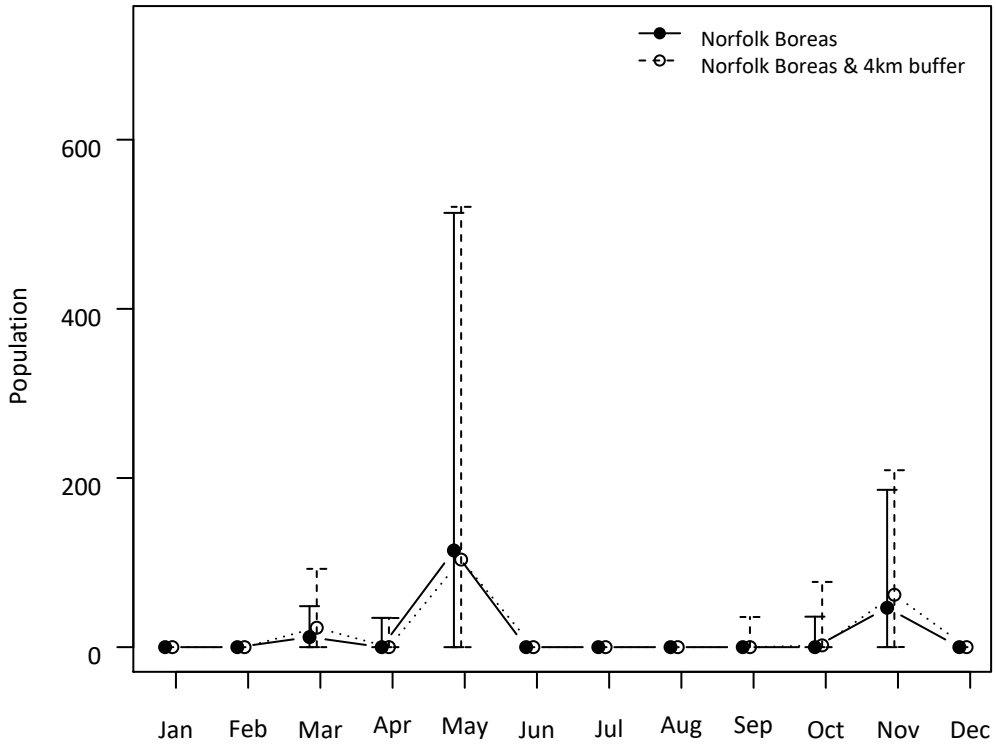

Figure 18. Little Gull. Mean design based abundance estimates (plus 95% confidence intervals) of birds in flight and on the sea in Norfolk Boreas (filled circles, solid lines) and Norfolk Boreas plus 4km buffer (open circles, dashed lines).

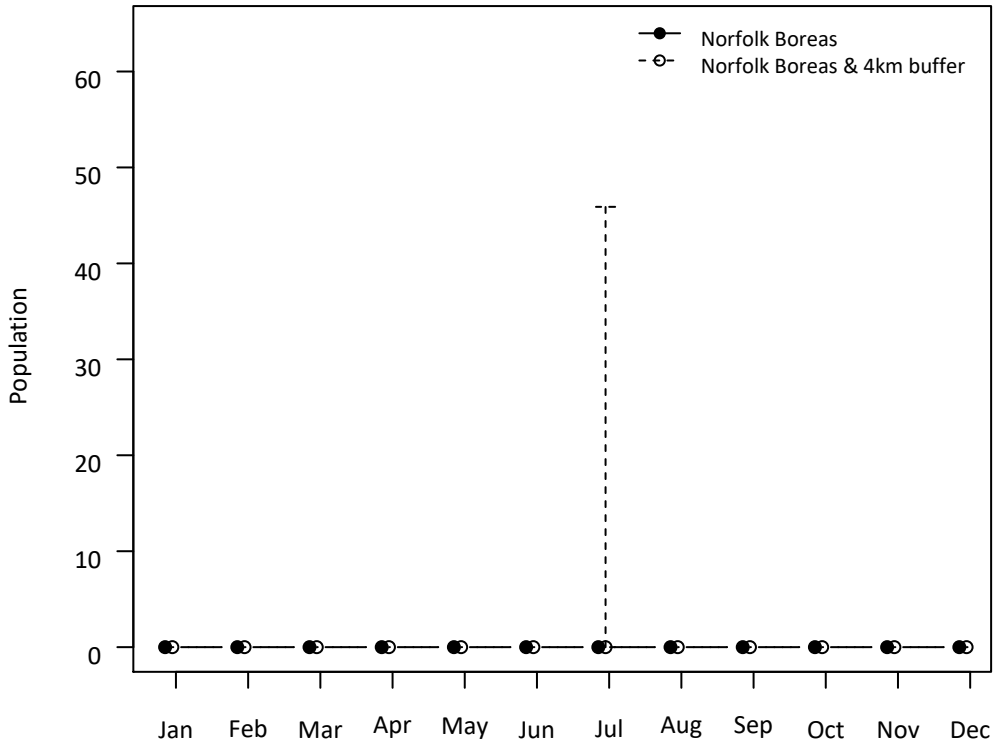

Figure 19. Mediterranean Gull. Mean design based abundance estimates (plus 95% confidence intervals) of birds in flight and on the sea in Norfolk Boreas (filled circles, solid lines) and Norfolk Boreas plus 4km buffer (open circles, dashed lines).

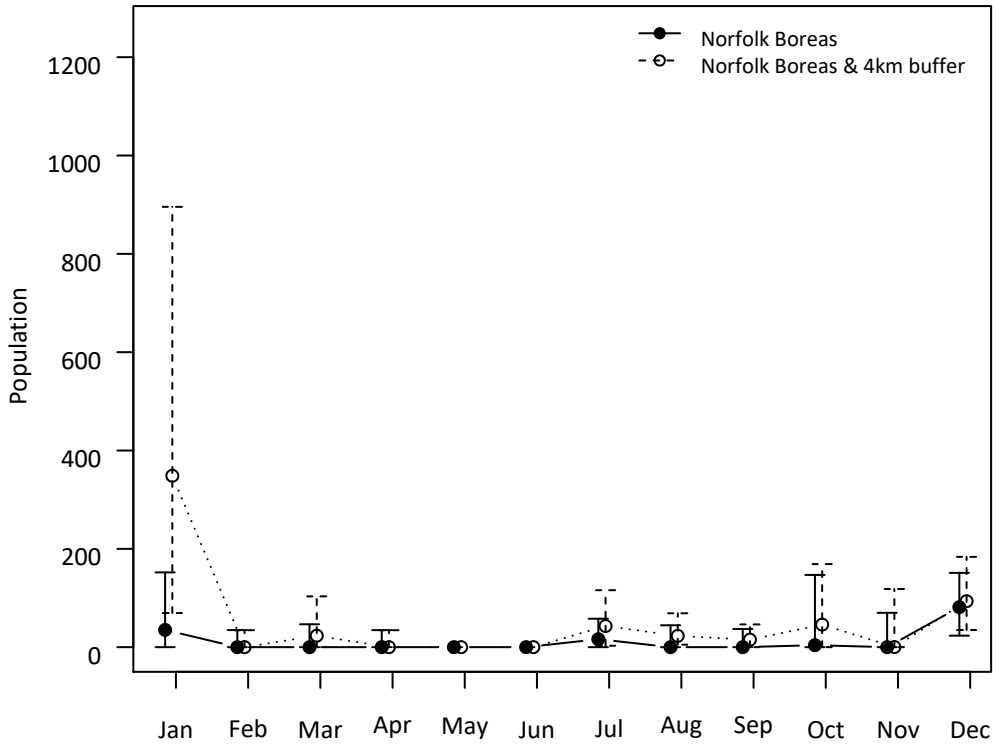

Figure 20. Common Gull. Mean design based abundance estimates (plus 95% confidence intervals) of birds in flight and on the sea in Norfolk Boreas (filled circles, solid lines) and Norfolk Boreas plus 4km buffer (open circles, dashed lines).

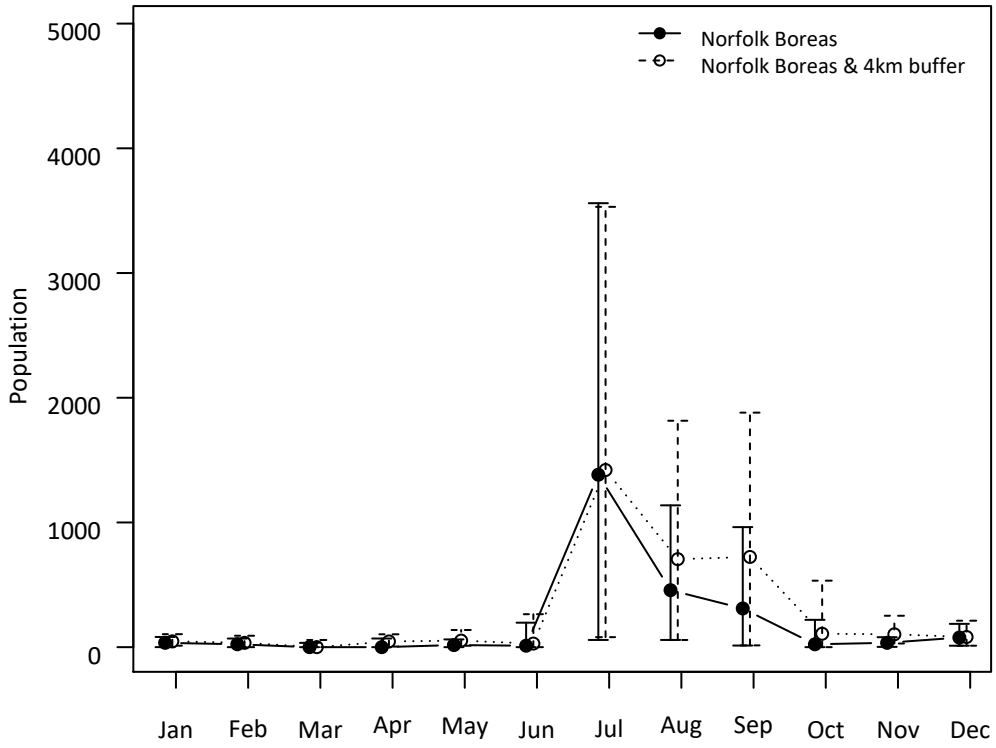

Figure 21. Lesser Black-backed Gull. Mean design based abundance estimates (plus 95% confidence intervals) of birds in flight and on the sea in Norfolk Boreas (filled circles, solid lines) and Norfolk Boreas plus 4km buffer (open circles, dashed lines).

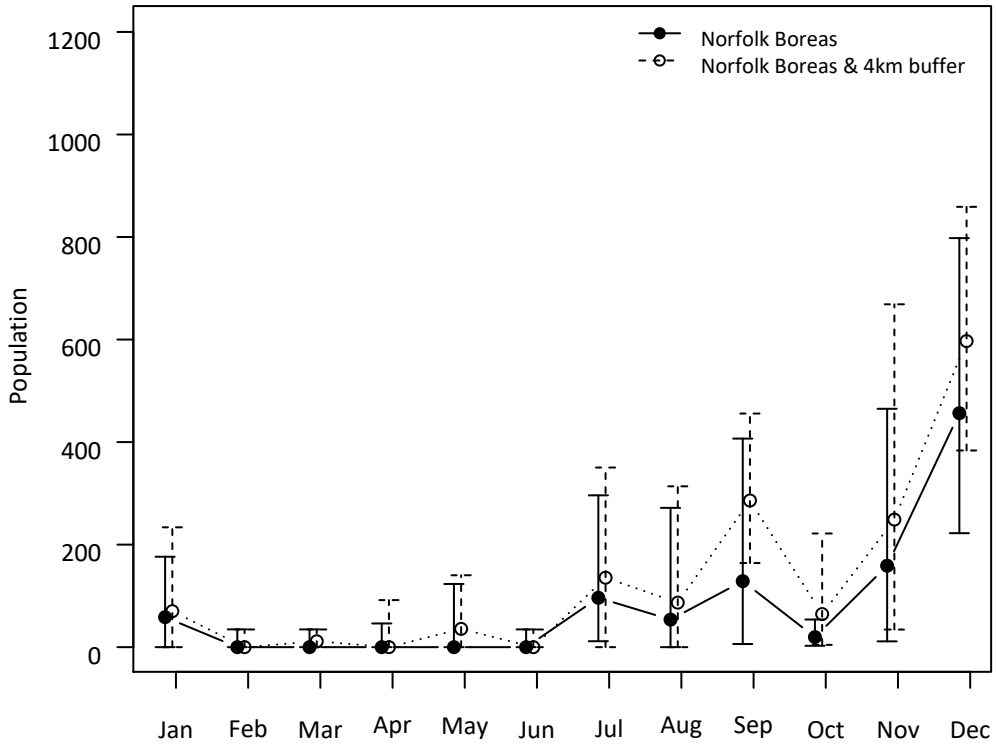

Figure 22. Herring Gull. Mean design based abundance estimates (plus 95% confidence intervals) of birds in flight and on the sea in Norfolk Boreas (filled circles, solid lines) and Norfolk Boreas plus 4km buffer (open circles, dashed lines).

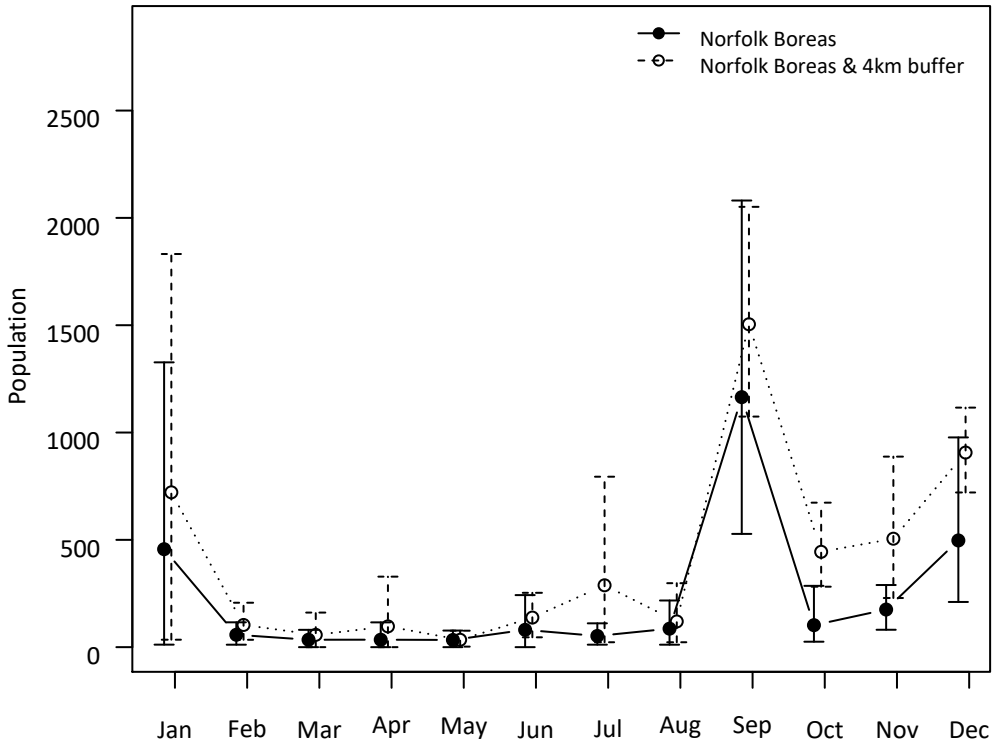

Figure 23. Great Black-backed Gull. Mean design based abundance estimates (plus 95% confidence intervals) of birds in flight and on the sea in Norfolk Boreas (filled circles, solid lines) and Norfolk Boreas plus 4km buffer (open circles, dashed lines).

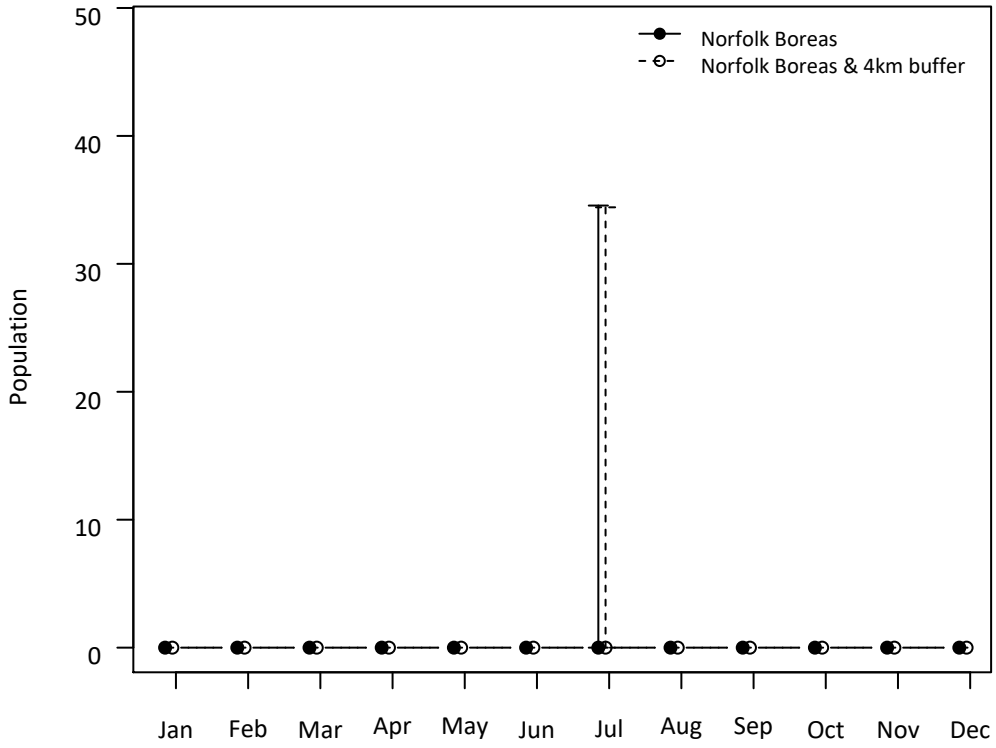

Figure 24. Shearwater Species. Mean design based abundance estimates (plus 95% confidence intervals) of birds in flight and on the sea in Norfolk Boreas (filled circles, solid lines) and Norfolk Boreas plus 4km buffer (open circles, dashed lines).

Norfolk Boreas Offshore Wind Farm

Appendix 13.1

Offshore Ornithology

Annex 6

Additional lesser black-backed gull analysis

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Document Quality Record.

Version	Status	Person Responsible	Date
1	Draft	Nicola Goodship	20/02/2019
2	Reviewed	Mark Trinder	22/02/2019
3	Updated	Mark Trinder	22/02/2019
3.1	Updated	Nicola Goodship	28/03/2019
4	Internal Approval	Mark Trinder	30/03/2019

1.1 Lesser black-backed gull tracking data

The following figure has been reproduced (with permission) from:

- Thaxter, C.B., Ross-Smith, V.H., Bouten, W., Clark, N.A., Conway, G.J., Rehfisch, M.M. and Burton, N.H.K. (2015). Seabird–wind farm interactions during the breeding season vary within and between years: A case study of lesser black-backed gull *Larus fuscus* in the UK. Biological Conservation 186: 347-358

[note this is labelled as Figure 2 in the original publication but has been listed as Figure 1 here]

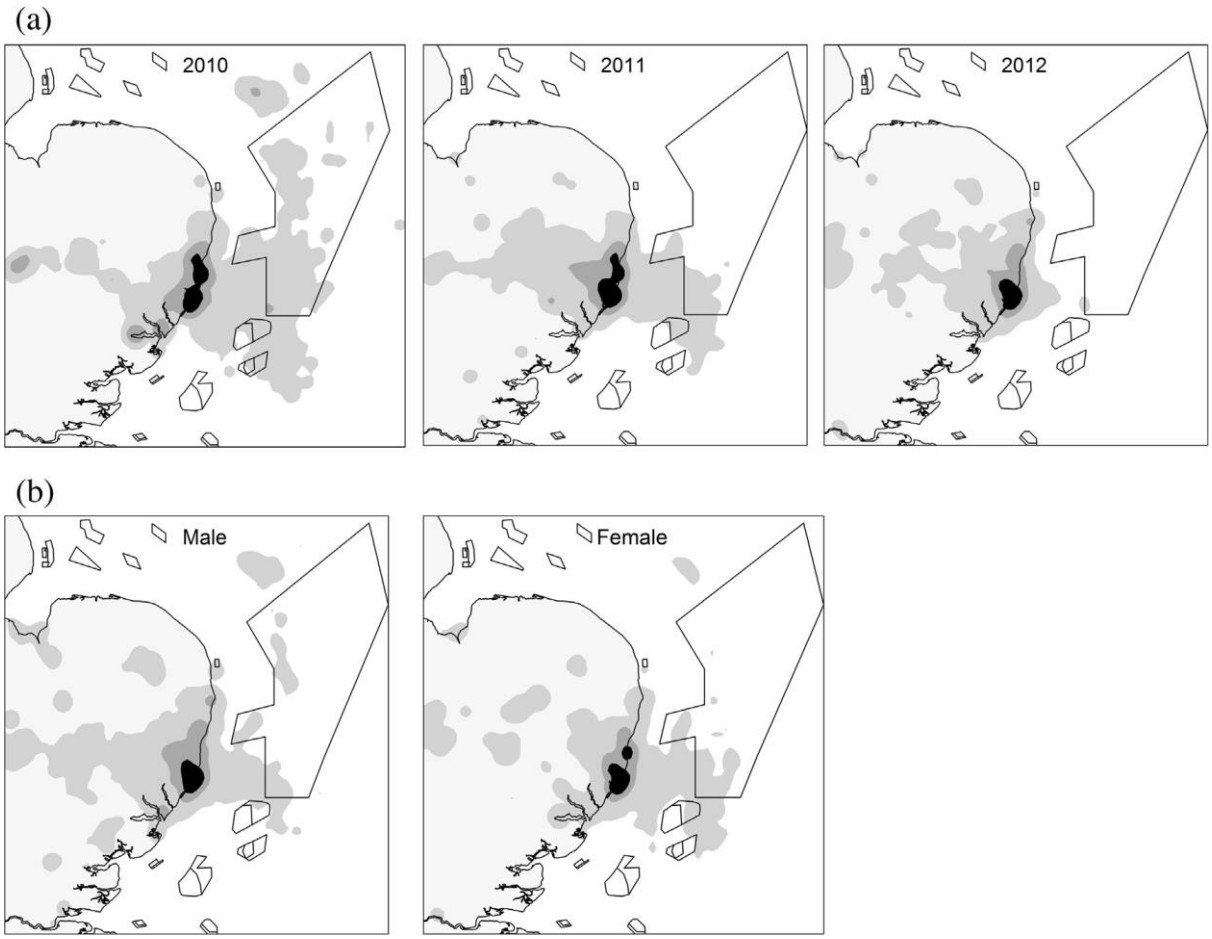

Fig. 1. Spatial area usage by lesser black-backed gulls given by: (a) year and (b) sex. Shown are the 95% KDE (light grey) representing total area usage, 75% KDE (medium grey) and 50% KDE (black), representing core area usage.

While the data presented in Figure 1 indicate very low probabilities of connectivity with the Norfolk Boreas site for breeding adult lesser black-backed gulls from the Alde Ore SPA, it is important to note that space use (as presented in Figure 1) is not intended to establish the magnitude of connectivity between sites. The results also only represent the behaviour of tagged individuals, and there is likely to be a high degree of individual variation, as well as variations within individuals across years.

Norfolk Boreas is not identified on Figure 1, however the wind farm is located in the north-eastern corner of the large polygon, as can be seen in Figure 2. It is apparent that there was virtually no overlap between gull foraging areas and Norfolk Boreas.

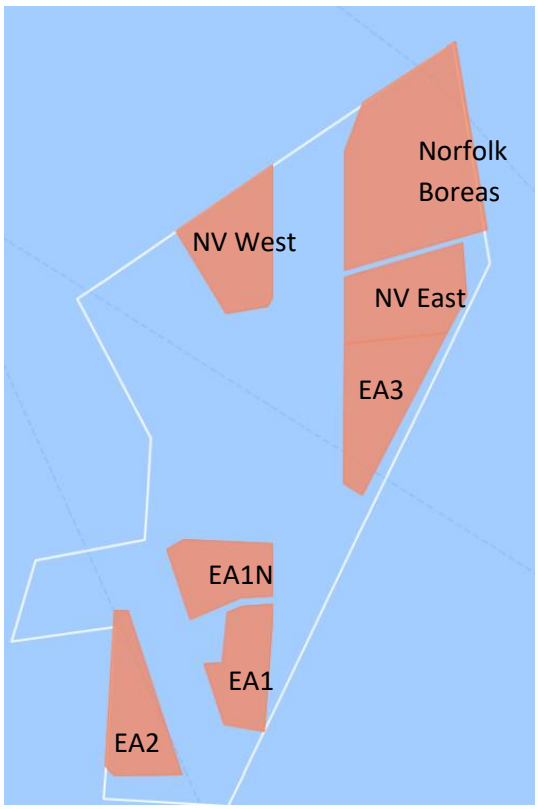

Figure 2. Overview of the former East Anglia Round 3 lease site, with consented (EA1 and EA3) and planned (Norfolk Vanguard, Norfolk Boreas, EA2 and EA1N) wind farms identified.

1.2 Flight directions and age ratios

During the first half of the breeding season (March to June) very few birds were recorded on the Norfolk Boreas site and 4km buffer, and no consistent flight directions were evident (Figure 3 and Table 1). In the post-breeding season months of August and September numbers peaked, with these two months accounting for almost 70% of all observations. There was no consistent orientation in flight directions in these months.

Over 70% of the birds on Norfolk Boreas and the 4km buffer were identified as adults (Table 1). There was no seasonal pattern evident in the presence of non-adults.

Overall, the sample sizes for flight direction and age analysis were small, limiting the weight which can be placed on the results obtained, however there was little evidence to indicate connectivity between the site and breeding birds at Alde-Ore Estuary SPA.

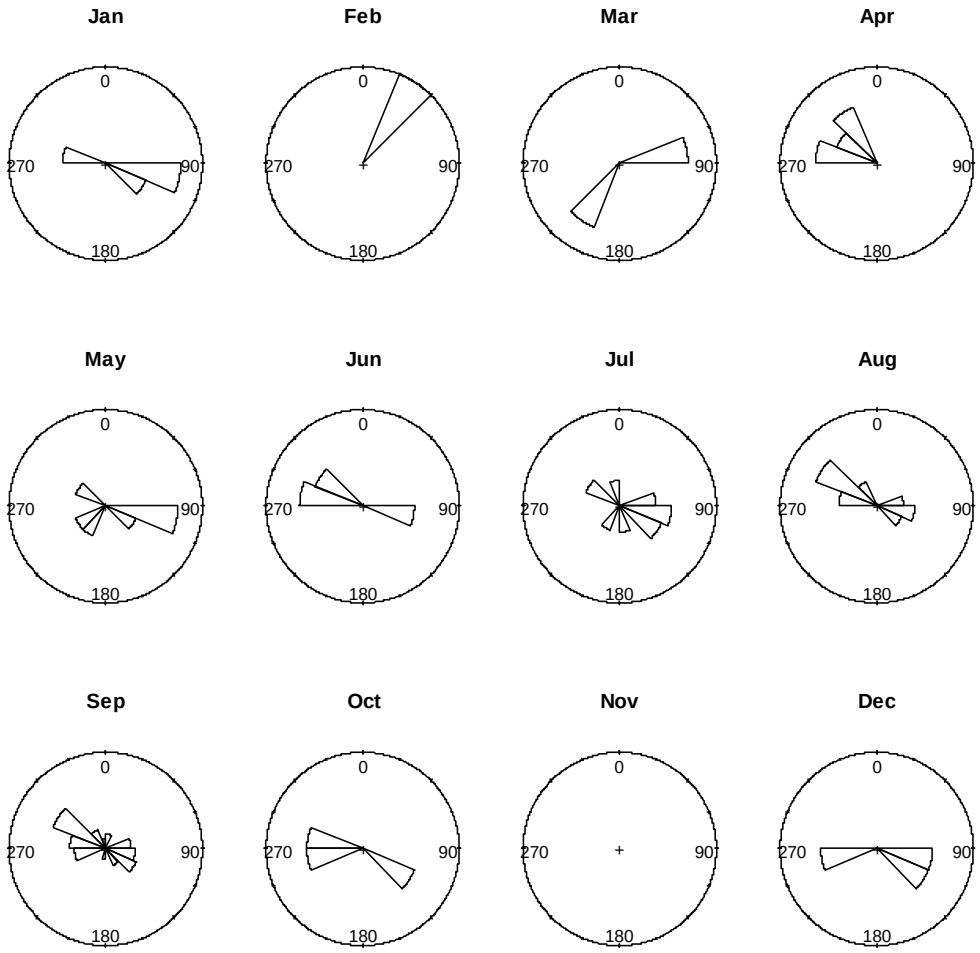

Figure 3. Lesser black-backed gull flight directions recorded on Norfolk Boreas and 4km buffer.

Table 1. Numbers of each age class recorded on Norfolk Boreas and 4km buffer (note monthly values are the sum for that month from the 2 years of surveys).

Month	Adult	Sub-Adult	Unknown	Total
1	4	1	4	11
2	2	1	3	2
3	2	0	0	0
4	9	0	0	5
5	10	0	0	8
6	13	1	4	18
7	131	14	127	13
8	137	5	5	147
9	61	57	9	131
10	23	3	1	27
11	12	5	4	22
12	12	1	4	19
Total	416	88	161	665

Norfolk Boreas Offshore Wind Farm

Appendix 13.1

Offshore Ornithology

Annex 7

Migrant non-seabird collision risk modelling

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Document Quality Record.

Version	Status	Person Responsible	Date
1	Draft	Nicola Goodship	20/02/2019
2	Reviewed	Mark Trinder	22/02/2019
3	Updated	Mark Trinder	22/02/2019
4	Internal Approval	Mark Trinder	30/03/2019

1 INTRODUCTION

1. This Annex provides a collision risk assessment for migrant non-seabird species which are considered to have the potential to cross the Norfolk Boreas (NB) offshore wind farm sites on migration. The assessment considers the potential effects on the total migratory populations and, for relevant species, on the Breydon Water Special Protection Area (SPA), Broadland SPA and North Norfolk Coast SPA populations. The assessment uses the data and methods provided in Wright et al. (2012) combined with the migrant extension of the Band (2012) Collision Risk Model (CRM).

2 METHODS

2. The species considered in this assessment are listed in Table 1.

Table 1. Migrant non-seabird species assessed for collision risk

Common name	Scientific name
Bewick's swan	*Cygnus columbianus bewickii*
Dark-bellied brent goose	*Branta bernicla bernicla*
Wigeon	*Anas penelope*
Gadwall	*Anas strepera*
Teal	*Anas crecca*
Pintail	*Anas acuta*
Shoveler	*Anas clypeata*
Pochard	*Aythya ferina*
Tufted duck	*Aythya fuligula*
Common scoter	*Melanitta nigra*
Goldeneye	*Bucephala clangula*
Marsh harrier	*Circus aeruginosus*
Oystercatcher	*Haematopus ostralegus*
Avocet (nonbreeding)	*Recurvirostra avosetta*
Ringed plover	*Charadrius hiaticula*
Golden plover	*Pluvialis apricaria*
Grey plover	*Pluvialis squatarola*
Lapwing	*Vanellus vanellus*
Knot	*Calidris canutus*
Sanderling	*Calidris alba*
Dunlin	*Calidris alpina*
Bar-tailed godwit	*Limosa lapponica*
Curlew	*Numenius arquata*
Redshank	*Tringa totanus* (including each sub-species)
Turnstone	*Arenaria interpres*

3. Relevant population sizes and migration routes were obtained from the Strategic Ornithological Support Services (SOSS) Migration Assessment Tool (hereafter referred to as SOSSMAT; Wright et al. 2012). The SOSSMAT Geographical Information System tool enables estimation of the proportion of migrating populations which could encounter offshore wind farms. The species-specific migration routes were derived by Wright et al. (2012) from a review of literature, and the tool enables identification of those routes which cross user-defined wind farm footprints. The following steps were taken for this assessment:

   i. The Norfolk Boreas site was used to filter the SOSSMAT migration routes to identify those which crossed the wind farm sites.

   ii. The sections of the European coastline defined in the SOSSMAT tool were reviewed and the relevant ones selected (i.e. for Norfolk Boreas these were ones which included a start or end point which bordered the southern North Sea).

   iii. Following the above, for each species the SOSSMAT tool generated a prediction of the percentage of each population which could encounter the wind farm on migration. It should be noted that for each species this is an estimate of the percentage of the total number of potential migration paths which could cross the wind farms and therefore the same value applies to both the total migratory population and the SPA sub-populations.

   iv. The total migrant population for each species considered at risk was obtained from Wright et al. (2012) and was multiplied by the percentage at risk (obtained at step iii) to estimate the number of individuals which could cross the wind farm site in each migration period. This was the at-risk population used as input to the collision risk model.

   v. For all the relevant species it was assumed that there were two migration periods per year (e.g. spring and autumn) and therefore in order to assess risks annually the at-risk number was doubled.

4. This assessment considers potential impacts on the wider populations of each species as well as the populations at the Breydon Water SPA, Broadland SPA and North Norfolk Coast SPA.

5. Collision mortality was calculated using the migrant extension of the Band (2012) CRM. To estimate the proportion of the total collisions which could affect the SPA populations, it was assumed this would be in proportion to the size of the SPA population relative to the total population (i.e. if the SPA population was 50 from a total population of 200 it would be assumed that 25% of the collisions could be attributed to the SPA).

6. Parameters for the CRM, such as the proportion at collision height (PCH) and flight speed were obtained from a review of the relevant literature. The total migrant population for each species and for those SPA species considered likely to pass through the wind farm sites are provided in Table 2 and the species-specific collision parameters are listed in Table 3.

7. Table 2 provides an estimate of the total population likely to cross the southern North Sea. For all species it has been assumed this is 100%, on the basis of the information in Wright et al. (2012). The percentage of the total population estimated to cross the Norfolk Boreas Wind Farm is also listed in Table 2. These percentages were generated as an output from the SOSSMAT tool which provides GIS files to enable selection of routes which cross specified areas (in this case the Norfolk Boreas wind farm polygon).

Table 2. Percentage of non-seabird migrant routes with potential to cross the Norfolk Boreas Wind Farm site (obtained from SOSSMAT) and relevant total and SPA population sizes.

Species	SOSSMAT % crossing Norfolk Boreas	Population sizes			
		Total migrants (Wright et al. 2012)	Breydon Water SPA	Broadland SPA	North Norfolk Coast SPA
Avocet	15.64	7,500	33	-	153
Bar-tailed godwit	7.36	54,280	-	-	1,236
Bewick's swan	13.66	7,380	391	320	-
Common scoter	6.67	123,190	-	-	-
Curlew	7.42	140,000	-	-	-
Dark-bellied brent goose	14.23	91,000	-	-	11,512
Dunlin	11.71	438,480	2,870	-	-
Gadwall	9.05	25,630	-	605	-
Golden plover	9.52	566,700	5,040	-	2,667
Goldeneye	7.26	2,9665	-	-	-
Grey plover	6.9	49,315	-	-	-
Knot	6.71	338,970	-	-	10,801
Lapwing*	6.9	465,000	24,940	-	-
Marsh harrier	0	402	-	21	14
Oystercatcher	6.96	320,000	-	-	-
Pintail	6.67	30,235	-	-	1,139
Pochard	9.25	75,780		1,230	-
Redshank (britannica)	8.81	38,800	-	-	-
Redshank (robusta)	8.44	150,000	-	-	2,998
Redshank (totanus)	7.16	2,5000	-	-	-
Ringed plover	6.99	48,580	-	-	1,256
Sanderling	6.71	22,680	-	-	-
Shoveler	9.25	20,545	140	401	-
Teal	6.67	255,010	-	3,869	-
Tufted duck	6.64	146,610	-	1,336	-
Turnstone	6.66	48,000	-	-	-
Wigeon	6.66	522,370	4,320	6,435	14,039

*APEM (2014) present calculation of migrant lapwing numbers derived from Wright et al. (2012)

Table 3. Species-specific biometrics and collision model parameters. Note that the probability of collision for a single rotor transit (p.collision) was calculated using the 'single transit collision risk' tab of the Band (2012) CRM spreadsheet. Biometric estimates were those reported in APEM (2014).

Species	Length (m)	Wingspan (m)	Flight speed (ms^{-1})	PCH	Probability of collision for single transit (p.collision)
Avocet	0.44	0.79	11.10	25	0.0788
Bar-tailed godwit	0.38	0.75	18.30	25	0.0599
Bewick's swan	1.27	2.11	18.50	50	0.0853
Common scoter	0.58	1.15	17.70	1	0.0597
Curlew	0.49	0.84	22.10	25	0.0731
Dark-bellied brent goose	0.55	0.90	13.90	30	0.0668
Dunlin	0.18	0.40	15.30	25	0.0572
Gadwall	0.51	0.90	16.90	15	0.0655
Golden plover	0.28	0.72	17.90	25	0.0579
Goldeneye	0.46	0.72	21.20	15	0.0592
Grey plover	0.28	0.77	17.90	25	0.0581
Knot	0.24	0.59	20.10	25	0.0549
Lapwing*	0.30	0.84	11.90	25	0.0702
Marsh harrier	0.52	1.22	12.00	50	0.0792
Oystercatcher	0.42	0.83	13.90	25	0.0686
Pintail	0.66	0.95	20.60	15	0.0647
Pochard	0.46	0.77	21.20	15	0.0594
Redshank	0.28	0.62	18.30	25	0.0571
Ringed plover	0.19	0.52	10.60	25	0.0697
Sanderling	0.20	0.42	17.70	25	0.0550
Shoveler	0.48	0.77	16.90	15	0.0643
Teal	0.36	0.61	16.90	15	0.0606
Tufted duck	0.44	0.70	21.20	15	0.0587
Turnstone	0.23	0.54	17.70	25	0.0562
Wigeon	0.48	0.80	17.10	15	0.0641

3 RESULTS

3.1 Collision risk estimates: Norfolk Boreas

8. Collision mortality estimates are presented for all species with a range of avoidance rates from 98% to 99.8%, with the appropriate precautionary rate for each species highlighted in the grey cells (Table 4). This was 98% for all but two species (higher rates have been proposed by Scottish Natural Heritage (SNH) for collision assessment of Bewick's swan, 99.5% and dark-bellied brent goose, 99.8%; SNH 2013, 2017).

Table 4. Migrant non-seabird annual collision risks. These include two migrations for each species (i.e. spring and autumn). Grey cells indicate the mortality for the Statutory Natural Conservation Bodies-recommended species-specific precautionary avoidance rate.

Species	Collision Mortality Estimates (for these % avoidance rates)				Collisions as percentage of total population	Number of collisions assigned to:		
	98	99	99.5	99.8		Breydon Water SPA	Broadland SPA	North Norfolk Coast SPA
Avocet	0.7	0.4	0.2	0.1	0.0097	0.0032		0.0149
Bar-tailed godwit	1.9	0.9	0.5	0.2	0.0035			0.0431
Bewick's swan	1.4	0.7	0.3	0.1	0.0046	0.0180	0.0147	
Common scoter	0.2	0.1	0.0	0.0	0.0001			
Curlew	6.0	3.0	1.5	0.6	0.0043			
Dark-bellied brent goose	8.2	4.1	2.1	0.8	0.0009			0.1038
Dunlin	23.2	11.6	5.8	2.3	0.0053	0.1517		
Gadwall	0.7	0.4	0.2	0.1	0.0028		0.0085	
Golden plover	24.7	12.3	6.2	2.5	0.0044	0.2194		0.1161
Goldeneye	0.6	0.3	0.2	0.1	0.0020			
Grey plover	1.6	0.8	0.4	0.2	0.0032			
Knot	9.9	4.9	2.5	1.0	0.0029			0.3144
Lapwing	17.8	8.9	4.4	1.8	0.0038	0.9539		
Marsh harrier	0.0	0.0	0.0	0.0	0.0000			
Oystercatcher	12.1	6.0	3.0	1.2	0.0038			
Pintail	0.6	0.3	0.2	0.1	0.0020			0.0233
Pochard	2.0	1.0	0.5	0.2	0.0026		0.0160	
Redshank (*britannica*)	1.5	0.8	0.4	0.2	0.0040			
Redshank (*robusta*)	5.7	2.9	1.4	0.6	0.0038			0.1142
Redshank (*totanus*)	0.8	0.4	0.2	0.1	0.0032			
Ringed plover	1.9	0.9	0.5	0.2	0.0038			0.0483
Sanderling	0.7	0.3	0.2	0.1	0.0029			
Shoveler	0.6	0.3	0.1	0.1	0.0028	0.0039	0.0057	
Teal	4.9	2.4	1.2	0.5	0.0019		0.0371	
Tufted duck	2.7	1.4	0.7	0.3	0.0018		0.0123	
Turnstone	1.4	0.7	0.4	0.1	0.0030	0.0000		
Wigeon	10.6	5.3	2.6	1.1	0.0020	0.0874	0.0651	0.2839

9. Ten species were estimated to be at risk of 1 or fewer collisions per year: avocet, Bewick's swan, common scoter, dark-bellied brent goose, gadwall, goldeneye, marsh harrier, pintail, sanderling and shoveler.

10. Ten species were estimated to be at risk of between 1 and 10 collisions per year: bar-tailed godwit, curlew, grey plover, knot, pochard, redshank (summed across all races), ringed plover, teal, tufted duck and turnstone.

11. The remaining five species with predicted annual collisions of 10 or more were dunlin (23), golden plover (25), lapwing (18), oystercatcher (12) and wigeon (11).

12. There are no species for which the total annual collisions exceeded 0.01% of the migratory population.

13. Although it is acknowledged that there may be connectivity with designated populations at other SPAs along the English east coast, given the extremely low numbers at risk, overall the number of individuals from other SPAs that this could include, and hence the proportion of the migrant populations this would represent, are likely to be very small and therefore it is appropriate that only the three named SPAs have been considered.

14. For all species, the background mortality rate would only be increased by more than 1% (the threshold beneath which additional mortality is considered to have an undetectable effect) due to the predicted annual collision risks if natural mortality was less than 1% (i.e. the annual survival rate would need to be at least 99%). This is much lower than the natural mortality rates for any of the species assessed, most have natural mortality of at least 10% per year. Thus, the effects would only be expected to exceed the 1% threshold if collision risk was more than five times higher, and even then that would only be the case for those species with natural mortality rates at the lower end of the range, such as geese and swans.

15. Consequently, the collision risk predictions for all the migrant non-seabird species included in the assessment have resulted in negligible magnitude impacts which are therefore of minor or negligible significance. Due to the low numbers of collisions apportioned to the relevant SPA populations, no likely significant effects are predicted for the Breydon Water SPA, Broadland SPA and North Norfolk Coast SPA due to migrant collisions at the Norfolk Boreas Wind Farm.

3.2 Cumulative collision risk estimates: Norfolk Boreas, Norfolk Vanguard and East Anglia THREE

16. Consideration has also been given to the potential combined mortality from the Norfolk Boreas Wind Farm with Norfolk Vanguard and East Anglia THREE offshore wind farms. Collision mortalities for Norfolk Vanguard were taken from MacArthur Green (2019) and those for East Anglia THREE were taken from APEM (2014).

Table 5. Migrant non-seabird annual collision risks at Norfolk Boreas, Norfolk Vanguard and East Anglia THREE.

Species	Norfolk Boreas	Norfolk Vanguard	East Anglia THREE	Combined total
Avocet	0.7	0.8	N/A	1.5
Bar-tailed godwit	1.9	2.5	0	4.4
Bewick's swan	0.3	0.4	N/A	0.7
Common scoter	0.2	0.2	0	0.4

Species	Norfolk Boreas	Norfolk Vanguard	East Anglia THREE	Combined total
Curlew	6.0	6.5	1	13.5
Dark-bellied brent goose	0.8	1.0	1*	2.8
Dunlin	23.2	28.2	12	63.4
Gadwall	0.7	0.9	0	1.6
Golden plover	24.7	30.8	9	64.5
Goldeneye	0.6	0.8	0	1.4
Grey plover	1.6	2.0	1	4.6
Knot	9.9	12.9	1	23.8
Lapwing*	17.8	23.3	4	45.1
Marsh harrier	0.0	0.0	0	0
Oystercatcher	12.1	15.9	2	30
Pintail	0.6	0.8	0	1.4
Pochard	2.0	2.6	0	4.6
Redshank	8	10.6	0	18.6
Ringed plover	1.9	2.5	1	5.4
Sanderling	0.7	0.9	0	1.6
Shoveler	0.6	0.8	1	2.4
Teal	4.9	6.4	0	11.3
Tufted duck	2.7	3.6	0	6.3
Turnstone	1.4	1.9	1	4.3
Wigeon	10.6	14.0	1	25.6

* For East Anglia THREE Offshore Wind Farm an avoidance rate of 98% was used for all species. The dark-bellied brent goose collision has therefore been adjusted to that expected with an avoidance rate of 99.8% (i.e. multiplied by 0.1).

17. The combined mortality (Table 5) is higher than that in Table 4 for Norfolk Boreas alone, and consequently the natural mortality rate at which these additions could exceed an increase in 1% is slightly higher: for several species the natural mortality rate would need to be 2% (i.e. annual survival of 98%), these are avocet, dunlin, golden plover, redshank, ringed plover and shoveler. These species are likely to have natural mortality in the region of 10 times this (i.e. around 80%) and therefore any effects of cumulative collisions will remain undetectable. The conclusions with respect to the populations at Breydon Water SPA, Broadland SPA and North Norfolk Coast SPA are also unchanged from those for the project alone. Therefore, the addition of potential mortality at the Norfolk Vanguard and the East Anglia THREE Offshore Wind Farms does not alter the conclusions reported for Norfolk Boreas alone.

4 REFERENCES

APEM 2014. East Anglia THREE Windfarm Migropath and Collision Risk Modelling Report for Non-seabirds. APEM Scientific Report 512608-Mig-3.A. APEM Ltd., Stockport.

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MacArthur Green (2019) Norfolk Vanguard Offshore Wind Farm Migrant non-seabird Collision Risk Modelling ExA; AS; 10.D3.6.

SNH 2013. Guidance on avoidance rates for wintering geese.

SNH 2017. Guidance: Avoidance rates for the onshore SNH wind farm collision risk model.

Wright, L.J., Ross-Smith, V.H., Massimino, D., Dadam, D., Cook, A.S.C.P. & Burton, N.H.K. 2012. Assessing the risk of offshore wind farm development to migratory birds designated as features of UK Special Protection Areas (and other Annex I species). Strategic Ornithological Support Services. Project SOSS-05. BTO Research Report No. 592.

Norfolk Boreas Offshore Wind Farm

Appendix 13.1

Offshore Ornithology

Annex 8

Seabird spatial distribution maps

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Document Quality Record.

Version	Status	Person Responsible	Date
1	Draft	Nicola Goodship	20/02/2019
2	Reviewed	Mark Trinder	22/02/2019
3	Updated	Mark Trinder	22/02/2019
4	Final		

1 INTRODUCTION

1. Maps of the Norfolk Boreas wind farm site and bird locations are provided in Figures 13.8.1 to 13.8.14 below (Table A8). For species recorded in low numbers these figures plot all the observations recorded for the family group (e.g. diver species) onto one figure, while more commonly recorded species are plotted one species per map. In addition, for species recorded in low numbers, all observations are plotted while species with higher recorded numbers are combined by season (using the definitions in Furness, 2015[1]). Note that for the latter, where months contain overlapping seasons (e.g. breeding and migration) these have been assigned to migration, since for almost all species the wind farms are located beyond foraging range of breeding colonies. The exception to this is lesser black-backed gull for which birds breeding at colonies in East Anglia may be present.

2. Table A8 provides a key to figure numbering.

Table A8. Key to figure numbering.

Species	**Figure number**
Diver species	13.8.1
Fulmar	13.8.2
Gannet	13.8.3
Skua species	13.8.4
Puffin	13.8.5
Razorbill	13.8.6
Guillemot	13.8.7
Tern species	13.8.8
Kittiwake	13.8.9
Small gull species	13.8.10
Lesser black-backed gull	13.8.11
Herring gull	13.8.12
Great black-backed gull	13.8.13
Gull species	13.8.14

[1] Furness, R.W. (2015). Non-breeding season populations of seabirds in UK waters: Population sizes for Biologically Defined Minimum Population Scales (BDMPS). Natural England Commissioned Report Number 164. 389 pp.

2°30'0"E 2°40'0"E 2°50'0"E 3°0'0"E 3°10'0"E 3°20'0"E

53°10'0"N 53°0'0"N 52°50'0"N

VATTENFALL

Legend:

Count[1]

- 1
- 2 - 10
- 11 - 20
- 21 - 40
- 40 +

Species[1]

- Great Northern Diver
- Red-throated Diver
- Diver Species

Site and Buffer

- Norfolk Boreas
- Norfolk Boreas 4km Buffer

[1]APEM, 2018

MacArthur Green

Norfolk Boreas

Figure 13.8.1

Diver Species 2016 - 18

0 5 10 km

MAP SCALE: 1:200,000 @ A3

N

Document Path: S:\Projects\Vattenfall\WP 004 Norfolk Boreas\Figure_13.8.1_DiverSpecies_NB_Rev1.mxd

GIS TM: LNF Checked: MT Approved: MT Status: Rev1

Datum: ETRS1989, Projection: UTM 31N

Date: 13/02/2019

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53°10'0"N 53°0'0"N 52°50'0"N

CORVETTE FIELD
BESSEMER FIELD
SEAN FIELD
NOORDWINNING FIELD
WEST HOLE
ORWELL FIELD
THAMES FIELD
YARE FIELD
DAVY FIELD
WELLAND FIELD
HORNE & WREN GAS FIELDS
OFF BROWN RIDGE TSS
DW (see Note-ROUTE)
Gas (see Note)
Wintershall K13-A AIS
49/24
49/25A-RD
49/25A-P
49/23E
49/28-A
49/30A
53/3c Horne & Wren
Q(9)15s Shell 17 YBY
Mo(U)15s15M Horn Mo(U)30s (marked by buoys)
LFl.10s DR 1 RW
Q(9)15s Racon(O) YBY
Fl(5)Y.20s PA (2 buoys)
Mo(A)8s BR-S LFl.Y.10s BP7
LFl.5s BR-N RW
Racon(G) RW
1632
1503
15′
10′
05′
00′
50′
53°

VATTENFALL

Legend:

Count [1]

- 1
- 2 - 10
- 11 - 20
- 21 - 40
- 40 +

Season [1]

- Autumn Migration
- Winter
- Spring Migration
- Breeding

Site and Buffer

- Norfolk Boreas
- Norfolk Boreas 4km Buffer

[1] APEM, 2018

MacArthur Green

Norfolk Boreas

Figure 13.8.2

Fulmar 2016 - 2018

N

0 5 10 km

MAP SCALE:1:200,000 @A3

Datum: ETRS1989, Projection: UTM 31N

Date: 13/02/2019

Document Path: S:\Projects\Vattenfall\WP 004 Norfolk Boreas\Figure_13.8.2_Fulmar_NB_Rev1.mxd

GIS TM: LNF Checked: MT Approved: MT Status: Rev1

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53°10'0"N 53°0'0"N 52°50'0"N

CORVETTE FIELD
BESSEMER FIELD
SEAN FIELD
NOORDWINNING FIELD
WEST HOLE
ORWELL FIELD
THAMES FIELD
YARE FIELD
DAVY FIELD
WELLAND FIELD
HORNE & WREN GAS FIELDS
OFF BROWN RIDGE TSS
DW (see Note-ROUTE)
Gas (see Note)
Wintershall K13-A AIS
49/24
49/25A-RD
49/23E
49/25A-P
49/28-A
49/30A
53/3c Horne & Wren
Mo(U)15s15M (Horn Mo(U)30s (linked by buoys)
Q(9)15s Shell 17 YBY
Q(9)15s Racon(O) YBY
LFl.10s DR 1 RW
LFl.5s BR-N RW
Mo(A)8s BR-S
LFl.Y.10s BP7
Racon(G) RW
Fl(5)Y.20s PA (2 buoys)
Obstn
Wk
Well
Wells
S.Sh
S.M.Sh.Cy
1632
1503

VATTENFALL

Legend:

Count [1]

- 1
- 2 - 10
- 11 - 20
- 21 - 40
- 40 +

Season [1]

- Autumn Migration
- Spring Migration
- Breeding

Site and Buffer

- Norfolk Boreas
- Norfolk Boreas 4km Buffer

[1] APEM, 2018

MacArthur Green

Norfolk Boreas

Figure 13.8.3

Gannet 2016 - 2018

0 5 10 km

MAP SCALE:1:200,000 @ A3

N

GIS TM: LNF Checked: MT Approved: MT Status: Rev1

Document Path: S:\Projects\Vattenfall\WP 004 Norfolk Boreas\Figure_13.8.3_Gannet_NB_Rev1.mxd

Datum: ETRS1989, Projection: UTM 31N

Date: 13/02/2019

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53°10'0"N 53°0'0"N 52°50'0"N

CORVETTE FIELD
BESSEMER FIELD
SEAN FIELD
NOORDWINNING FIELD
WEST HOLE
ORWELL FIELD
THAMES FIELD
YARE FIELD
DAVY FIELD
WELLAND FIELD
HORNE & WREN GAS FIELDS
OFF BROWN RIDGE TSS
DW (see Note-ROUTE)
Gas (see Note)
Wintershall K13-A AIS
Mo(U)15s15M Horn Mo(U)30s (marked by buoys)
Q(9)15s Shell 17 YBY
49/24
49/25A-RD
49/25A-P
49/23E
49/28-A
49/30A
53/3c Horne & Wren
Racon(O) YBY
LFl.10s DR 1 RW
Fl(5)Y.20s PA (2 buoys)
Racon(G) RW
Mo(A)8s BR-S
LFl.Y.10s BP7
LFl.5s BR-N RW
Temple
Obstn
Wk (buoyed)
Wells
Well
Wks
1632
1503
15′
10′
05′
00′
50′
53°

VATTENFALL

Legend:

Count[1]

- 1
- 2 - 10
- 11 - 20
- 21 - 40
- 40 +

Species[1]

- Arctic Skua
- Great Skua

Site and Buffer

- Norfolk Boreas
- Norfolk Boreas 4km Buffer

[1]APEM, 2018

MacArthur Green

Norfolk Boreas

Figure 13.8.4

Skua Species 2016 - 2018

N

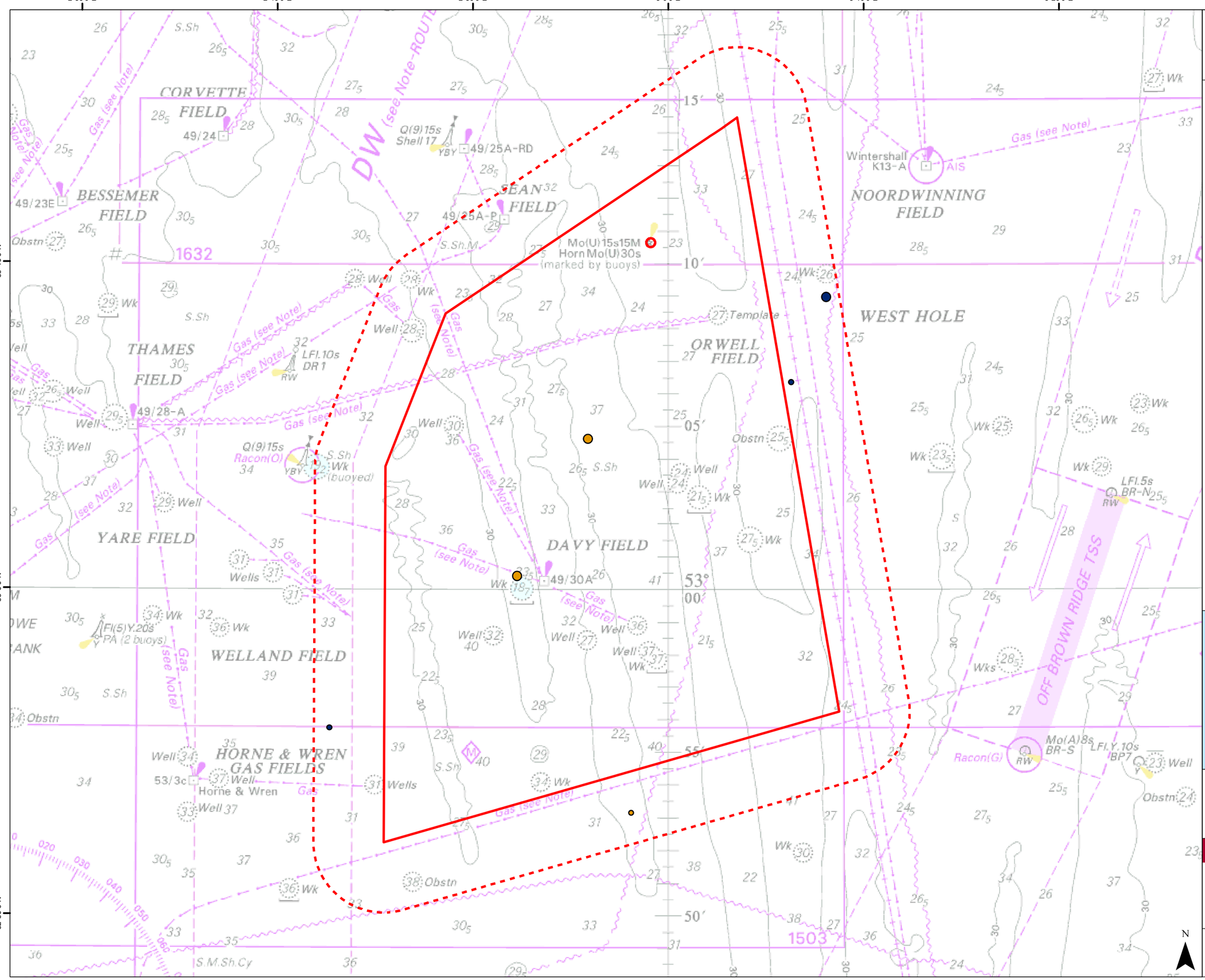
0 5 10 km

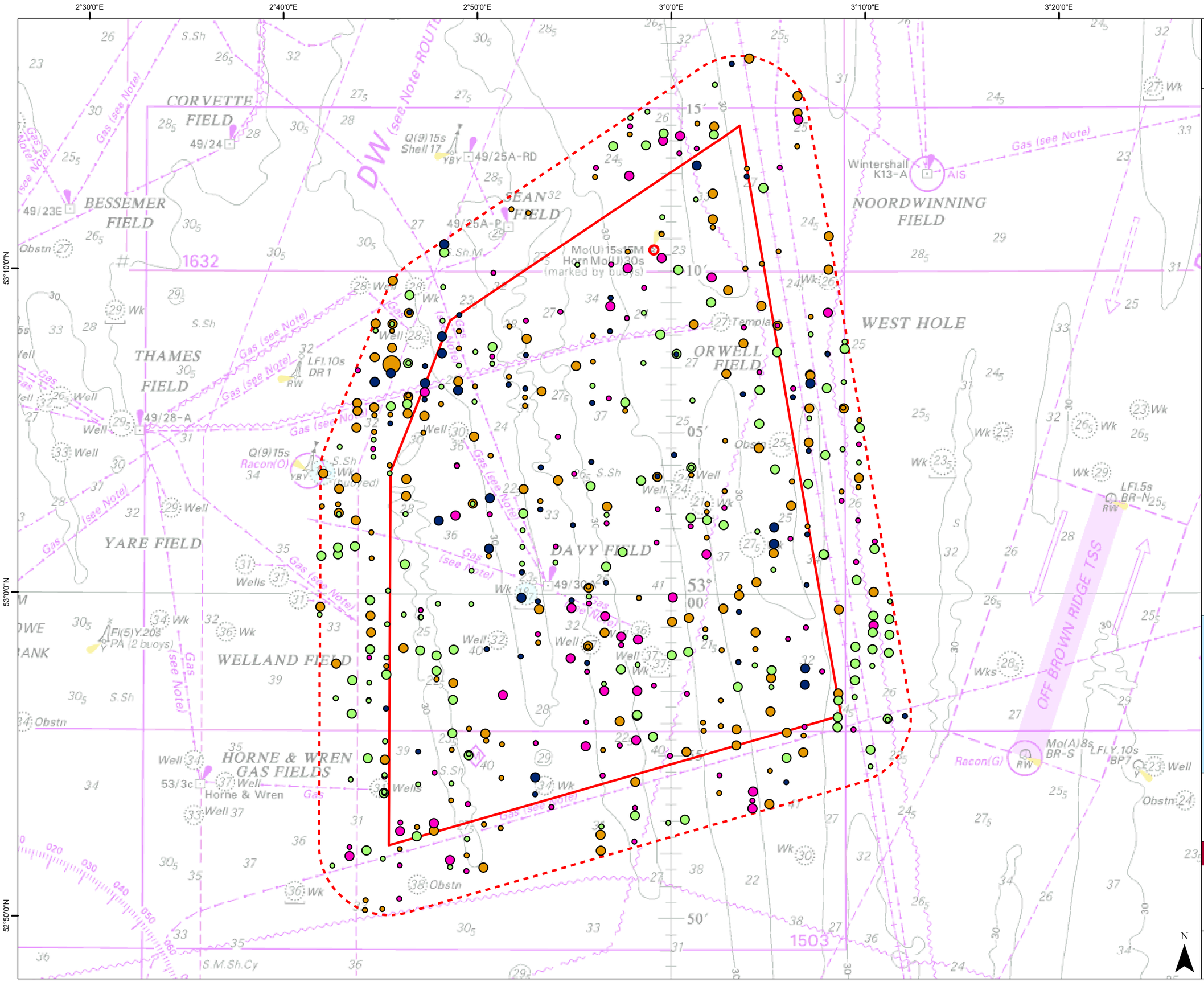
MAP SCALE:1:200,000 @ A3

Document Path: S:\Projects\Vattenfall\WP 004 Norfolk Boreas\Figure_13.8.4_SkuaSpecies_NB_Rev1.mxd GIS TM: LNF Checked: MT Approved: MT Status: Rev1

Datum: ETRS1989, Projection: UTM 31N

Date: 13/02/2019





VATTENFALL

Legend:

Count [1]

- 1
- 2 - 10
- 11 - 20
- 21 - 40
- 40 +

Season [1]

- Autumn Migration
- Winter
- Spring Migration
- Breeding

Site and Buffer

- Norfolk Boreas
- Norfolk Boreas 4km Buffer

[1] APEM, 2018

MacArthur Green

Norfolk Boreas

Figure 13.8.6

Razorbill 2016 - 2018

0 5 10 km

MAP SCALE:1:200,000 @ A3

N

Datum: ETRS1989, Projection: UTM 31N

Date: 13/02/2019

Document Path: S:\Projects\VattenfallVWP 004 Norfolk Boreas\Figure_13.8.6_Razorbill_NB_Rev1.mxd

GIS TM: LNF Checked: MT Approved: MT Status: Rev1

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53°10'0"N 53°0'0"N 52°50'0"N

CORVETTE FIELD
BESSEMER FIELD
THAMES FIELD
YARE FIELD
WELLAND FIELD
HORNE & WREN GAS FIELDS
WEST HOLE
NOORDWINNING FIELD
DW (see Note-ROUTE)
OFF BROWN RIDGE TSS
Wintershall K13-A AIS
49/24
49/25A-RD
49/23E
49/28-A
53/3c Horne & Wren
1632
1503

VATTENFALL

Legend:

Count [1]

- 1
- 2 - 10
- 11 - 20
- 21 - 40
- 40 +

Season [1]

- Nonbreeding
- Breeding

Site and Buffer

- Norfolk Boreas
- Norfolk Boreas 4km Buffer

[1] APEM, 2018

MacArthur Green

Norfolk Boreas

Figure 13.8.7

Guillemot 2016 - 2018

0 5 10 km

MAP SCALE:1:200,000 @ A3

N

Status: Rev1 Approved: MT Checked: MT GIS TM: LNF

Document Path: S:\Projects\VattenfallWP 004 Norfolk Boreas\Figure_13.8.7_Guillemot_NB_Rev1.mxd

Datum: ETRS1989, Projection: UTM 31N

Date: 13/02/2019

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53°10'0"N 53°0'0"N 52°50'0"N

CORVETTE FIELD
BESSEMER FIELD
SEAN FIELD
NOORDWINNING FIELD
WEST HOLE
ORWELL FIELD
THAMES FIELD
YARE FIELD
WELLAND FIELD
DAVY FIELD
HORNE & WREN GAS FIELDS
OFF BROWN RIDGE TSS
DW (see Note-ROUTE)
Gas (see Note)
Wintershall K13-A AIS
Mo(U)15s15M Horn Mo(U)30s (marked by buoys)
Q(9)15s Shell 17 YBY
Q(9)15s Racon(O) YBY
LFl.10s DR 1 RW
LFl.5s BR-N RW
Mo(A)8s BR-S LFl.Y.10s BP7
Racon(G) RW
Fl(5)Y.20s PA (2 buoys)
49/24
49/25A-RD
49/25A-P
49/23E
49/28-A
49/30A
53/3c
1632
1503
Template
Obstn
Wells
Well
Wk
Wks
S.Sh
S.Sh.M
S.M.Sh.Cy

VATTENFALL

Legend:

Count[1]

- 1
- 2 - 10
- 11 - 20
- 21 - 40
- 40 +

Species[1]

- Commic Tern
- Black Tern
- Tern Species
- Sandwich Tern

Site and Buffer

- Norfolk Boreas
- Norfolk Boreas 4km Buffer

[1]APEM, 2018

MacArthur Green

Norfolk Boreas

Figure 13.8.8

Tern Species 2016 - 2018

N

0 5 10 km

MAP SCALE: 1:200,000 @ A3

Datum: ETRS1989, Projection: UTM 31N

Date: 14/02/2019

Document Path: S:\Projects\Vattenfall\WP 004 Norfolk Boreas\Figure_13.8.8_TernSpecies_NB_Rev1.mxd

GIS TM: LNF Checked: MT Approved: MT Status: Rev1

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53°10'0"N 53°0'0"N 52°50'0"N

VATTENFALL

Legend:

Count [1]

- 1
- 2 - 10
- 11 - 20
- 21 - 40
- 40 +

Season [1]

- Autumn Migration
- Spring Migration
- Breeding

Site and Buffer

- Norfolk Boreas
- Norfolk Boreas 4km Buffer

[1] APEM, 2018

MacArthur Green

Norfolk Boreas

Figure 13.8.9

Kittiwake 2016 - 2018

0 5 10 km

MAP SCALE:1:200,000 @A3

N

Status: Rev1 Approved: MT Checked: MT GIS TM: LNF

Document Path: S:\Projects\Vattenfall\WP 004 Norfolk Boreas\Figure_13.8.9_Kittiwake_NB_Rev1.mxd

Datum: ETRS1989, Projection: UTM 31N

Date: 14/02/2019

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53°10'0"N 53°0'0"N 52°50'0"N

VATTENFALL

Legend:

Count[1]

- 1
- 2 - 10
- 11 - 20
- 21 - 40
- 40 +

Species[1]

- Black-headed Gull
- Common Gull
- Little Gull

Site and Buffer

- Norfolk Boreas
- Norfolk Boreas 4km Buffer

[1]APEM, 2018

MacArthur Green

Norfolk Boreas

Figure 13.8.10

Small Gull Species 2016 - 2018

0 5 10 km

MAP SCALE:1:200,000 @ A3

N

Document Path: S:\Projects\Vattenfall\WP 004 Norfolk Boreas\Figure_13.8.10_SmallGullSp_NB_Rev1.mxd GIS TM: LNF Checked: MT Approved: MT Status: Rev1

Datum: ETRS1989, Projection: UTM 31N

Date: 14/02/2019

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53°10'0"N 53°0'0"N 52°50'0"N

VATTENFALL

Legend:

Count [1]

- 1
- 2 - 10
- 11 - 20
- 21 - 40
- 40 +

Season [1]

- Autumn Migration
- Winter
- Spring Migration
- Breeding

Site and Buffer

- Norfolk Boreas
- Norfolk Boreas 4km Buffer

[1] APEM, 2018

MacArthur Green

Norfolk Boreas

Figure 13.8.11

Lesser Black-backed Gull 2016 - 2018

0 5 10 km

MAP SCALE: 1:200,000 @ A3

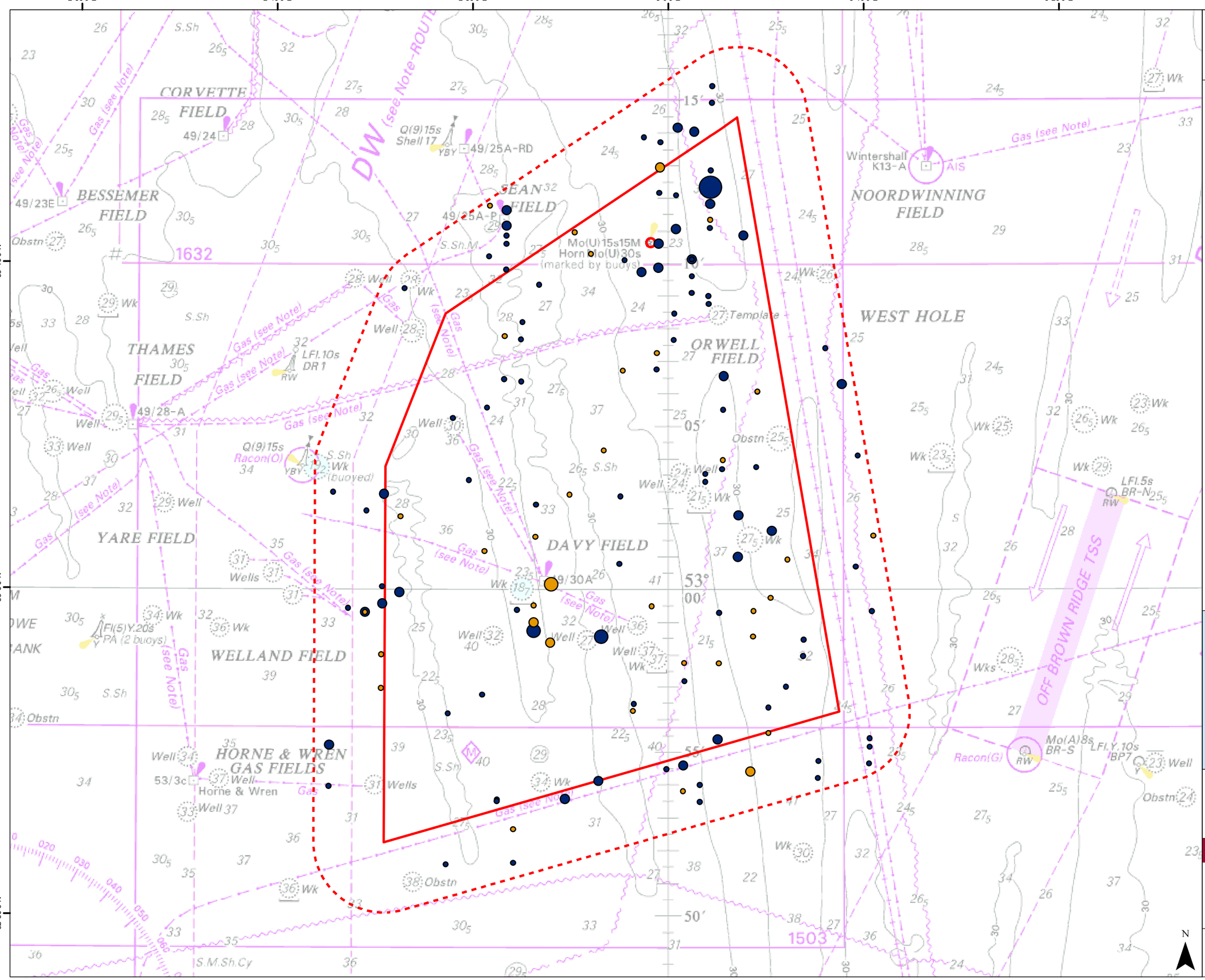
N

Status: Rev1 Approved: MT Checked: MT GIS TM: LNF

Document Path: S:\Projects\VattenfallVWP 004 Norfolk Boreas\Figure_13.8.11_LB_Gull_NB.mxd

Datum: ETRS1989, Projection: UTM 31N

Date: 14/02/2019



VATTENFALL

Legend:

Count [1]

- 1
- 2 - 10
- 11 - 20
- 21 - 40
- 40 +

Season [1]

- Nonbreeding
- Breeding

Site and Buffer

- Norfolk Boreas
- Norfolk Boreas 4km Buffer

[1] APEM, 2018

MacArthur Green

Norfolk Boreas

Figure 13.8.12

Herring Gull 2016 - 2018

N

0 5 10 km

MAP SCALE: 1:200,000 @ A3

Datum: ETRS1989, Projection: UTM 31N

Date: 14/02/2019

Document Path: S:\Projects\Vattenfall\WP 004 Norfolk Boreas\Figure_13.8.12_HerringGull_NB_Rev1.mxd GIS TM: LNF Checked: MT Approved: MT Status: Rev1

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53°10'0"N 53°0'0"N 52°50'0"N

VATTENFALL

Legend:

Count [1]

- 1
- 2 - 10
- 11 - 20
- 21 - 40
- 40 +

Season [1]

- Nonbreeding
- Breeding

Site and Buffer

- Norfolk Boreas
- Norfolk Boreas 4km Buffer

[1] APEM, 2018

MacArthur Green

Norfolk Boreas

Figure 13.8.13

Great Black-backed Gull 2016 - 2018

0 5 10 km

MAP SCALE:1:200,000 @ A3

N

Status: Rev1 Approved: MT Checked: MT GIS TM: LNF

Document Path: S:\Projects\VattenfallVWP 004 Norfolk Boreas\Figure_13.8.13_GB_Gull_NB_Rev1.mxd

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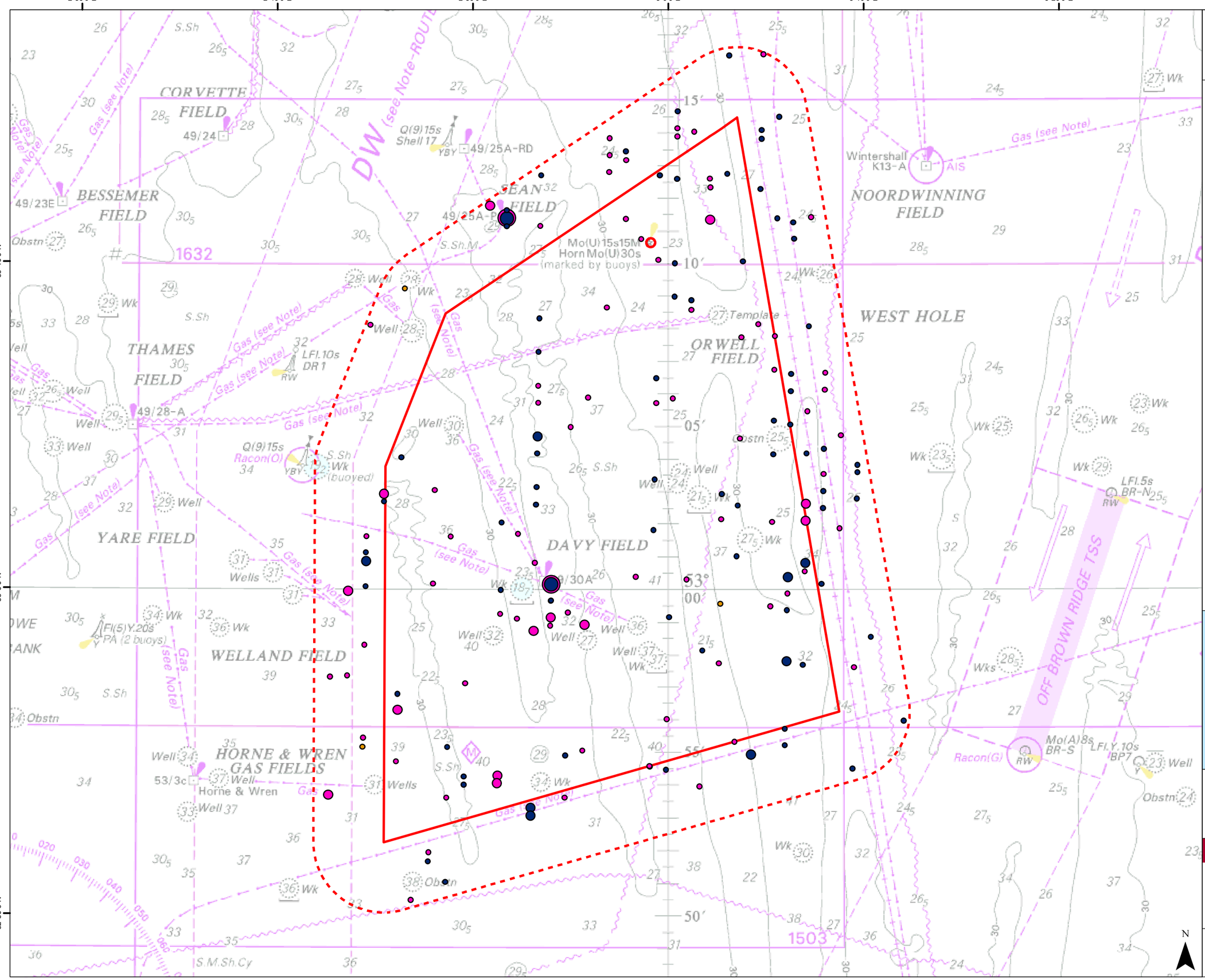

VATTENFALL

Legend:

Count[1]

- 1
- 2 - 10
- 11 - 20
- 21 - 40
- 40 +

Species[1]

- Black-headed Gull
- Common Gull
- Little Gull

Site and Buffer

- Norfolk Boreas
- Norfolk Boreas 4km Buffer

[1]APEM, 2018

MacArthur Green

Norfolk Boreas

Figure 13.8.14

Unidentified Species: Gull 2016 - 2018

0 5 10 km

MAP SCALE: 1:200,000 @ A3

N

Datum: ETRS1989, Projection: UTM 31N

Date: 14/02/2019

Document Path: S:\Projects\Vattenfall\VWP 004 Norfolk Boreas\Figure_13.8.14_GullSp_NB_Rev1.mxd

GIS TM: LNF Checked: MT Approved: MT Status: Rev1

Norfolk Boreas Offshore Wind Farm

Appendix 13.1

Offshore Ornithology

Annex 9

Survey dates and times

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Document Quality Record.

Version	Status	Person Responsible	Date
1	Draft	Nicola Goodship	28/03/2019
2	Reviewed	Mark Trinder	30/03/2019

1 INTRODUCTION

1. This appendix provides a list of survey dates and times of monthly aerial surveys across the Norfolk Boreas site. The offshore ornithological assessment is informed using baseline site characterisation data collected by digital aerial survey methods, conducted by APEM.

2. The date and time of each monthly aerial survey carried out by APEM across the Norfolk Boreas site is provided in Table 1. The Norfolk Boreas surveys were conducted between August 2016 and July 2018. In total there are 24 months of data for Norfolk Boreas.

Table 1. Survey dates and times for Norfolk Boreas site

Survey ID	Date	Start time	End time
1	23/08/2016	14:45:03	18:05:02
1	24/08/2016	09:23:09	16:36:52
2	08/09/2016	09:13:47	17:12:05
2	09/09/2016	09:52:15	12:17:10
3	03/10/2016	14:29:32	17:26:24
3	04/10/2016	09:14:09	15:33:49
4	18/11/2016	09:24:25	14:12:17
4	19/11/2016	09:11:31	12:05:41
5	05/12/2016	10:36:50	14:23:51
5	09/12/2016	13:10:56	14:46:16
5	11/12/2016	09:27:35	11:07:38
6	17/01/2017	10:18:24	13:53:51
6	18/01/2017	09:59:16	13:16:54
7	21/02/2017	10:15:38	14:00:22
7	22/02/2017	11:54:19	15:32:21
8	29/03/2017	10:07:56	17:45:10
8	30/03/2017	10:07:11	12:15:32
9	14/04/2017	10:39:28	15:55:35
9	15/04/2017	10:15:12	12:06:50
10	20/05/2017	11:08:49	17:02:49
10	21/05/2017	10:20:57	13:44:30
11	10/06/2017	08:39:55	17:25:05
12	05/07/2017	15:58:39	17:47:57
12	06/07/2017	09:58:15	12:21:42
12	07/07/2017	13:53:57	16:30:18
13	05/08/2017	10:37:24	18:12:33
13	06/08/2017	09:08:30	16:08:09
14	20/09/2017	11:59:56	16:32:42
14	21/09/2017	09:35:00	12:21:40
15	11/10/2017	11:18:21	12:10:55
15	12/10/2017	07:29:12	15:54:36
16	16/11/2017	11:36:09	13:51:53
16	17/11/2017	08:44:02	12:47:37
16	18/11/2017	08:27:12	09:31:57
17	14/12/2017	12:08:35	13:59:18
17	15/12/2017	10:51:26	14:59:28

Survey ID	Date	Start time	End time
17	17/12/2017	09:44:12	11:10:01
18	19/01/2018	11:41:58	15:45:06
18	20/01/2018	09:22:39	11:47:44
19	12/02/2018	10:59:27	19:21:38
19	14/02/2018	09:02:42	09:29:28
19	16/02/2018	09:33:22	11:37:23
20	13/03/2018	15:32:51	17:03:02
20	14/03/2018	09:06:43	16:26:35
20	15/03/2018	08:06:25	10:49:00
21	04/04/2018	11:12:14	15:36:25
21	05/04/2018	09:39:00	16:52:54
22	05/05/2018	09:29:58	17:13:50
22	06/05/2018	09:01:06	17:18:42
23	20/06/2018	13:27:10	14:24:50
23	21/06/2018	09:05:14	16:14:46
24	25/07/2018	07:40:14	16:50:56
24	26/07/2018	07:42:18	10:08:28