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**RWE Renewables UK Dogger Bank
South (West) Limited**

**RWE Renewables UK Dogger Bank
South (East) Limited**

Dogger Bank South Offshore Wind Farms

Environmental Statement

Volume 7

Appendix 12-2 Technical Appendix

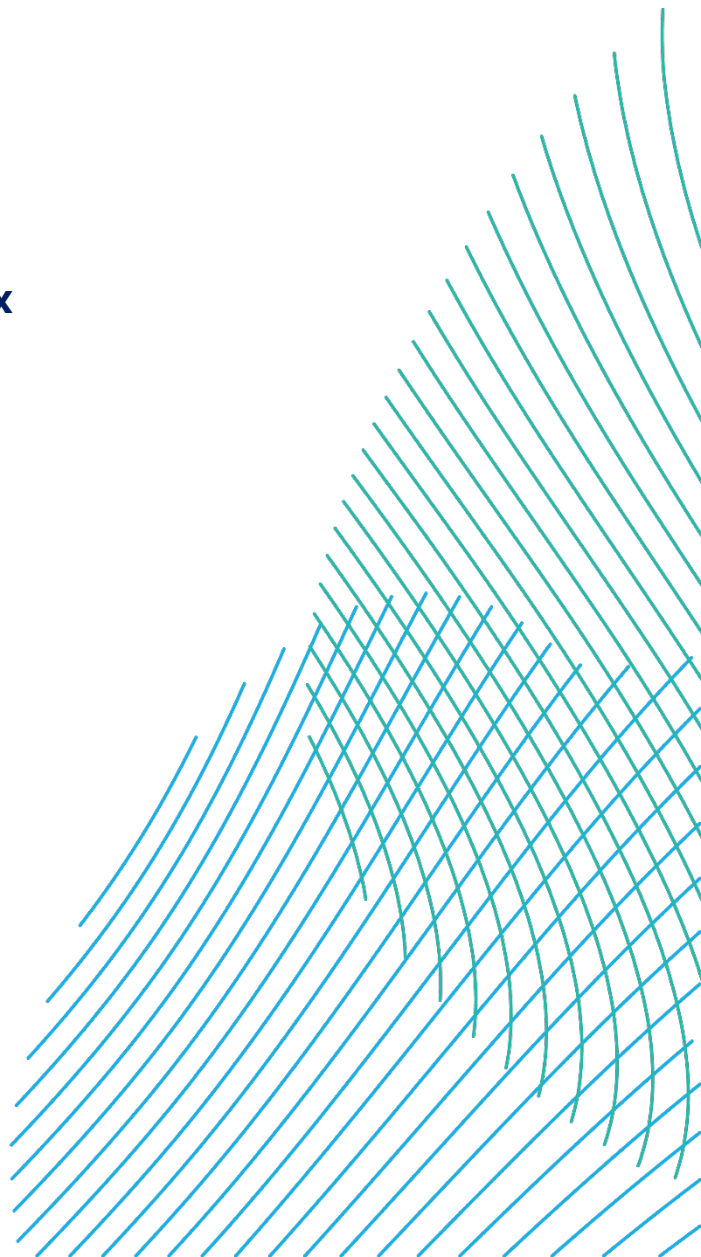
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Dogger Bank South Offshore Windfarm

Ornithology Technical Appendix 12-2

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1. INTRODUCTION

The proposed Projects (DBS East and DBS West) will comprise offshore wind turbines, offshore collector platforms/converter stations, inter-array cables, inter-platform cables and offshore and onshore export cables taking power to an onshore converter station. The Projects Array Areas cover a combined area of approximately 704km², split almost equally between the DBS East and DBS West areas. At the closest point the array areas are located approximately 100km offshore.

The offshore ornithological assessment **Volume 7, Chapter 12: Offshore Ornithology (application ref: 7.12.0)** is informed using baseline site characterisation data collected by digital aerial survey methods, conducted by APEM. Further details of the survey methods, analysis of the data collected, and the results obtained are provided in relevant sections of this technical report.

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 ES.

Sections on aerial survey methodology (section 2.1) and image analysis (section 2.3) were supplied by the aerial survey contractor (APEM). This Offshore Ornithology Technical Report comprises 24 documents (including the current one – **Appendix 12-2**) containing the following data and information.

Appendix 12-3a Seabird abundance by month: birds in flight and on the sea, provide tables of the mean and 95% confidence intervals for total seabird abundance (bird in flight and on the water). These are calculated for each calendar month for each species recorded, presented for the East and West array areas separately and combined, as well as for the array areas plus 2km buffers and array areas plus 4km buffers.

Appendix 12-3b Seabird abundance by month: birds on the sea, provide tables of the mean and 95% confidence intervals for total seabird abundance (bird on the water). These are calculated for each calendar month for each species recorded, presented for the East and West array areas separately and combined, as well as for the array areas plus 2km buffers and array areas plus 4km buffers.

Appendix 12-3c Seabird abundance by month: birds in flight, provide tables of the mean and 95% confidence intervals for total seabird abundance (bird in flight). These are calculated for each calendar month for each species recorded, presented for the East and West array areas separately and combined, as well as for the array areas plus 2km buffers and array areas plus 4km buffers.

Appendix 12-4a Seabird densities by month: birds in flight and on the sea, provide the equivalent densities to those in Appendix 12-3a.

Appendix 12-4b Seabird densities by month: birds on the sea, provide the equivalent densities to those in Appendix 12-3b.

Appendix 12-4c Seabird densities by month: birds in flight, provide the equivalent densities to those in Appendix 12-3c.

Appendix 12-5a Seabird peak seasonal abundances: birds in flight and on the sea, provide tables of the mean and 95% confidence intervals for seabird peak seasonal abundance (bird in flight and on the water). These are calculated for each species recorded, presented for the East and West Array Areas separately and combined, as well as for the array areas plus 2km buffers and array areas plus 4km buffers.

Appendix 12-5b Seabird peak seasonal abundances: birds on the sea, provide tables of the mean and 95% confidence intervals for seabird peak seasonal abundance (bird on the water). These are calculated for each species recorded, presented for the East and West array areas separately and combined, as well as for the array areas plus 2km buffers and array areas plus 4km buffers.

Appendix 12-5c Seabird peak seasonal abundances: birds in flight, provide tables of the mean and 95% confidence intervals for seabird peak seasonal abundance (bird in flight). These are calculated for each species recorded, presented for the East and West array areas separately and combined, as well as for the array areas plus 2km buffers and array areas plus 4km buffers.

Appendix 12-6a Seabird peak seasonal densities: birds in flight and on the sea, provide the equivalent peak seasonal densities to those in Appendix 12-5a.

Appendix 12-6b Seabird peak seasonal densities: birds on the sea, provide the equivalent peak seasonal densities to those in Appendix 12-5b.

Appendix 12-6c Seabird peak seasonal densities birds in flight, provide the equivalent peak seasonal densities to those in Appendix 12-5c.

Appendix 12-7a Seabird abundances by survey: birds in flight and on the sea, provide tables of the mean and 95% confidence intervals for seabird abundances by survey (bird in flight and on the water). These are calculated for each survey for each species recorded, presented for the East and West array areas separately and combined, as well as for the array areas plus 2km buffers and array areas plus 4km buffers.

Appendix 12-7b Seabird abundances by survey: birds on the sea, provide tables of the mean and 95% confidence intervals for seabird peak abundances by survey (bird on the water). These are calculated for each survey for each species recorded, presented for the East and West array areas separately and combined, as well as for the array areas plus 2km buffers and array areas plus 4km buffers.

Appendix 12-7c Seabird abundances by survey: birds in flight, provide tables of the mean and 95% confidence intervals for seabird abundances by survey (bird in flight). These are calculated for each survey for each species recorded, presented for the East and West array areas separately and combined, as well as for the array areas plus 2km buffers and array areas plus 4km buffers.

Appendix 12-8a Seabird densities by survey: birds in flight and on the sea, provide the equivalent densities by survey to those in Appendix 12-7a.

Appendix 12-8b Seabird densities by survey: birds on the sea, provide the equivalent densities by survey to those in Appendix 12-7b.

Appendix 12-8c Seabird densities by survey: birds in flight, provide the equivalent densities by survey to those in Appendix 12-7c.

Appendix 12-9 provides the collision risk modelling input parameters and outputs.

Appendix 12-10 provides maps illustrating where birds were recorded during the APEM aerial surveys.

Appendix 12-11 is a review of lighting effects on seabirds.

Appendix 12-12 provides additional displacement matrices using the upper and lower 95% confidence intervals of abundance (as requested by Natural England).

Appendix 12-13 provides details of Population Viability Analyses

2. DATA SOURCES

APEM commenced monthly aerial surveys across the wind farm and 4km buffer from March 2021, with the complete period of 24 months completed in February 2023.

2.1 Survey Methods

The following details of survey methods were supplied by APEM.

A series of strip transects spaced 2km apart were flown monthly across the survey area (**Figure 1**, **Figure 2**), which included a 4km buffer around The Crown Estate Lease areas, resulting in an overall survey area of 1,672 km². The survey method has been designed to optimise the data collection for all bird and marine mammal species using transects flown at 396m using a twin-engine aircraft, resulting in a 1.5cm ground sampling distance (GSD) with a 10% coverage rate.

The methods and results presented herein are from the surveys of the DBS Array Areas plus 4 km buffer using APEM's bespoke camera system, the "Shearwater IV", customised by in-house specialists for surveying the offshore environment. The camera system is integrated with custom flight planning software that allows each survey transect to be accurately mapped out before the aircraft leaves the ground. Each image capture node is precisely defined, allowing the system to fire the camera exposures at exactly the right location. This ensures that each survey is flown with the same transect orientation and the camera is triggered at the same position along each transect within set tolerances. APEM's planning systems enable tolerances on flight path along survey lines to be set, automatically aborting survey lines that drift away from the aircraft's planned flight line.

During each survey, APEM's on-board camera technician continually monitored the imagery as it was collected to ensure the data collected was fit for purpose. The camera technician would make the decision to cease data collection should the conditions become unsuitable for surveying and/or data collection. Subsequently, the survey would then be resumed at the next earliest opportunity

Data captured comprised 1.5cm GSD digital still images collected in a grid-based design using a GPS-linked, bespoke flight management system to ensure the tracks were flown with a high degree of accuracy. The aircraft's internal GPS and IMU systems record to an accuracy of +/-3 to 5m as standard.

Details of the transect area, length, coverage and sea conditions for each survey area provided in **Table 2-1** and **Table 2-2**.

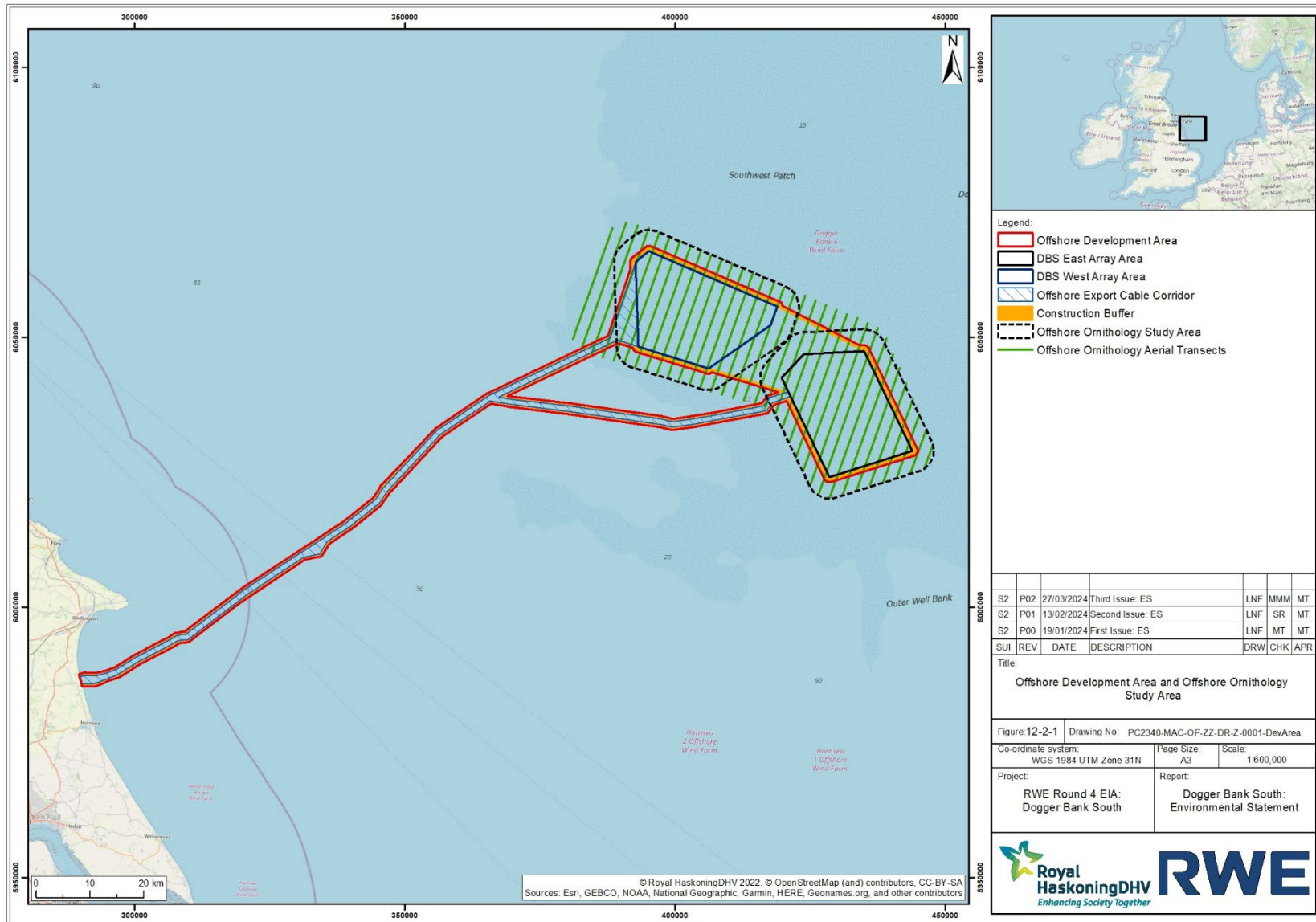


Figure 1 Offshore Development Area and Offshore Ornithology Study Area.

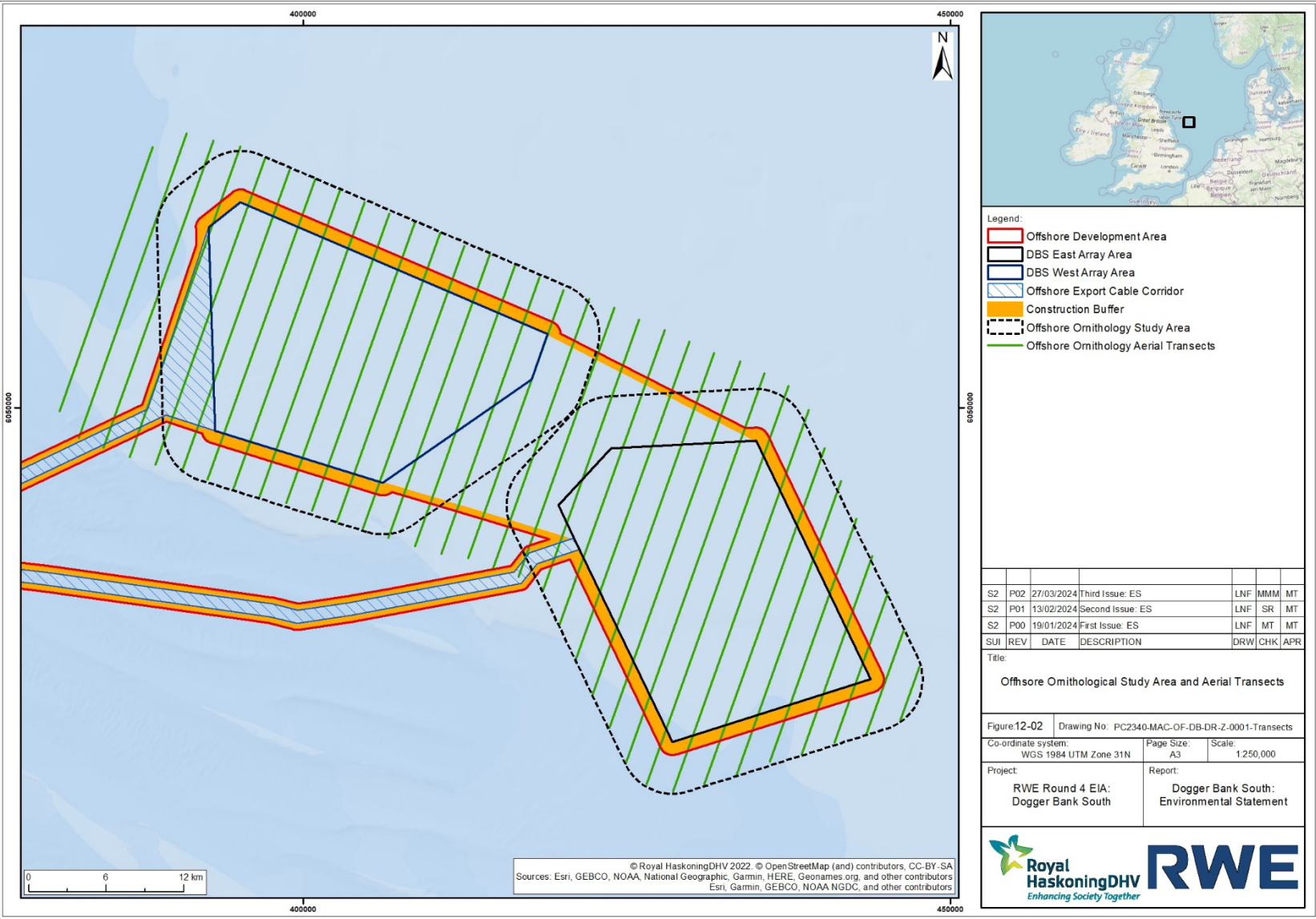


Figure 2 Offshore Ornithological Study Area and Aerial Transects.

Table 2-1 Summary of digital aerial survey conditions across DBS West. Sea state: 0 = Calm (Glassy); 1 = Calm (Rippled); 2 = Smooth; 3 = Slight. Turbidity: 0 = Clear; 1 = Slightly Turbid; 2 = Moderately Turbid; 3 = Highly Turbid

Site	Date	Array Area plus 4km buffer				Array Area only				Sea state (range)	Turbidity	No. images
		No. transects (inc. 4km buffer)	Total transect length (inc. 4km buffer; km)	Total coverage (km ²)	Coverage (%)	No. transects (Array Area only)	Total transect length (Array Area only; km)	Total coverage (km ²)	Coverage (%)			
DBS West	25/3/2021	16	329.0	82.09	11.58	14	166.415	41.43	11.68	0-3	0-0.5	3,236
	4/4/2021			83.90	11.84			42.42	11.96	2-3	0-2	3,234
	7/5/2021			84.26	11.89			42.57	12.00	1-3	1-2	3,225
	9/6/2021			82.66	11.66			41.39	11.67	0	0	3,237
	21/7/2021			83.25	11.75			42.15	11.88	1-2	0	3,238
	27/8/2021			85.15	12.02			42.76	12.05	2-3	1-2	3,231
	22/9/2021			82.86	11.69			41.68	11.75	2	1	3,234
	14/10/2021			83.83	11.83			42.04	11.85	3-4	0	3,234
	8/11/2021			72.08	10.17			35.99	10.15	1	2	3,233
	16/12/2021			83.10	11.73			41.55	11.71	0	0	3,234
	18/1/2022			84.03	11.86			42.19	11.89	2	0	3,231
	11/2/2022			85.44	12.06			43.06	12.14	1	1-2	3,234
	3/3/2022			84.62	11.94			42.95	12.11	2-3	2-3	2,916
	10/4/2022			84.22	11.89			42.20	11.90	1	1	2,916
	3/5/2022			83.49	11.78			42.15	11.88	1	1	2,883
	10/6/2022			83.94	11.84			42.10	11.87	1	0-1	2,841
	13/7/2022			84.32	11.90			42.62	12.02	2	1	2,916
	9/8/2022			83.17	11.74			41.69	11.75	0-1	0-1	2,916
	29/9/2022			83.38	11.77			41.82	11.79	3	3	2,916
	11/10/2022			83.84	11.83			41.93	11.82	2	0	2,916
25/11/2022	83.33	11.76	42.10	11.87	3-4	0	2,916					
16/12/2022	81.97	11.57	41.48	11.70	2	2	2,916					
22/1/2023	85.47	12.06	43.18	12.17	0-1	2-3	2,917					
11/2/2023	84.34	11.90	42.35	11.94	3	2	2,919					

Table 2-2 Summary of digital aerial survey conditions across DBS East. Sea state: 0 = Calm (Glassy); 1 = Calm (Rippled); 2 = Smooth; 3 = Slight. Turbidity: 0 = Clear; 1 = Slightly Turbid; 2 = Moderately Turbid; 3 = Highly Turbid

Site	Date	Array Area plus 4km buffer				Array Area only				Sea state (range)	Turbidity	No. images
		No. transects (inc. 4km buffer)	Total transect length (inc. 4km buffer; km)	Total coverage (km ²)	Coverage (%)	No. transects (Array Area only)	Total transect length (Array Area only; km)	Total coverage (km ²)	Coverage (%)			
DBS East	25/3/2021	17	323.6	82.86	11.69	13	164.375	41.59	11.72	0-3	0-1	3,235
	4/4/2021			83.45	11.78			41.95	11.83	2-3	1-2	3,237
	7/5/2021			82.55	11.65			41.25	11.63	1	1	3,204
	9/6/2021			82.11	11.59			41.13	11.60	0-1	0-1	3,237
	21/7/2021			82.70	11.67			41.48	11.69	1-2	0	3,234
	27/8/2021			82.88	11.69			41.68	11.75	2	1	3,234
	22/9/2021			82.96	11.71			41.82	11.79	2-3	1-2	3,246
	14/10/2021			83.76	11.82			42.04	11.85	4	0-2	3,246
	8/11/2021			82.19	11.60			41.35	11.66	1	2	3,246
	16/12/2021			82.30	11.61			41.18	11.61	0	0	3,243
	18/1/2022			83.29	11.75			41.65	11.74	2	0	3,237
	11/2/2022			82.97	11.71			41.61	11.73	1	1-2	3,246
	3/3/2022			82.21	11.60			41.33	11.65	2	2	2,919
	10/4/2022			83.55	11.79			41.99	11.84	1-2	1	2,919
	3/5/2022			83.16	11.74			41.89	11.81	1	2	2,973
	10/6/2022			83.52	11.79			41.87	11.80	3	2	2,919
	13/7/2022			81.97	11.57			41.65	11.74	3	2	2,919
	9/8/2022			83.42	11.77			41.92	11.82	0.5	0.8-1	2,919
	29/9/2022			78.05	11.01			39.01	11.00	2	1	3,063
	11/10/2022			83.22	11.74			41.69	11.75	1	0	2,918
	25/11/2022			85.03	12.00			42.54	11.99	3	1	2,919
	16/12/2022			85.36	12.05			43.06	12.14	2	0-1	2,919
	22/1/2023			82.68	11.67			41.65	11.74	1	0	2,916
11/2/2023	83.85	11.83	41.93	11.82	2	0	2,919					

2.2 Summary of Quality Control

Internal QA was carried out on the data collected from each of the surveys. Images were assessed in batches with a different APEM staff member responsible for each batch. Each image containing birds and/or marine megafauna was reviewed and checked by APEM's dedicated QA Manager, ensuring that 100% of birds and marine megafauna recorded were subject to internal QA to confirm that all species were correctly identified. Images containing no birds and/or marine megafauna were removed and stored separately for further internal QA. Of these 'blank' images, 10% were randomly selected for QA. If there was <90% agreement, the entire batch was re-analysed independently by a different member of staff.

2.3 Bird Abundance and Density Estimates

The raw data, 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 were analysed using R (R Development Core Team 2012). Analysis was conducted for each survey separately. Bird locations were assigned to the following sub-zones; Array Area (East or West), Array Area (East or West) plus 2km buffer and Array Area (East or West) plus 4km buffer (note that each buffer width also included the Array Area data).

Density (birds/km²) and abundance were estimated using design-based methods, with the density estimated for the surveyed area and multiplied up to the total area to obtain an abundance estimate. This makes the assumption that the area surveyed is representative of the unsurveyed regions, thus the design of survey is important (hence 'design based').

Standard deviations and confidence intervals for each species were obtained using a bootstrap resampling method, with 1,000 iterations. Since bird observations recorded along a transect are analogous to events recorded over time, it was appropriate to employ a time-series bootstrap method. For each survey, the data along each transect were assigned to segments 500m long. A test for auto-correlation along the transects was conducted to identify for each species the maximum number of sequential segments over which significant auto-correlation could be detected. This distance (i.e. number of segments) defined the block size applied in the bootstrap simulations, where the block size is the smallest 'unit' resampled. Thus, if there was no evidence for a species' locations being auto-correlated along a transect then the block size was the individual segment (i.e. this yielded the maximum number of samples), while a significant estimate of auto-correlation across three segments, for example, would result in the data being grouped in blocks of three segments for resampling (taken to the extreme, if significant auto-correlation was detected across all segments along a transect, the block size would be the number of segments in the transect and resampling would be conducted at the level of transect). Auto-correlation varied markedly across species, being largely absent in the less abundant species (e.g. skua and small gulls) and quite prevalent in more abundant species (e.g. auks and kittiwake), where significant auto-correlation could be detected up to 20km along transects.

The upper and lower 95% confidence limits were obtained as the 25th and 975th values from the ranked bootstrap resampled data. 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).

Analysis was conducted for the DBS East and West Array Areas separately and individually for each of the 24 surveys. Seasonal peaks were extracted from the monthly values, using the month assignments in Furness (2015), applying the full breeding seasons and adjusting the migration seasons to avoid overlaps (for example, if spring migration is defined as January to March and the full breeding season as March to August, the latter was prioritised and spring migration months treated as January to February).

Birds were recorded as either sitting on the sea surface ('sitting') or in flight ('flying'). Analysis was conducted with both datasets combined ('all birds') and for birds in flight only. The former were used in the baseline characterisation and displacement assessment, while the latter were used in the collision risk modelling (CRM).

2.4 Apportioning of birds not identified to species level

The full tables of positively identified birds and the unidentified groups are provided in **Table 2-3** and **Table 2-4** respectively.

Table 2-3 Number of positively identified seabirds recorded in the 4km buffer area for both DBS East and DBS West Array Areas, summed across all surveys.

Species	DBS East	DBS West
Arctic skua	2	1
Arctic tern	35	17
Common gull	14	25
Common scoter	2	0
Common tern	2	2
Fulmar	291	318
Gannet	1021	1094
Great black-backed gull	105	68
Great northern diver	0	2
Great skua	2	8
Guillemot	11453	14063
Herring gull	12	18
Kittiwake	7749	8460
Lesser black-backed gull	8	4
Little auk	8	13
Little gull	30	5
Manx shearwater	2	0
Puffin	122	155
Razorbill	4232	5038
Red-throated diver	0	1

Approximately 17% of the seabirds recorded during the surveys could not be positively assigned to species level, of which almost all (95%) were classed as either 'auk species' or 'guillemot/razorbill'. In subsequent analysis the 'auk species' group were assigned to guillemot, razorbill and puffin and the 'guillemot/razorbill' group to those two species in proportion to the rates of positively identified birds. No other unidentified groups were apportioned to species due to the small numbers involved or the challenge of appropriately assigning mixed membership groups (e.g. 'auk / shearwater species') to constituent species since there is no robust means to perform this. However, since the number of individuals involved was very small this does not have a material effect on the results obtained. One exception to this was 'commic tern' for Arctic and common terns. Only 4 common terns were

positively identified, compared to 52 Arctic tern, so for assessment purposes, all common tern were assumed to be Arctic tern.

Table 2-4 Number of birds assigned to species groups in the 4km buffer area for both DBS East and DBS West array areas, summed across all surveys.

Species	DBS East	DBS West
Arctic / common tern	77	79
Auk / shearwater species	26	31
Auk species	182	179
Black-backed gull species	1	2
Fulmar/gull species	1	1
Guillemot/razorbill	4677	5329
Gull species	3	1
Large gull species	7	9
Puffin / little auk	0	1
Shearwater species	0	1
Skua species	0	6
Small gull species	46	20
Tern species	10	2
Unidentified bird species	122	36

2.5 Availability Bias

Guillemots, razorbills and puffins 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.

Fixed species-specific correction factors were applied to the number of each auk species recorded on the sea surface. The values used for guillemot and razorbill 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). For puffin a value of 14% was used, taken from Spencer (2012), and as applied in the Hornsea 4 wind farm assessment.

Availability bias adjustment was applied following apportioning of unidentified auks among species. For completeness, three sets of auk density and abundance estimates are provided:

- The unapportioned values without adjustment for availability bias,
- As above with the inclusion of unidentified auks apportioned using the relative numbers of positively identified individuals, and
- As above following adjustment for availability bias.

2.6 Spatial Distributions

Maps of the array areas and bird observations are provided in Appendix 12-10. For species recorded in low numbers these figures plot all the observations (i.e. obtained across all surveys), while more commonly recorded species are combined by season (using the definitions in Furness 2015). The seasons used are detailed in **Table 2-5**. Following a request from Natural England, some of the more numerous species were further subdivided by season to assist interpretation of these data and an additional post-breeding period (August-September) was defined for guillemot.

Table 2-5 Species specific seasonal definitions and biologically defined minimum nonbreeding population sizes (in brackets) have been taken from Furness (2015) unless advised by Natural England*.

Species	Breeding	Migration-free breeding	Migration autumn	Winter	Migration spring	Non-breeding
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 (868,689*)	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 (2,045,078*)	Mar-Jun	Jul-Oct	Nov	Dec-Feb	Aug-Feb (1,617,306)
Common tern	May-Aug	Jun	Jul-Sep (308,841)	-	Apr-May (308,841)	-
Kittiwake	Mar-Aug (839,456*)	May-Jul	Aug-Dec (829,937)	-	Jan-Apr (627,816)	-
Little gull (Not included in Furness 2015)	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)

2.7 Flight Height

Bird flight height was estimated from the digital still images. It was determined using bespoke APEM software that applies a set of rules developed in-house and trigonometry to provide an estimate of flight height. This method is dependent upon image quality, size of the bird species and the size of the bird relative to the image. It is not possible to accurately estimate flight heights for birds that are diving or turning sharply, as these individuals are not fully stretched out and therefore their measured lengths are not comparable to the reference length of the relevant species, therefore, these individuals were deemed unsuitable for flight height analysis.

2.8 Collision Risk Modelling

CRM was conducted using the stochastic implementation of the Band (2012) model, scripted to run in the R statistical environment by DMP Stats and HiDef¹. Since flight height estimation methods from

¹ <https://github.com/HiDef-Aerial-Surveying/stochLAB>

digital aerial images contain unknown degrees of error and bias all modelling used Band CRM Option 2.

The following parameters were sampled from appropriate distributions: density of birds in flight (bootstrap samples), wingspan, body length, flight speed, flight height, avoidance rate and nocturnal activity. Parameter values used were those advised by Natural England. The full set of input parameters and results are provided in Appendix 12-9.

3. SUMMARY SPECIES ACCOUNTS

The following species accounts use the values in Appendix 12-3, the estimated abundance of birds recorded both in flight and on the sea surface in the DBS East and DBS West array areas.

3.1 Arctic skua

3.1.1 DBS East

Arctic skuas were only recorded in the Array Area in October (peak 4) and in the DBS East array 4km buffer in August and October (peak 4).

3.1.2 DBS West

Arctic skuas were only recorded in the Array Area in August with a peak of 4.

3.2 Arctic tern

3.2.1 DBS East

Arctic terns were only recorded in the Array Area and 4km buffer in May, July and August with a peak estimate of 37 individuals in August. Common terns, which were assumed to be primarily Arctic terns, were recorded in the same months, with a peak in the DBS East Array Area of 137 in August.

3.2.2 DBS West

Arctic terns were only recorded in the Array Area and 4km buffer in July and August, with an estimated 21 individuals. Common terns, which were assumed to be primarily Arctic terns, were recorded in the same months plus May, with a peak in the DBS West Array Area of 76 in July.

3.3 Common gull

3.3.1 DBS East

Common gulls were recorded in January, February, August and November in the Array Area and 4km buffer. The peak abundance in the Array Area was 20 in August.

3.3.2 DBS West

Common gulls were recorded in the Array Area in August and September, with a peak in the Array Area in August of 55.

3.4 Common scoter

3.4.1 DBS East

Common scoters were only recorded in August in the Array Area and 4km buffer, with a peak abundance of 8.

3.4.2 DBS West

Common scoter were not recorded in DBS West.

3.5 Common tern

3.5.1 DBS East

Common terns were only recorded in August in the Array Area and 4km buffer, with a peak abundance of 4.

3.5.2 DBS West

Common terns were only recorded in May in the Array Area and 4km buffer, with a peak abundance of 8.

3.6 Fulmar

3.6.1 DBS East

Fulmars were recorded in the Array Area and 4km buffer in all months except March. The Array Area peak was 113 (January).

3.6.2 DBS West

Fulmars were recorded in the Array Area and 4km buffer in all months. The Array Area peak was 188 in February.

3.7 Gannet

3.7.1 DBS East

Gannets were recorded in the Array Area and 4km buffer in all months except January. The Array Area peak was 598 (March).

3.7.2 DBS West

Gannets were recorded in the Array Area and 4km buffer in all months except January. The Array Area peak was 617 in October.

3.8 Great black-backed gull

3.8.1 DBS East

Great black-backed gulls were recorded in the Array Area in January, February, March, August, November and December. The Array Area peak was 92 in January.

3.8.2 DBS West

Great black-backed gulls were recorded in January, February, August, September, October and December in the Array Area. The Array Area peak was 30 in December.

3.9 Great northern diver

3.9.1 DBS East

Great northern divers were not recorded in the East Array Area or 4km buffer.

3.9.2 DBS West

Great northern divers were only recorded in the Array Area and 4km buffer in June with a single individual in one year, giving an abundance of 4 in the array.

3.10 Great skua**3.10.1 DBS East**

Great skuas were only recorded in the Array Area in November. The peak in the Array Area was 4.

3.10.2 DBS West

Great skuas were recorded in the Array Area and 4km buffer between September and November. The peak in the Array Area and 4km buffer was 5 (November).

3.11 Guillemot (including apportioned unidentified birds and accounting for availability bias)**3.11.1 DBS East**

Guillemots were recorded on the Array Area and 4km buffer in all months. Abundance peaked with 8,760 in the Array Area (November).

3.11.2 DBS West

Guillemots were recorded on the Array Area and 4km buffer in all months. Abundance peaked with 9,548 in the Array Area in August.

3.12 Herring gull**3.12.1 DBS East**

Herring gulls were recorded in January, March and November in the Array Area. The Array Area peak abundance was 12 (March).

3.12.2 DBS West

Herring gulls were recorded in January, April, June, August and November in the Array Area. The Array Area peak abundance was 8 (both August and November).

3.13 Kittiwake**3.13.1 DBS East**

Kittiwakes were recorded in all months in the Array Area. The Array Area peak was 5,752 in March.

3.13.2 DBS West

Kittiwakes were recorded in all months in the Array Area and 4km buffer. The Array Area peak was 4,253 in August.

3.14 Lesser black-backed gull**3.14.1 DBS East**

Lesser black-backed gulls were recorded in March, May, and August in the Array Area. The Array Area peak abundance was 8 in August.

3.14.2 DBS West

Lesser black-backed gulls were only recorded in the Array Area in April, with a peak abundance of 4.

3.15 Little auk**3.15.1 DBS East**

Little auks were only recorded in the Array Area and 4km buffer in December. The peak abundance in the Array Area was 8.

3.15.2 DBS West

Little auks were only recorded in the Array Area and 4km buffer in December. The peak abundance in the Array Area was 17.

3.16 Little gull**3.16.1 DBS East**

Little gulls were not recorded in the Array Area and only recorded in the 4km buffer in September with an estimated abundance of 125.

3.16.2 DBS West

Little gulls were recorded in the Array Area in September with a peak of abundance 4.

3.17 Puffin (including apportioned unidentified birds and accounting for availability bias)**3.17.1 DBS East**

Puffins were recorded in the Array Area in all months except June, July and November. The peak abundance in the Array Area was 120 in October.

3.17.2 DBS West

Puffins were recorded in the Array Area and the buffers in all months except November. The peak abundance in the Array Area was 101 in October.

3.18 Razorbill (including apportioned unidentified birds and accounting for availability bias)**3.18.1 DBS East**

Razorbills were recorded on the Array Area and 4km buffer in all months. Abundance peaked in the Array Area with 3,489 in August.

3.18.2 DBS West

Razorbills were recorded on the Array Area and buffers in all months. Abundance peaked in the Array Area with 3,690 in September.

3.19 Red-throated diver**3.19.1 DBS East**

No red-throated divers were recorded in DBS East.

3.19.2 DBS West

Red-throated divers were only recorded in the 4km buffer in May with a single individual. The Array Area and 4km buffer abundance peak was 4.

3.20 Summary tables of species abundance

The following tables present the combined abundance of birds on the water and in flight at DBS East and DBS West for key species in the assessment (gannet, kittiwake, guillemot, razorbill, puffin, great black-backed gull, herring gull and lesser black-backed gull). Note that seasonal peaks which wrap around the calendar year (i.e. nonbreeding or winter) are repeated for clarity. Seasons follow Furness (2015).

Table 3-1 Dogger Bank South: East- Summary abundance of Gannet recorded in flight and on the sea, S.D. and 95% confidence intervals, in the wind farm, wind farm and 2km buffer and wind farm and 4km buffer.

Month	Year	Array Area			Array Area & 2km buffer			Array Area & 4km buffer		
		Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)
Jan	2022	0 (0-0)	0 (0-0)		0 (0-0)	0 (0-0)		0 (0-0)	0 (0-0)	
	2023	0 (0-0)			0 (0-0)			0 (0-0)		
Feb	2022	0 (0-0)	70.76 (0-324.85)	70.76 (0-324.85)	0 (0-0)	75.09 (0-358.75)	75.09 (0-358.75)	8.39 (0-25.16)	83.02 (0-348.5)	83.02 (0-348.5)
	2023	141.51 (8.32-358.15)			150.17 (16.69-375.44)			157.66 (24.89-381.69)		
Mar	2021	595.92 (369.09-831.14)	597.8 (337.84-864.5)		697.45 (453.76-966.35)	754.92 (406.2-1218.59)		839.64 (587.75-1100.14)	1223.81 (575.49-2835.12)	
	2022	599.67 (304.06-903.73)			812.39 (372.14-1286.5)			1607.98 (558.35-3115.03)		
Apr	2021	249.63 (149.78-357.81)	357.59 (166.42-656.76)		359.01 (258.82-459.2)	529.91 (275.52-909.39)		425.21 (300.15-550.49)	766.36 (316.83-1349.21)	
	2022	465.55 (249.4-690.01)			700.82 (475.55-951.11)			1107.51 (807.73-1399.17)		
May	2021	126.94 (59.24-203.1)	84.3 (16.67-186.17)		168.61 (92.74-252.91)	134.42 (58.47-244.48)		210.7 (117.99-311.83)	176.46 (75.29-294.98)	
	2022	41.67 (16.67-75)			100.24 (50.12-158.71)			142.22 (66.93-234.25)		
Jun	2021	25.46 (0-50.92)	21.07 (0-42.43)		42.45 (16.98-76.41)	33.76 (8.36-67.92)		42.37 (8.47-76.26)	46.17 (16.66-83.3)	
	2022	16.68 (0-33.35)			25.07 (0-50.15)			49.98 (16.66-83.3)		
Jul	2021	25.24 (0-50.49)	67.1 (8.41-150.85)		42.21 (16.88-75.97)	96.95 (16.88-219.11)		58.89 (25.24-100.95)	156.76 (33.65-339.52)	
	2022	108.95 (58.67-159.24)			151.69 (84.27-227.54)			254.64 (161.27-356.49)		
Aug	2021	58.63 (25.13-100.5)	116.74 (25.13-258.11)	597.8 (337.84-864.5)	84.03 (42.01-134.44)	146.41 (50.42-300.66)		100.74 (50.37-159.51)	171.31 (58.77-333.63)	1223.81 (575.49-2835.12)
	2022	174.85 (83.26-274.76)			208.79 (116.92-317.37)			241.88 (141.79-350.31)		
Sep	2021	208.65 (141.88-275.42)	117.75 (8.95-267.07)		251.91 (167.94-335.87)	152.87 (26.92-319.29)	754.92 (406.2-1218.59)	343.87 (251.61-436.13)	229.88 (71.32-427.74)	
	2022	26.85 (0-53.69)			53.83 (17.94-89.72)			115.89 (62.4-178.29)		
Oct	2021	348.74 (240.79-456.68)	479.96 (257.4-862.55)	479.96 (257.4-862.55)	498.54 (365.6-631.49)	776.13 (382.22-1471.87)		706.05 (539.92-897.09)	971.71 (564.84-1680.69)	971.71 (564.84-1680.69)
	2022	611.17 (343.05-912.57)			1053.73 (643.94-1572.23)			1237.37 (785.9-1747.57)		
Nov	2021	84.42 (42.21-135.08)	251.45 (50.65-615.41)		143.98 (93.17-203.27)	313.38 (101.64-687.35)	776.13 (382.22-1471.87)	177.76 (118.51-245.48)	371.17 (126.97-785.5)	
	2022	418.48 (221.55-648.23)			482.78 (269.82-736.65)			564.58 (327.29-826.41)		
Dec	2021	8.48 (0-25.43)	44.77 (0-162.12)	70.76 (0-324.85)	8.49 (0-25.47)	49.05 (0-187.38)	75.09 (0-358.75)	8.45 (0-25.36)	77.58 (0-244.52)	83.02 (0-348.5)
	2022	81.06 (8.11-186.44)			89.62 (8.15-211.83)			146.71 (57.05-252.87)		

Table 3-2 Dogger Bank South: West- Summary abundance of Gannet recorded in flight and on the sea, S.D. and 95% confidence intervals, in the wind farm, wind farm and 2km buffer and wind farm and 4km buffer.

Month	Year	Array Area		Array Area & 2km buffer			Array Area & 4km buffer			
		Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)
Jan	2022	0 (0-0)	0 (0-0)		0 (0-0)	0 (0-0)		0 (0-0)	4.15 (0-16.58)	
	2023	0 (0-0)			0 (0-0)			8.29 (0-16.58)		
Feb	2022	0 (0-0)	16.75 (0-58.63)	64.13 (0-179.56)	0 (0-0)	20.94 (0-67)	86.2 (0-241.37)	0 (0-0)	21.01 (0-67.22)	138.33 (0-414.98)
	2023	33.5 (8.38-58.84)			41.87 (16.75-67)			42.01 (16.81-75.63)		
Mar	2021	85.62 (34.25-136.99)	46.94 (0-128.43)		112.61 (60.63-173.24)	115.02 (24.96-218.11)		164.03 (103.6-233.09)	232.75 (103.6-460.59)	
	2022	8.26 (0-16.52)			117.44 (8.39-234.89)			301.48 (125.61-494.09)		
Apr	2021	434.81 (259.21-610.41)	570.42 (275.94-907.75)		588.39 (411.88-790.13)	805.34 (428.69-1315.57)		675.71 (489.89-861.53)	989.93 (515.23-1666.16)	
	2022	706.03 (445.47-941.37)			1022.29 (636.63-1374.23)			1304.15 (925.53-1741.68)		
May	2021	224.97 (141.65-308.29)	171.39 (42.08-291.63)		287.34 (194.38-380.3)	318.61 (202.83-469.34)		555.1 (328.02-790.81)	544.91 (331.01-773.78)	
	2022	117.81 (33.66-218.8)			349.87 (204.8-494.94)			534.71 (331.01-746.9)		
Jun	2021	25.71 (17.14-34.28)	46.55 (17.14-101.1)		68.37 (25.64-111.11)	84.74 (25.64-126.39)		111.45 (51.44-180.26)	119.05 (60.01-180.04)	
	2022	67.4 (33.7-101.1)			101.11 (67.41-126.39)			126.64 (75.99-177.3)		
Jul	2021	58.91 (8.21-117.82)	141.81 (8.42-332.91)		76.61 (17.02-144.71)	215.32 (25.54-446.95)		85.13 (25.32-161.74)	248.46 (25.54-521.05)	
	2022	224.72 (99.87-349.56)			354.02 (244.44-463.6)			411.8 (285.53-546.26)		
Aug	2021	240.57 (157.61-315.23)	222.38 (127.62-306.93)		340.14 (265.48-414.81)	310.38 (204.08-398.22)	805.34 (428.69-1315.57)	391.15 (307.92-474.37)	365.98 (230.05-477.28)	989.93 (515.23-1666.16)
	2022	204.18 (119.11-289.26)			280.61 (195.58-374.15)			340.81 (213.01-485.66)		
Sep	2021	178.73 (136.18-221.29)	242.04 (127.23-474.99)	570.42 (275.94-907.75)	273.09 (213.35-333.04)	374.09 (221.88-704.15)		419.08 (316.45-521.71)	545.26 (322.97-1028.41)	
	2022	305.35 (118.75-491.96)			475.09 (237.55-729.6)			671.44 (322.97-1088.12)		
Oct	2021	261.54 (160.3-362.79)	617.24 (177.18-1209.83)		320.46 (185.53-463.82)	797.5 (202.4-1544.63)	797.5 (202.4-1544.63)	388.85 (253.6-541.01)	946.7 (270.5-1792.15)	946.7 (270.5-1792.15)
	2022	972.94 (685.29-1252.56)			1274.53 (995.78-1578.6)			1504.55 (1200.26-1834.41)		
Nov	2021	197.11 (59.13-315.63)	321.83 (68.99-572.93)	617.24 (177.18-1209.83)	226.88 (118.37-345.25)	434.25 (128.24-838.39)		294.96 (137.65-471.94)	491.92 (157.31-867.47)	
	2022	446.55 (303.32-598.21)			641.62 (427.75-864.26)			688.88 (493.27-910)		
Dec	2021	0 (0-0)	64.13 (0-179.56)	64.13 (0-179.56)	0 (0-0)	86.2 (0-241.37)	86.2 (0-241.37)	0 (0-0)	138.33 (0-414.98)	138.33 (0-414.98)
	2022	128.26 (68.41-188.11)			172.41 (94.82-249.99)			276.66 (129.68-440.92)		

Table 3-3 Dogger Bank South: East- Summary abundance of Kittiwake recorded in flight and on the sea, S.D. and 95% confidence intervals, in the wind farm, wind farm and 2km buffer and wind farm and 4km buffer.

Month	Year	Array Area			Array Area & 2km buffer			Array Area & 4km buffer			peak
		Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	
Jan	2022	670.5 (460.76-913.55)	947.07 (469.34-1961.18)		1061.22 (785.26-1353.68)	1348.23 (777.11-2537.14)		1369.92 (1044.14-1695.69)	2006.15 (1094.26-3677.46)		
	2023	1223.64 (477.72-2212.82)			1635.24 (775.26-2655.78)			2642.39 (1455.84-3913.09)			
Feb	2022	335.53 (218.09-452.96)	800.41 (234.87-2164.3)	947.07 (469.34-1961.18)	436.6 (302.05-587.74)	1119.35 (319.06-2569.66)	1348.23 (777.11-2537.14)	637.34 (478.01-796.68)	1517.69 (503.17-3319.28)	2006.15 (1094.26-3677.46)	
	2023	1265.28 (599.35-2347.64)			1802.1 (1051.02-2853.74)			2398.03 (1601.04-3551.41)			
Mar	2021	7889.65 (5404.41-10399.24)	5752.29 (2144.46-9946.21)		9747.53 (7192.16-12583.55)	7590.21 (3545.77-12058.78)		11729.77 (9050.9-14601.34)	9656.32 (5661.35-14198.31)		
	2022	3614.93 (1908.39-5701.32)			5432.89 (3249.16-8048.21)			7582.88 (5272.47-10122)			
Apr	2021	1422.9 (648.84-2621.97)	1393.15 (698.97-2471.57)		1911.94 (1077.03-3080.81)	1944.62 (1152.17-2963.92)		2342.85 (1475.75-3427.36)	2803.55 (1534.11-4063.65)		
	2022	1363.39 (1022.34-1770.75)			1977.3 (1518.44-2519.81)			3264.24 (2447.97-4222.07)			
May	2021	575.44 (372.34-787)	533.56 (333.35-761.61)		767.17 (522.69-1045.59)	746.94 (526.24-1011.65)		1129.33 (825.93-1474.88)	1125.19 (834.21-1447.33)		
	2022	491.69 (316.68-691.7)			726.72 (534.6-944.11)			1121.05 (844.97-1438.96)			
Jun	2021	50.92 (16.97-93.35)	87.99 (25.46-175.09)		76.41 (33.96-127.35)	151.03 (42.24-300.87)		482.99 (84.74-1160.88)	420.6 (110.16-1110.04)		
	2022	125.07 (75.04-183.43)			225.65 (150.44-325.95)			358.2 (249.7-499.81)			
Jul	2021	50.49 (16.83-92.56)	268.29 (16.83-695.82)		59.09 (25.32-101.29)	446.7 (25.32-1264.31)		807.61 (75.71-2195.69)	964.01 (84.13-2145.22)		
	2022	486.09 (251.42-745.89)			834.3 (421.15-1348.58)			1120.41 (644.87-1638.18)			
Aug	2021	192.63 (0-544.4)	2390.12 (8.38-10516.34)	5752.29 (2144.46-9946.21)	294.1 (16.81-747.85)	3028.4 (25.21-11350.44)	7590.21 (3545.77-12058.78)	352.59 (58.77-823.13)	3404.12 (75.35-11978.19)	9656.32 (5661.35-14198.31)	
	2022	4587.62 (457.72-11790.43)			5762.7 (1193.67-12753.32)			6455.65 (1701.49-13445.1)			
Sep	2021	333.84 (183.61-492.41)	278.78 (134.23-467.37)		612.97 (361.06-890.27)	454.52 (197.38-856.69)		838.71 (494.84-1241.49)	1221.65 (383.32-2897.19)		
	2022	223.72 (125.29-340.06)			296.08 (188.41-421.69)			1604.6 (365.49-3851.26)			
Oct	2021	398.56 (248.89-556.32)	391.84 (217.68-597.84)		1279.59 (398.83-2193.59)	1241.93 (415.45-2417.09)		1935.4 (897.09-3307)	1862.28 (894.44-3214.69)		
	2022	385.12 (192.56-627.92)			1204.26 (443.23-2450.33)			1789.17 (886.22-3152.15)			
Nov	2021	548.76 (363.02-751.37)	1669.31 (388.35-3717.29)		745.32 (508.18-948.59)	2451.07 (575.93-5818.11)		973.44 (770.08-1210.45)	3158.24 (795.68-7036.98)		
	2022	2789.87 (1805-3905.81)			4156.82 (2536.64-6112.48)			5343.04 (3583.64-7282.65)			
Dec	2021	118.67 (42.17-220.6)	1255 (50.86-3437.02)	1669.31 (388.35-3717.29)	144.31 (59.21-246.18)	2047.84 (67.91-5148.99)	2451.07 (575.93-5818.11)	169.08 (76.09-287.66)	4212.81 (84.54-11516.77)	4212.81 (84.54-11516.77)	
	2022	2391.32 (1321.31-3632.17)			3951.36 (2647-5361.02)			8256.53 (5273.22-12087.31)			

Table 3-4 Dogger Bank South: West- Summary abundance of Kittiwake recorded in flight and on the sea, S.D. and 95% confidence intervals, in the wind farm, wind farm and 2km buffer and wind farm and 4km buffer.

Month	Year	Array Area			Array Area & 2km buffer			Array Area & 4km buffer		
		Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)
Jan	2022	462.45 (311.1-630.62)	678.9 (336.33-1191.07)		1119.81 (704.12-1645.78)	1291.01 (746.54-1900.04)		1450.55 (1012.01-2024.02)	1973.05 (1054.18-3440.93)	
	2023	895.35 (615.86-1240.35)			1462.2 (966.33-1999.38)			2495.56 (1583.56-3665.41)		
Feb	2022	395.43 (247.14-568.43)	1299.06 (271.65-3501.05)	1299.06 (271.65-3501.05)	545.57 (363.71-735.69)	1637.83 (388.51-4095.15)	1637.83 (388.51-4095.15)	779.66 (580.6-1003.6)	2011.57 (605.27-4655.16)	2011.57 (605.27-4655.16)
	2023	2202.68 (970.9-3811.98)			2730.1 (1422.62-4371.51)			3243.49 (1949.24-4916.91)		
Mar	2021	1780.88 (1198.67-2475.03)	1278.64 (437.76-2354.74)		2728.54 (1801.7-3793.98)	2748.42 (1081.94-5185.53)		4187 (2969.54-5542.39)	4178.71 (2386.68-6640.84)	
	2022	776.4 (404.51-1230.68)			2768.3 (981.28-5797.28)			4170.41 (2244.32-7126.76)		
Apr	2021	2082.08 (1446.58-2817.91)	2528.75 (1538.35-4227.99)		3152.11 (2193.66-4320.49)	3721.2 (2294.53-5689.86)		3716.4 (2685.73-4916.84)	4689.48 (2803.98-7076.09)	
	2022	2975.42 (1806.68-4572.6)			4290.28 (2899.08-6092.28)			5662.56 (4139.22-7387.41)		
May	2021	1049.86 (733.24-1416.48)	949.91 (530.17-1397.02)		1377.54 (997.03-1808.76)	1311.72 (878.95-1783.2)		1926.04 (1530.53-2380.21)	1731.14 (1188.04-2304.52)	
	2022	849.95 (496.3-1338.04)			1245.89 (836.28-1732.3)			1536.24 (1128.84-2011.54)		
Jun	2021	257.12 (111.42-463.03)	406.57 (119.99-893.01)		376.05 (188.02-607.02)	562.99 (213.66-1112.25)		522.98 (265.78-806.11)	776.5 (300.07-1502.82)	
	2022	556.03 (219.04-968.83)			749.93 (412.67-1179.66)			1030.03 (548.57-1637.91)		
Jul	2021	235.65 (100.99-403.97)	783.65 (117.82-1806.05)		331.98 (187.27-493.72)	983.61 (212.81-2124.11)		383.07 (238.35-553.32)	1221.03 (255.38-2655.68)	
	2022	1331.65 (807.1-1881.16)			1635.23 (1078.91-2250.76)			2059 (1420.29-2806.96)		
Aug	2021	33.18 (0-74.66)	4253.42 (0-17216.18)	4253.42 (0-17216.18)	41.48 (8.3-91.26)	5522.44 (8.3-20691.75)	5522.44 (8.3-20691.75)	74.9 (24.97-133.16)	6521.4 (33.29-22294.85)	6521.4 (33.29-22294.85)
	2022	8473.67 (1870.63-19339.27)			11003.4 (2575.26-23184.53)			12967.89 (4114.66-24303.29)		
Sep	2021	187.24 (51.07-357.67)	3477.95 (68.09-17855.75)		247.49 (85.13-452.51)	4467.43 (102.41-19360.16)		427.63 (222.37-650)	4752.42 (256.58-19472.23)	
	2022	6768.67 (440.85-18729.19)			8687.37 (966.94-21509.31)			9077.21 (1121.69-21750.03)		
Oct	2021	455.59 (210.92-801.51)	794.64 (227.8-1463.85)		581.89 (303.59-919.21)	1122.34 (337.33-2169.24)		650.9 (363.28-989.03)	1284.81 (397.3-2425.88)	
	2022	1133.69 (795.27-1540)			1662.8 (1122.6-2253.85)			1918.72 (1377.76-2552.66)		
Nov	2021	325.24 (197.11-463.46)	1013.59 (216.82-2123.21)		394.58 (256.47-552.65)	1685.85 (286.07-3729.96)		629.25 (422.78-894.71)	2313.22 (442.44-4762.6)	
	2022	1701.94 (1238.33-2182.4)			2977.12 (2189.85-3910.26)			3997.18 (3206.25-4975.64)		
Dec	2021	110.97 (0-273.16)	2329.96 (8.54-6405.08)	3477.95 (68.09-17855.75)	110.59 (0-280.93)	3197.4 (8.51-8206.97)	4467.43 (102.41-19360.16)	153.49 (25.58-324.04)	4498.92 (51.16-11049.39)	4752.42 (256.58-19472.23)
	2022	4548.95 (2666.95-6687.04)			6284.21 (4327.18-8758.46)			8827.06 (6501.2-11550.4)		

Table 3-5 Dogger Bank South: East- Summary abundance of Guillemot recorded in flight and on the sea, S.D. and 95% confidence intervals, in the wind farm, wind farm and 2km buffer and wind farm and 4km buffer.

Month	Year	Array Area			Array Area & 2km buffer			Array Area & 4km buffer		
		Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)
Jan	2022	628.59 (385.27-892.19)	1755.85 (283.2-3865.69)		1111.35 (790.77-1474.68)	2696.66 (556.72-5544.15)		1653.92 (1219.77-2129.95)	4054.21 (909.67-8029.73)	
	2023	2883.1 (2178.93-3733.42)			4281.96 (3380.49-5302.73)			6454.5 (5265.88-7737.63)		
Feb	2022	3598.53 (2627.44-4568.99)	3663.9 (1906.89-5972.19)	8760.2 (6834.3-11021.7)	5020.94 (3830.41-6082.06)	5326.25 (2632.39-8860.96)	12551.79 (10225.74-14834.37)	6499.22 (5317.54-7783.65)	7402.61 (3545.04-13121.69)	16512.02 (13461.48-19038.64)
	2023	3729.26 (2730.35-4728.5)			5631.56 (4223.34-7026.53)			8305.99 (6305.15-10521.76)		
Mar	2021	7940.01 (5879.52-9929.9)	6698.09 (2564.43-10942.41)		10470.19 (8186.69-12805.08)	9030.5 (3797.86-14575.18)		13325.08 (10859.17-15669.47)	11880 (5314.37-18634.66)	
	2022	5456.18 (2905.92-8465.36)			7590.81 (4586-11238.7)			10434.92 (6736.11-14765.12)		
Apr	2021	3361.72 (2155.43-4549.28)	2474.79 (1554.74-3756.84)		5802.61 (4098.2-7755)	3927.5 (1906.26-6854.95)		11272.37 (6682.72-17626.6)	7101.76 (3044.28-15289.59)	
	2022	1587.85 (1139.07-2060.57)			2052.39 (1445.71-2710.71)			2931.16 (2269.77-3592.85)		
May	2021	186.17 (99.29-297.87)	1580.65 (104.97-3572.15)		252.91 (144.52-373.35)	2415.2 (162.04-5264.26)		505.67 (337.11-674.23)	3578.34 (324.4-7440.88)	
	2022	2975.14 (2265.68-3673.15)			4577.49 (3787.3-5390.28)			6651 (5840.74-7483.81)		
Jun	2021	203.68 (101.84-320.07)	193.56 (102.38-294.33)		263.2 (144.76-394.79)	302.93 (162.24-466.82)		398.26 (241.8-597.39)	494.85 (237.67-799.32)	
	2022	183.43 (103.18-263.68)			342.66 (212.39-472.64)			591.45 (409.46-773.43)		
Jul	2021	2827.28 (2205.28-3404.05)	3131.71 (2308.89-4206.68)	6698.09 (2564.43-10942.41)	4490.63 (3701.91-5416.18)	4617.6 (3552.72-5743)	9030.5 (3797.86-14575.18)	6730.1 (5463.64-8190.47)	6980.92 (5515.28-8730.25)	11880 (5314.37-18634.66)
	2022	3436.14 (2456.07-4451.63)			4744.57 (3515.98-6008.99)			7231.74 (5537.93-9310.57)		
Aug	2021	1666.69 (1056.19-2336.34)	5812.28 (930.48-16074.02)		2293.97 (1576.13-3105.83)	7678.05 (1316.79-19141.4)		4180.71 (2856.69-5795.29)	10989.81 (2288.97-26165.24)	
	2022	9957.88 (3876.88-16622.08)			13062.12 (6824.41-19137.57)			17798.91 (11450.6-26293.06)		
Sep	2021	1226.85 (854.66-1585.61)	1007.18 (511.33-1618.47)		2225.16 (1685.33-2778.16)	1646.42 (745.83-2833.11)		3950.3 (3078.33-4994.03)	2764.08 (1216.36-4941.12)	
	2022	787.51 (519.42-1072.35)			1067.67 (764.9-1338.58)			1577.86 (1217.2-1953.54)		
Oct	2021	647.65 (442.3-884.6)	1784.78 (361.66-3780.31)		1354.38 (1032.71-1693.39)	2910.08 (805.76-5689.35)		2325.8 (1412.09-3738.31)	4247.96 (1121.97-7704.25)	
	2022	2921.91 (2159.67-3730.34)			4465.79 (3634.94-5400.78)			6170.12 (5229.41-7214.91)		
Nov	2021	9708.77 (7979.2-11422.48)	8760.2 (6834.3-11021.7)		14466.06 (12546.68-16238.23)	12551.79 (10225.74-14834.37)		19629.63 (17785.37-21572.2)	16512.02 (13461.48-19038.64)	
	2022	7811.63 (5770.89-10093.54)			10637.52 (8547.84-13111.4)			13394.41 (11290.96-15788.6)		
Dec	2021	1652.94 (1062.6-2314.12)	3128.62 (726.34-6532.81)	8760.2 (6834.3-11021.7)	2139.22 (1496.86-2852.29)	4238.84 (997.79-8537.2)	12551.79 (10225.74-14834.37)	3212.61 (2579.14-3891.33)	6525.18 (1808.97-12210.56)	16512.02 (13461.48-19038.64)
	2022	4604.31 (3248.66-5886.98)			6338.47 (5140.34-7786.15)			9837.75 (8553.08-11347.17)		

Table 3-6 Dogger Bank South: West- Summary abundance of Guillemot recorded in flight and on the sea, S.D. and 95% confidence intervals, in the wind farm, wind farm and 2km buffer and wind farm and 4km buffer.

Month	Year	Array Area			Array Area & 2km buffer			Array Area & 4km buffer		
		Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)
Jan	2022	1950.71 (1042.16-2805.82)	2232.14 (778.95-3918.24)	9547.59 (1047.62-23953.7)	3851.46 (2013.84-5538.68)	3664.68 (1617.43-5461.69)	12498.37 (1753.76-31199.17)	5001.01 (3382.43-6717.66)	4792.94 (2547.36-7208.36)	17079.17 (2596.83-44349.82)
	2023	2513.56 (1938.32-3101.62)			3477.9 (2784.56-4222.24)			4584.86 (3614.25-5555.48)		
Feb	2022	2545.58 (1805.84-3307.63)	7127.07 (1205.56-15589.44)	9547.59 (1047.62-23953.7)	3686.7 (2499.12-4894.41)	9895.47 (1741.92-20452.88)	12498.37 (1753.76-31199.17)	5590.32 (4308.33-6725.2)	13399.52 (2974-26310.5)	17079.17 (2596.83-44349.82)
	2023	11708.55 (8704.42-14750.55)			16104.23 (12561.23-19348.76)			21208.73 (17775.3-24655.14)		
Mar	2021	4340.89 (3246.55-5550.37)	3409.38 (871.11-6782.96)	9547.59 (1047.62-23953.7)	8081.69 (6366.95-9708.96)	5798.29 (1802.85-10832.08)	12498.37 (1753.76-31199.17)	14175.39 (10831.81-17293.01)	11140.87 (3634.98-19523.04)	17079.17 (2596.83-44349.82)
	2022	2477.87 (1485.77-3583.38)				3514.9 (2555.57-4473.51)			8106.35 (4551.4-11608.1)	
Apr	2021	8570.8 (6315.84-10955.71)	6142.93 (3813.62-9054.17)	9547.59 (1047.62-23953.7)	11935.99 (9085.04-14787.42)	8783.49 (5855.87-12269.43)	12498.37 (1753.76-31199.17)	14848.71 (11446.53-18057.51)	11349.44 (8216.07-14751.85)	17079.17 (2596.83-44349.82)
	2022	3715.07 (2840.19-4653.66)			5630.99 (4263.64-7023.2)			7850.17 (5996.17-9729.05)		
May	2021	783.23 (544.28-1022.18)	3610.49 (504.62-7610.24)	9547.59 (1047.62-23953.7)	1005.69 (761.06-1277.5)	5025.6 (677.41-10613.91)	12498.37 (1753.76-31199.17)	1606.43 (1181.26-2044.55)	7279.18 (1106.24-14559.49)	17079.17 (2596.83-44349.82)
	2022	6437.74 (5059.04-7713.89)			9045.52 (7512.77-10637.19)				12951.94 (11215.46-14607.39)	
Jun	2021	822.79 (585.93-1047.19)	1182.25 (600.95-2339.95)	9547.59 (1047.62-23953.7)	1495.65 (1177.68-1801.84)	1733.69 (1134.32-2773.31)	12498.37 (1753.76-31199.17)	1929.02 (1384.63-2508.9)	2184.5 (1406.77-3435.74)	17079.17 (2596.83-44349.82)
	2022	1541.71 (708.96-2408.21)			1971.72 (1081.07-2884.35)			2439.98 (1456.93-3603.77)		
Jul	2021	4359.52 (3481.85-5201.73)	4401.95 (2742.2-6185.51)	6142.93 (3813.62-9054.17)	6171.51 (5301.47-7065.04)	6465.79 (4402.19-9047.95)	8783.49 (5855.87-12269.43)	8793.51 (7598.62-9976.81)	8539.96 (5551.48-10873.84)	11349.44 (8216.07-14751.85)
	2022	4444.38 (2527.81-6384.03)			6760.08 (4085.82-9375.38)			8286.41 (5260.18-11417.67)		
Aug	2021	1509.76 (1113.13-1880.81)	9547.59 (1047.62-23953.7)	9547.59 (1047.62-23953.7)	2513.75 (1978.03-3145.62)	12498.37 (1753.76-31199.17)	12498.37 (1753.76-31199.17)	3919.8 (2904.75-4948.75)	17079.17 (2596.83-44349.82)	17079.17 (2596.83-44349.82)
	2022	17585.41 (9866.63-25059.79)			22483 (13049.75-32163.24)			30238.53 (14717.99-45252.25)		
Sep	2021	706.41 (461.88-950.94)	921.5 (494.85-1440.5)	9547.59 (1047.62-23953.7)	1356.9 (1010.14-1719.12)	1654.09 (1042.99-2439.15)	12498.37 (1753.76-31199.17)	2514.49 (1801.93-3168.54)	2625.62 (1872.27-3346.51)	17079.17 (2596.83-44349.82)
	2022	1136.59 (819.4-1480.55)				1951.27 (1406.06-2482.12)			2736.76 (2059.77-3501.25)	
Oct	2021	1290.85 (949.16-1670.51)	1779.11 (818.34-3220.51)	9547.59 (1047.62-23953.7)	1964.92 (1464.31-2536.54)	2603.06 (1274.5-4502.6)	12498.37 (1753.76-31199.17)	2662.77 (2077.34-3267.09)	3495.23 (1728.76-5837.87)	17079.17 (2596.83-44349.82)
	2022	2267.38 (1539.58-3009.17)				3241.19 (2228.83-4212.52)			4327.7 (3380.67-5287.9)	
Nov	2021	4809.57 (3419.27-6126.26)	4367.91 (3240.73-5525.44)	9547.59 (1047.62-23953.7)	6885.34 (5636.8-8225.68)	6317.13 (4937.22-7761.64)	12498.37 (1753.76-31199.17)	10235.14 (8475.92-11974.92)	8944.66 (7237.39-10604.49)	17079.17 (2596.83-44349.82)
	2022	3926.26 (3026.44-4923.02)			5748.93 (4242.34-7117.44)			7654.18 (6196.84-8984.79)		
Dec	2021	1246.31 (681.94-1811.27)	4069.07 (460.74-9607.82)	9547.59 (1047.62-23953.7)	2730.63 (1505.67-3981.74)	6770.25 (964.24-14657.34)	12498.37 (1753.76-31199.17)	3700.84 (2275.33-5181.86)	8736.57 (1335.7-18884.58)	17079.17 (2596.83-44349.82)
	2022	6891.83 (4624.95-9185.09)			10809.88 (8176.22-13643.96)			13772.29 (10357.66-17264.98)		

Table 3-7 Dogger Bank South: East- Summary abundance of Razorbill recorded in flight and on the sea, S.D. and 95% confidence intervals, in the wind farm, wind farm and 2km buffer and wind farm and 4km buffer.

Month	Year	Array Area farm			Array Area & 2km buffer			Array Area & 4km buffer		
		Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)
Jan	2022	352.01 (156.45-528.51)	1194.31 (130.53-3132.61)		584.92 (322.72-847.13)	1716.97 (237.73-4277.29)		785.2 (517.08-1110.77)	2365.97 (386.21-5447.41)	
	2023	2036.61 (1024.48-3209.51)			2849.02 (1678.93-4192.66)			3946.75 (2529.65-5376.5)		
Feb	2022	771.71 (491.09-1122.49)	1505.47 (322.69-3495.41)		1007.55 (623.72-1415.36)	1988.84 (384.82-4397.36)		1056.65 (680.36-1455.83)	2955.4 (402.16-6675.14)	
	2023	2239.22 (1394.92-3194.26)			2970.12 (2003.94-3972.09)			4854.15 (3368.66-6433.21)		
Mar	2021	3441.23 (2199.03-4818.56)	2379.41 (423.06-4972.75)	2379.41 (423.06-4972.75)	5100.65 (3694.7-6539.7)	3578.51 (548-7055.81)	3578.51 (548-7055.81)	6809.48 (5430.96-8236.23)	4779.98 (882.98-9016.24)	4779.98 (882.98-9016.24)
	2022	1317.59 (455.17-2420.17)			2056.37 (601.87-3912.13)			2750.49 (1068.15-4833.38)		
Apr	2021	449.34 (183.06-798.82)	341.06 (142.03-625.52)		768.12 (392.23-1176.69)	555.09 (221.94-1006.84)		1659.17 (692.66-2980.07)	1079.4 (413.65-2440.64)	
	2022	232.77 (99.76-387.96)			342.07 (158.82-525.62)			499.63 (290.48-743.63)		
May	2021	203.1 (101.55-315.93)	239.05 (109.65-431.92)		337.22 (197.68-465.13)	364.91 (197.1-575.01)		379.25 (201.48-557.03)	503.35 (222.31-871.69)	
	2022	275.01 (126.93-444.25)			392.59 (227.03-578.56)			627.45 (382.85-893.32)		
Jun	2021	8.49 (0-25.46)	4.24 (0-16.97)		42.45 (0-99.05)	25.4 (0-76.51)		50.84 (12.71-101.68)	58.74 (10.8-127.37)	
	2022	0 (0-0)			8.36 (0-16.92)			66.64 (19.04-123.76)		
Jul	2021	16.83 (0-33.66)	96.41 (0-267.69)	341.06 (142.03-625.52)	16.88 (0-33.76)	202.27 (0-557.56)	555.09 (221.94-1006.84)	16.83 (0-42.06)	318.22 (0-837.69)	1079.4 (413.65-2440.64)
	2022	176 (77-286)			387.66 (188.29-598.1)			619.62 (315.44-867.75)		
Aug	2021	33.5 (0-83.75)	3488.69 (0-11538.87)		100.83 (72.02-144.05)	4685.63 (53.87-14598.65)		142.72 (57.09-242.62)	5530.3 (53.99-16144.67)	
	2022	6943.87 (2626.56-12370.05)			9270.43 (4249.39-15646.8)			10917.89 (5431.68-16821.14)		
Sep	2021	200.3 (100.15-325.49)	261.23 (108.52-421.79)		260.3 (141.98-390.45)	448.66 (166.45-766.12)		419.35 (209.68-666.03)	713.34 (240.62-1252.19)	
	2022	322.16 (199.43-460.23)			637.01 (452.63-821.04)			1007.33 (707.85-1306.81)		
Oct	2021	58.12 (0-116.25)	1180.24 (10.5-4383.16)	3488.69 (0-11538.87)	465.31 (62.04-868.57)	2072.49 (52.82-5795.22)	4685.63 (53.87-14598.65)	722.66 (123.01-1506.82)	2827.71 (116.03-7284.04)	5530.3 (53.99-16144.67)
	2022	2302.36 (767.45-4762.42)			3679.68 (1942.05-5970.02)			4932.75 (3105.04-7388.98)		
Nov	2021	2490.51 (1831.26-3266.96)	2430.95 (1654.89-3154.07)		3464.06 (2856.33-4072.17)	3376.75 (2580.25-4324.33)		4401.64 (3630.22-5188.57)	4332.31 (3264.09-5585.2)	
	2022	2371.39 (1834.19-2919.49)			3289.45 (2675.88-3880.71)			4262.97 (3522.56-5082.19)		
Dec	2021	84.77 (21.19-169.53)	642.24 (11.97-1752.12)	2430.95 (1654.89-3154.07)	186.76 (46.69-326.82)	875.5 (37.66-2252.98)	3376.75 (2580.25-4324.33)	338.17 (105.68-634.07)	1579.13 (79.07-3696.99)	4332.31 (3264.09-5585.2)
	2022	1199.71 (710.94-1777.63)			1564.25 (1050.45-2237.91)			2820.1 (2090.76-3707.46)		

Table 3-8 Dogger Bank South: West- Summary abundance of Razorbill recorded in flight and on the sea, S.D. and 95% confidence intervals, in the wind farm, wind farm and 2km buffer and wind farm and 4km buffer.

Month	Year	Array Area			Array Area & 2km buffer			Array Area & 4km buffer			
		Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	peak
Jan	2022	1118.3 (521.87-1789.9)	3068.6 (330.6-7144.05)	3068.6 (330.6-7144.05)	2036.02 (912.7-3440.16)	4454.6 (639.26-9540.61)	4454.6 (639.26-9540.61)	2842.06 (1681.93-4274.46)	6055.64 (1083.6-12554.61)	6055.64 (1083.6-12554.61)	peak
	2023	5018.91 (3345.94-6902.75)			6873.18 (5037.11-8794.11)			9269.22 (6851.83-11638.82)			
Feb	2022	420.15 (180.06-700.74)	2165.69 (132.52-5217.39)	3068.6 (330.6-7144.05)	520.77 (270.03-848.66)	3132.85 (195.7-7299.13)	4454.6 (639.26-9540.61)	572.3 (305.23-858.45)	4201.87 (219.06-9493.48)	6055.64 (1083.6-12554.61)	peak
	2023	3911.23 (2701.45-5262.24)			5744.93 (4365.07-7460.01)			7831.43 (6077.17-9573.39)			
Mar	2021	599.33 (283.89-977.86)	522.68 (99.76-1179.46)	3068.6 (330.6-7144.05)	1013.46 (598.11-1495.68)	2771.7 (794.81-8966.96)	4454.6 (639.26-9540.61)	1968.32 (1339.11-2645.94)	3525.77 (1368.53-8939.29)	6055.64 (1083.6-12554.61)	peak
	2022	446.02 (137.24-789.11)			4529.95 (759.51-10961.38)			5083.22 (1420.31-11440.35)			
Apr	2021	2550.33 (1515.98-3756.57)	1687.02 (569.43-3184.59)	3068.6 (330.6-7144.05)	3572.39 (2516.51-4751.46)	2280.58 (721.92-4109.28)	4454.6 (639.26-9540.61)	4189.4 (2822.9-5735.7)	2687.88 (843.2-4807.19)	6055.64 (1083.6-12554.61)	peak
	2022	823.7 (366.09-1372.84)			988.78 (454.33-1636.59)			1186.36 (501.92-1847.98)			
May	2021	308.29 (159.57-502.69)	267.75 (123.41-466.53)	3068.6 (330.6-7144.05)	439.46 (213.45-728.25)	386.13 (209.66-617.33)	4454.6 (639.26-9540.61)	597.16 (334.41-860.2)	519.25 (317.63-786.88)	6055.64 (1083.6-12554.61)	peak
	2022	227.21 (108.2-346.5)			332.81 (193.24-483.11)			441.35 (294.23-588.47)			
Jun	2021	0 (0-0)	46.34 (0-154.45)	3068.6 (330.6-7144.05)	8.55 (0-25.64)	71.68 (0-214.83)	4454.6 (639.26-9540.61)	68.59 (0-146.97)	114.5 (10.06-257.66)	6055.64 (1083.6-12554.61)	peak
	2022	92.67 (20.59-164.75)			134.82 (51.85-238.53)			160.41 (50.13-280.97)			
Jul	2021	33.66 (0-89.77)	237.39 (0-759.07)	1687.02 (569.43-3184.59)	34.05 (0-90.8)	278.32 (0-861.76)	2280.58 (721.92-4109.28)	34.05 (0-79.45)	344.78 (0-1022.96)	2687.88 (843.2-4807.19)	peak
	2022	441.11 (105.03-798.46)			522.6 (185.09-925.71)			655.52 (268.39-1063.87)			
Aug	2021	16.59 (0-41.48)	1229.15 (0-4618.6)	3068.6 (330.6-7144.05)	16.59 (0-41.48)	1628.19 (0-5624.15)	4454.6 (639.26-9540.61)	158.12 (36.49-316.25)	2554.21 (42.67-8456.18)	6055.64 (1083.6-12554.61)	peak
	2022	2441.71 (674.15-5194.25)			3239.8 (1162.47-6067.01)			4950.29 (1620.81-9378.9)			
Sep	2021	59.58 (11.92-119.15)	3689.79 (12.4-18245.08)	3068.6 (330.6-7144.05)	93.87 (26.82-174.34)	4886.92 (40.68-20574.46)	4454.6 (639.26-9540.61)	145.4 (66.09-224.7)	5461.23 (80.91-23947.63)	6055.64 (1083.6-12554.61)	peak
	2022	7320 (432.46-20131.24)			9679.97 (1105.51-22758.38)			10777.06 (1581.04-27295.18)			
Oct	2021	329.04 (138.54-571.49)	536.78 (116.16-1423.68)	3689.79 (12.4-18245.08)	446.96 (231.76-679.13)	772.12 (205.76-1840.58)	4886.92 (40.68-20574.46)	574.82 (313.54-923.2)	1048.14 (257.23-2276.29)	5461.23 (80.91-23947.63)	peak
	2022	744.51 (267.56-1384.33)			1097.28 (471.95-1828.8)			1521.46 (889.47-2176.85)			
Nov	2021	206.97 (86.24-362.2)	748.03 (67.81-1762.3)	3068.6 (330.6-7144.05)	266.34 (133.17-432.8)	958.72 (124.02-2151.39)	4454.6 (639.26-9540.61)	432.61 (216.3-682.19)	1292.14 (208.38-2751.82)	6055.64 (1083.6-12554.61)	peak
	2022	1289.09 (885.55-1793.52)			1651.11 (1197.63-2151.09)			2151.67 (1639.63-2744.84)			
Dec	2021	1220.7 (544.96-2027.24)	3329.46 (392.66-7735.54)	3329.46 (392.66-7735.54)	1667.3 (915.84-2560.24)	5066.23 (581.89-11485.49)	5066.23 (581.89-11485.49)	1944.22 (984.74-3029.95)	6375.55 (563.36-14744.61)	6375.55 (563.36-14744.61)	peak
	2022	5438.22 (3801.64-7327.76)			8465.15 (6119.65-11046.04)			10806.88 (7615.86-14034.89)			

Table 3-9 Dogger Bank South: East- Summary abundance of Puffin recorded in flight and on the sea, S.D. and 95% confidence intervals, in the wind farm, wind farm and 2km buffer and wind farm and 4km buffer.

Month	Year	Array Area			Array Area & 2km buffer			Array Area & 4km buffer		
		Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)
Jan	2022	0 (0-0)	12.57 (0-41.91)	120.43 (0-355.93)	0 (0-0)	25.29 (0-80.92)	178.7 (0-468.89)	0 (0-0)	25.25 (0-90.88)	249.27 (11.15-631.22)
	2023	25.14 (8.38-50.29)			50.57 (20.23-91.03)			50.49 (10.1-91.14)		
Feb	2022	0 (0-0)	29.13 (0-97.12)	120.43 (0-355.93)	0 (0-0)	29.2 (0-97.34)	178.7 (0-468.89)	0 (0-0)	37.34 (0-130.69)	249.27 (11.15-631.22)
	2023	58.27 (19.18-106.83)			58.4 (19.47-107.07)			74.68 (18.67-149.36)		
Mar	2021	50.36 (10.07-100.72)	25.18 (0-90.65)	120.43 (0-355.93)	67.22 (38.17-105.64)	33.61 (0-105.64)	178.7 (0-468.89)	117.55 (48.98-195.92)	58.77 (0-186.12)	249.27 (11.15-631.22)
	2022	0 (0-0)			0 (0-0)			0 (0-0)		
Apr	2021	58.25 (19.42-106.79)	33.28 (0-95.1)	50 (0-130.01)	66.79 (28.63-104.96)	37.57 (0-103.32)	62.65 (0-173.49)	100.05 (50.03-160.08)	54.19 (0-147.8)	83.66 (0-246.06)
	2022	8.31 (0-16.63)			8.34 (0-25.03)			8.33 (0-24.98)		
May	2021	0 (0-0)	50 (0-130.01)	50 (0-130.01)	0 (0-0)	62.65 (0-173.49)	62.65 (0-173.49)	0 (0-0)	83.66 (0-246.06)	83.66 (0-246.06)
	2022	100 (60-140.01)			125.3 (67.47-192.76)			167.32 (88.58-265.74)		
Jun	2021	0 (0-0)	0 (0-0)	50 (0-130.01)	0 (0-0)	0 (0-0)	62.65 (0-173.49)	0 (0-0)	0 (0-0)	83.66 (0-246.06)
	2022	0 (0-0)			0 (0-0)			0 (0-0)		
Jul	2021	0 (0-0)	0 (0-0)	50 (0-130.01)	0 (0-0)	0 (0-0)	62.65 (0-173.49)	0 (0-0)	42.44 (0-226.35)	83.66 (0-246.06)
	2022	0 (0-0)			0 (0-0)			84.88 (0-235.78)		
Aug	2021	0 (0-0)	4.16 (0-24.98)	50 (0-130.01)	0 (0-0)	4.18 (0-25.06)	62.65 (0-173.49)	0 (0-0)	4.17 (0-25.02)	83.66 (0-246.06)
	2022	8.33 (0-24.98)			8.35 (0-25.06)			8.34 (0-25.02)		
Sep	2021	0 (0-0)	4.47 (0-17.9)	50 (0-130.01)	16.79 (8.4-33.59)	12.88 (0-33.59)	62.65 (0-173.49)	16.77 (0-41.94)	12.84 (0-35.66)	83.66 (0-246.06)
	2022	8.95 (0-26.85)			8.97 (0-26.92)			8.91 (0-26.74)		
Oct	2021	232.49 (105.68-380.44)	120.43 (0-355.93)	120.43 (0-355.93)	340.67 (204.12-499.65)	178.7 (0-468.89)	178.7 (0-468.89)	473.47 (304.37-665.11)	249.27 (11.15-631.22)	249.27 (11.15-631.22)
	2022	8.37 (0-25.12)			16.73 (0-41.81)			25.08 (0-58.52)		
Nov	2021	0 (0-0)	0 (0-0)	120.43 (0-355.93)	0 (0-0)	4.09 (0-24.55)	178.7 (0-468.89)	0 (0-0)	12.27 (0-49.09)	249.27 (11.15-631.22)
	2022	0 (0-0)			8.18 (0-24.55)			24.55 (0-49.09)		
Dec	2021	0 (0-0)	12.16 (0-48.64)	120.43 (0-355.93)	0 (0-0)	20.37 (0-81.47)	178.7 (0-468.89)	0 (0-0)	36.68 (0-119.2)	249.27 (11.15-631.22)
	2022	24.32 (0-56.74)			40.74 (0-81.47)			73.36 (18.34-128.6)		

Table 3-10 Dogger Bank South: West- Summary abundance of Puffin recorded in flight and on the sea, S.D. and 95% confidence intervals, in the wind farm, wind farm and 2km buffer and wind farm and 4km buffer.

Month	Year	Array Area			Array Area & 2km buffer			Array Area & 4km buffer		
		Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)
Jan	2022	0 (0-0)			0 (0-0)	8.26 (0-33.04)		0 (0-0)	12.44 (0-33.16)	
	2023	16.43 (0-32.86)	8.21 (0-32.86)		16.52 (0-33.04)			24.87 (16.58-33.16)		
Feb	2022	0 (0-0)			0 (0-0)	4.19 (0-16.75)		0 (0-0)	8.4 (0-33.61)	
	2023	8.38 (0-16.75)	4.19 (0-16.75)		8.37 (0-16.75)			16.81 (0-33.61)		
Mar	2021	68.5 (29.36-117.42)		101.28 (10.15-263.21)	77.96 (38.98-116.94)	38.98 (0-116.94)	198.22 (31.32-396.35)	103.6 (51.8-145.03)	51.8 (0-145.03)	278.95 (61.99-547.58)
	2022	0 (0-0)	34.25 (0-107.64)		0 (0-0)			0 (0-0)		
Apr	2021	167.24 (118.05-216.42)			218.55 (168.88-268.22)	109.27 (0-258.28)		287.18 (217.86-366.4)	143.59 (0-346.59)	
	2022	0 (0-0)	83.62 (0-206.58)		0 (0-0)			0 (0-0)		
May	2021	0 (0-0)			0 (0-0)	55.47 (0-181.53)		0 (0-0)	67.9 (0-194)	
	2022	109.4 (49.73-179.02)	54.7 (0-159.13)		110.94 (40.34-181.53)			135.8 (67.9-203.94)		
Jun	2021	0 (0-0)			0 (0-0)			0 (0-0)	8.44 (0-33.77)	
	2022	16.85 (0-33.7)	8.42 (0-33.7)		16.85 (0-33.7)	8.43 (0-33.7)		16.89 (0-33.77)		
Jul	2021	0 (0-0)		83.62 (0-206.58)	0 (0-0)	63.22 (0-213.97)	109.27 (0-258.28)	51.08 (0-102.15)	88.57 (0-225.53)	143.59 (0-346.59)
	2022	41.61 (0-83.23)	20.81 (0-62.42)		126.44 (19.45-223.69)			126.06 (19.39-223.27)		
Aug	2021	24.89 (0-49.77)			41.48 (0-82.96)	59.01 (9.67-128.89)		41.61 (10.4-72.82)	59.15 (9.7-119.22)	
	2022	68.06 (19.45-116.68)	46.47 (0-112.38)		76.53 (19.13-133.93)			76.68 (19.17-124.61)		
Sep	2021	25.53 (0-51.07)			25.6 (0-51.2)			51.32 (10.26-92.37)	29.91 (0-79.84)	
	2022	8.48 (0-16.96)	17.01 (0-51.07)		8.48 (0-16.97)	17.04 (0-51.2)		8.5 (0-17)		
Oct	2021	177.18 (72.95-281.4)			295.16 (168.66-411.12)	198.22 (31.32-396.35)		414.21 (244.28-573.52)	278.95 (61.99-547.58)	
	2022	25.38 (8.46-42.3)	101.28 (10.15-263.21)		101.29 (30.39-172.19)			143.69 (47.9-239.49)		
Nov	2021	0 (0-0)			0 (0-0)			0 (0-0)		
	2022	0 (0-0)	0 (0-0)		0 (0-0)	0 (0-0)		0 (0-0)	0 (0-0)	
Dec	2021	0 (0-0)		101.28 (10.15-263.21)	0 (0-0)	25.86 (0-82.76)	198.22 (31.32-396.35)	0 (0-0)	25.94 (0-93.37)	278.95 (61.99-547.58)
	2022	51.3 (0-102.61)	25.65 (0-92.35)		51.72 (10.34-93.1)			51.87 (0-93.37)		

Table 3-11 Dogger Bank South: East- Summary abundance of Herring gull recorded in flight and on the sea, S.D. and 95% confidence intervals, in the wind farm, wind farm and 2km buffer and wind farm and 4km buffer.

Month	Year	Array Area			Array Area & 2km buffer			Array Area & 4km buffer					
		Abundance (c.i.)	Mean (c.i.)	month	Seasonal peak (c.i.)	Abundance (c.i.)	Mean (c.i.)	month	Seasonal peak (c.i.)	Abundance (c.i.)	Mean (c.i.)	month	Seasonal peak (c.i.)
Jan	2022	0 (0-0)				0 (0-0)				0 (0-0)			
	2023	16.76 (0-50.29)	8.38 (0-50.29)			16.86 (0-50.57)	8.43 (0-50.57)			16.83 (0-50.49)	8.42 (0-50.49)		
Feb	2022	0 (0-0)			8.38 (0-50.29)	0 (0-0)		8.43 (0-50.57)		0 (0-0)		16.79 (0-59.25)	
	2023	0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)		
Mar	2021	25.18 (0-58.75)			12.59 (0-50.36)	33.61 (8.4-67.22)		16.81 (0-58.82)		33.59 (8.4-67.17)		16.79 (0-67.17)	
	2022	0 (0-0)				0 (0-0)				0 (0-0)			
Apr	2021	0 (0-0)			0 (0-0)	0 (0-0)		0 (0-0)		8.34 (0-25.01)		4.17 (0-25.01)	
	2022	0 (0-0)	0 (0-0)			0 (0-0)				0 (0-0)			
May	2021	0 (0-0)			0 (0-0)	0 (0-0)		0 (0-0)		0 (0-0)		0 (0-0)	
	2022	0 (0-0)	0 (0-0)			0 (0-0)				0 (0-0)			
Jun	2021	0 (0-0)			0 (0-0)	0 (0-0)		0 (0-0)		0 (0-0)		0 (0-0)	
	2022	0 (0-0)	0 (0-0)			0 (0-0)				0 (0-0)			
Jul	2021	0 (0-0)			0 (0-0)	0 (0-0)		0 (0-0)		0 (0-0)		0 (0-0)	
	2022	0 (0-0)	0 (0-0)			0 (0-0)				0 (0-0)			
Aug	2021	0 (0-0)			12.59 (0-50.36)	0 (0-0)		16.81 (0-58.82)		0 (0-0)		16.79 (0-67.17)	
	2022	0 (0-0)	0 (0-0)			0 (0-0)				8.34 (0-25.02)	4.17 (0-25.02)		
Sep	2021	0 (0-0)			0 (0-0)	0 (0-0)		0 (0-0)		0 (0-0)		0 (0-0)	
	2022	0 (0-0)	0 (0-0)			0 (0-0)				0 (0-0)			
Oct	2021	0 (0-0)			0 (0-0)	0 (0-0)		0 (0-0)		0 (0-0)		0 (0-0)	
	2022	0 (0-0)	0 (0-0)			0 (0-0)				0 (0-0)			
Nov	2021	8.44 (0-25.33)			4.22 (0-25.33)	8.47 (0-25.41)		8.33 (0-25.41)		25.39 (0-67.72)		16.79 (0-59.25)	
	2022	0 (0-0)				8.18 (0-24.55)				8.18 (0-24.55)			
Dec	2021	0 (0-0)			8.38 (0-50.29)	0 (0-0)		8.43 (0-50.57)		0 (0-0)		16.79 (0-59.25)	
	2022	0 (0-0)	0 (0-0)			0 (0-0)				0 (0-0)			

Table 3-12 Dogger Bank South: West- Summary abundance of Herring gull recorded in flight and on the sea, S.D. and 95% confidence intervals, in the wind farm, wind farm and 2km buffer and wind farm and 4km buffer.

Month	Year	Array Area			Array Area & 2km buffer			Array Area & 4km buffer					
		Abundance (c.i.)	Mean (c.i.)	month	Seasonal peak (c.i.)	Abundance (c.i.)	Mean (c.i.)	month	Seasonal peak (c.i.)	Abundance (c.i.)	Mean (c.i.)	month	Seasonal peak (c.i.)
Jan	2022	8.41 (0-25.22)				8.48 (0-25.45)				8.43 (0-25.3)			
	2023	0 (0-0)	4.2 (0-25.22)			0 (0-0)	4.24 (0-25.45)			8.29 (0-24.87)	8.36 (0-25.3)		
Feb	2022	0 (0-0)			8.43 (0-33.7)	0 (0-0)		8.55 (0-34.22)	0 (0-0)			23.25 (0-68.82)	
	2023	0 (0-0)	0 (0-0)	0 (0-0)		0 (0-0)	0 (0-0)		0 (0-0)				
Mar	2021	0 (0-0)				0 (0-0)			8.63 (0-25.9)				
	2022	0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)		0 (0-0)	4.32 (0-25.9)			
Apr	2021	8.36 (0-25.09)				8.41 (0-25.22)			8.45 (0-25.34)				
	2022	0 (0-0)	4.18 (0-25.09)			0 (0-0)	4.2 (0-25.22)		0 (0-0)	4.22 (0-25.34)			
May	2021	0 (0-0)				0 (0-0)			0 (0-0)				
	2022	0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)		0 (0-0)	0 (0-0)			
Jun	2021	8.57 (0-25.71)				8.55 (0-25.64)			17.15 (0-42.87)				
	2022	0 (0-0)	4.29 (0-25.71)			0 (0-0)	4.27 (0-25.64)		0 (0-0)	8.57 (0-42.87)			
Jul	2021	0 (0-0)				0 (0-0)			0 (0-0)				
	2022	0 (0-0)	0 (0-0)			16.86 (0-50.57)	8.43 (0-50.57)		16.81 (0-50.42)	8.4 (0-50.42)			
Aug	2021	0 (0-0)			8.51 (0-42.54)	0 (0-0)		8.5 (0-34.01)	0 (0-0)			17.04 (0-68.16)	
	2022	17.02 (0-42.54)	8.51 (0-42.54)	17.01 (0-42.52)		8.5 (0-34.01)	34.08 (0-76.68)		17.04 (0-68.16)				
Sep	2021	0 (0-0)				0 (0-0)			0 (0-0)				
	2022	0 (0-0)	0 (0-0)			8.48 (0-25.45)	4.24 (0-25.45)		8.5 (0-25.71)	4.25 (0-25.5)			
Oct	2021	0 (0-0)				0 (0-0)			0 (0-0)				
	2022	0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)		0 (0-0)	0 (0-0)			
Nov	2021	0 (0-0)				0 (0-0)			29.5 (0-78.66)				
	2022	16.85 (0-42.13)	8.43 (0-33.7)			17.11 (0-42.77)	8.55 (0-34.22)		17.01 (0-42.52)	23.25 (0-68.82)			
Dec	2021	0 (0-0)			8.43 (0-33.7)	0 (0-0)		8.55 (0-34.22)	0 (0-0)			23.25 (0-68.82)	
	2022	0 (0-0)	0 (0-0)	0 (0-0)		0 (0-0)	0 (0-0)		0 (0-0)				

Table 3-13 Dogger Bank South: East- Summary abundance of Lesser black-backed gull recorded in flight and on the sea, S.D. and 95% confidence intervals, in the wind farm, wind farm and 2km buffer and wind farm and 4km buffer.

Month	Year	Array Area			Array Area & 2km buffer			Array Area & 4km buffer				
		Abundance (c.i.)	Mean (c.i.)	month	Seasonal peak (c.i.)	Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	Abundance (c.i.)	Mean (c.i.)	month	Seasonal peak (c.i.)
Jan	2022	0 (0-0)				0 (0-0)			0 (0-0)			
	2023	0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)		0 (0-0)	0 (0-0)		
Feb	2022	0 (0-0)				0 (0-0)			0 (0-0)			
	2023	0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)		0 (0-0)	0 (0-0)		
Mar	2021	8.39 (0-25.18)			4.2 (0-25.18)	8.4 (0-25.21)		4.2 (0-25.21)	8.4 (0-25.19)			4.2 (0-25.19)
	2022	0 (0-0)	4.2 (0-25.18)		4.2 (0-25.18)	0 (0-0)	4.2 (0-25.21)		0 (0-0)	4.2 (0-25.19)		4.2 (0-25.19)
Apr	2021	0 (0-0)				0 (0-0)			0 (0-0)			
	2022	0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)		0 (0-0)	0 (0-0)		
May	2021	8.46 (0-25.39)				8.43 (0-25.29)			8.43 (0-25.28)			
	2022	0 (0-0)	4.23 (0-25.39)			0 (0-0)	4.22 (0-25.29)		0 (0-0)	4.21 (0-25.28)		
Jun	2021	0 (0-0)				0 (0-0)			0 (0-0)			
	2022	0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)		0 (0-0)	0 (0-0)		
Jul	2021	0 (0-0)				8.44 (0-25.32)			16.83 (0-42.06)			
	2022	0 (0-0)	0 (0-0)			8.43 (0-25.28)	8.43 (0-25.32)		8.49 (0-25.46)	12.66 (0-42.06)		
Aug	2021	0 (0-0)			8.33 (0-49.96)	0 (0-0)		8.43 (0-25.32)	0 (0-0)			12.66 (0-42.06)
	2022	16.65 (0-49.96)	8.33 (0-49.96)		8.33 (0-49.96)	16.7 (0-50.11)	8.35 (0-50.11)		16.68 (0-50.46)	8.34 (0-50.04)		12.66 (0-42.06)
Sep	2021	0 (0-0)				0 (0-0)			0 (0-0)			
	2022	0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)		0 (0-0)	0 (0-0)		
Oct	2021	0 (0-0)				0 (0-0)			8.31 (0-24.92)			
	2022	0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)		0 (0-0)	4.15 (0-24.92)		
Nov	2021	0 (0-0)				0 (0-0)			0 (0-0)			
	2022	0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)		0 (0-0)	0 (0-0)		
Dec	2021	0 (0-0)				0 (0-0)			0 (0-0)			
	2022	0 (0-0)	0 (0-0)		0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)		4.15 (0-24.92)

Table 3-14 Dogger Bank South: West- Summary abundance of Lesser black-backed gull recorded in flight and on the sea, S.D. and 95% confidence intervals, in the wind farm, wind farm and 2km buffer and wind farm and 4km buffer.

Month	Year	Array Area			Array Area & 2km buffer			Array Area & 4km buffer				
		Abundance (c.i.)	Mean (c.i.)	month	Seasonal peak (c.i.)	Abundance (c.i.)	Mean (c.i.)	month	Seasonal peak (c.i.)	Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)
Jan	2022	0 (0-0)				0 (0-0)				0 (0-0)		
	2023	0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)	
Feb	2022	0 (0-0)				0 (0-0)				0 (0-0)		
	2023	0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)	
Mar	2021	0 (0-0)				0 (0-0)				0 (0-0)		
	2022	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)	0 (0-0)	0 (0-0)
Apr	2021	0 (0-0)				0 (0-0)				0 (0-0)		
	2022	8.41 (0-33.62)	4.2 (0-25.22)			8.38 (0-25.14)	4.19 (0-25.14)			8.41 (0-25.24)	4.21 (0-25.24)	
May	2021	0 (0-0)				0 (0-0)				0 (0-0)		
	2022	0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)	
Jun	2021	0 (0-0)			4.2 (0-12.61)	0 (0-0)			12.64 (0-37.92)	0 (0-0)		12.66 (0-37.99)
	2022	0 (0-0)	0 (0-0)			25.28 (0-75.84)	12.64 (0-75.84)			25.33 (0-75.99)	12.66 (0-75.99)	
Jul	2021	0 (0-0)				0 (0-0)				0 (0-0)		
	2022	0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)	
Aug	2021	0 (0-0)				0 (0-0)				0 (0-0)		
	2022	0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)	
Sep	2021	0 (0-0)				0 (0-0)				0 (0-0)		
	2022	0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)	
Oct	2021	0 (0-0)				0 (0-0)				0 (0-0)		
	2022	0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)	
Nov	2021	0 (0-0)				0 (0-0)				0 (0-0)		
	2022	0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)			0 (0-0)	0 (0-0)	
Dec	2021	0 (0-0)				0 (0-0)				0 (0-0)		
	2022	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)	0 (0-0)	0 (0-0)

Table 3-15 Dogger Bank South: East- Summary abundance of Great black-backed gull recorded in flight and on the sea, S.D. and 95% confidence intervals, in the wind farm, wind farm and 2km buffer and wind farm and 4km buffer.

Month	Year	Array Area			Array Area & 2km buffer			Array Area & 4km buffer		
		Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)
Jan	2022	67.05 (16.76-125.72)	92.19 (16.76-234.67)		83.56 (33.42-142.05)	105 (33.42-236.01)	105 (33.42-236.01)	175.42 (75.18-300.71)	176.07 (58.91-319.78)	
	2023	117.34 (16.76-259.81)			126.44 (33.72-261.3)			176.72 (50.49-336.61)		
Feb	2022	8.39 (0-25.16)	25 (0-91.57)	92.19 (16.76-234.67)	16.79 (0-41.98)	33.43 (0-108.46)	105 (33.42-236.01)	33.54 (8.39-67.09)	49.96 (8.39-124.47)	176.07 (58.91-319.78)
	2023	41.62 (0-108.22)			50.06 (8.34-108.46)			66.38 (8.3-141.06)		
Mar	2021	0 (0-0)	42.23 (0-152.03)		0 (0-0)	59.24 (0-186.17)		0 (0-0)	93.09 (0-287.74)	
	2022	84.46 (25.34-160.48)			118.47 (50.77-203.1)			186.19 (84.63-304.67)		
Apr	2021	0 (0-0)	0 (0-0)		0 (0-0)	0 (0-0)		8.34 (0-25.01)	4.17 (0-25.01)	
	2022	0 (0-0)			0 (0-0)			0 (0-0)		
May	2021	0 (0-0)	0 (0-0)		0 (0-0)	0 (0-0)		0 (0-0)	0 (0-0)	
	2022	0 (0-0)			0 (0-0)			0 (0-0)		
Jun	2021	0 (0-0)	0 (0-0)		0 (0-0)	0 (0-0)		0 (0-0)	0 (0-0)	
	2022	0 (0-0)			0 (0-0)			0 (0-0)		
Jul	2021	0 (0-0)	0 (0-0)	42.23 (0-152.03)	0 (0-0)	0 (0-0)	59.24 (0-186.17)	0 (0-0)	0 (0-0)	93.09 (0-287.74)
	2022	0 (0-0)			0 (0-0)			0 (0-0)		
Aug	2021	0 (0-0)	8.33 (0-41.63)		0 (0-0)	8.35 (0-41.76)		0 (0-0)	16.68 (0-66.73)	
	2022	16.65 (0-41.63)			16.7 (0-41.76)			33.36 (0-83.41)		
Sep	2021	0 (0-0)	0 (0-0)		0 (0-0)	4.49 (0-26.92)		0 (0-0)	4.46 (0-26.74)	
	2022	0 (0-0)			8.97 (0-26.92)			8.91 (0-26.74)		
Oct	2021	0 (0-0)	0 (0-0)		0 (0-0)	25.09 (0-133.81)		0 (0-0)	25.08 (0-133.77)	
	2022	0 (0-0)			50.18 (0-142.17)			50.16 (0-167.21)		
Nov	2021	8.44 (0-25.33)	4.22 (0-25.33)		16.94 (0-42.35)	8.47 (0-34.09)		33.86 (8.46-67.72)	33.29 (0-76.18)	
	2022	0 (0-0)			0 (0-0)			32.73 (0-81.82)		
Dec	2021	8.48 (0-25.43)	4.24 (0-25.43)	92.19 (16.76-234.67)	8.49 (0-25.47)	16.47 (0-57.03)	105 (33.42-236.01)	16.91 (0-42.27)	36.98 (0-105.96)	176.07 (58.91-319.78)
	2022	0 (0-0)			24.44 (0-65.18)			57.05 (16.3-114.11)		

Table 3-16 Dogger Bank South: West- Summary abundance of Great black-backed gull recorded in flight and on the sea, S.D. and 95% confidence intervals, in the wind farm, wind farm and 2km buffer and wind farm and 4km buffer.

Month	Year	Array Area			Array Area & 2km buffer			Array Area & 4km buffer		
		Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)	Abundance (c.i.)	Mean month (c.i.)	Seasonal peak (c.i.)
Jan	2022	0 (0-0)	16.43 (0-57.5)	29.9 (0-102.44)	42.42 (0-101.8)	37.73 (0-84.83)	55.14 (0-237.55)	75.9 (16.87-143.37)	54.53 (8.29-134.93)	62.7 (8.4-176.46)
	2023	32.86 (8.21-65.71)			33.04 (8.26-66.09)			33.16 (8.29-66.33)		
Feb	2022	16.48 (0-41.19)	16.61 (0-41.21)	29.9 (0-102.44)	24.8 (0-57.86)	50.08 (0-167.49)	55.14 (0-237.55)	49.77 (16.59-91.24)	62.7 (8.4-176.46)	62.7 (8.4-176.46)
	2023	16.75 (0-41.88)			75.37 (8.37-184.24)			75.63 (8.4-193.48)		
Mar	2021	0 (0-0)	0 (0-0)	29.9 (0-102.44)	0 (0-0)	0 (0-0)	55.14 (0-237.55)	0 (0-0)	16.75 (0-83.74)	62.7 (8.4-176.46)
	2022	0 (0-0)			0 (0-0)			33.5 (0-83.74)		
Apr	2021	0 (0-0)	0 (0-0)	29.9 (0-102.44)	0 (0-0)	0 (0-0)	55.14 (0-237.55)	8.45 (0-25.34)	4.22 (0-25.34)	62.7 (8.4-176.46)
	2022	0 (0-0)			0 (0-0)			0 (0-0)		
May	2021	0 (0-0)	0 (0-0)	29.9 (0-102.44)	0 (0-0)	0 (0-0)	55.14 (0-237.55)	0 (0-0)	0 (0-0)	62.7 (8.4-176.46)
	2022	0 (0-0)			0 (0-0)			0 (0-0)		
Jun	2021	0 (0-0)	0 (0-0)	29.9 (0-102.44)	34.19 (0-102.56)	17.09 (0-102.56)	55.14 (0-237.55)	34.29 (0-102.88)	17.15 (0-102.88)	62.7 (8.4-176.46)
	2022	0 (0-0)			0 (0-0)	0 (0-0)		0 (0-0)		
Jul	2021	0 (0-0)	0 (0-0)	29.9 (0-102.44)	0 (0-0)	0 (0-0)	55.14 (0-237.55)	0 (0-0)	0 (0-0)	62.7 (8.4-176.46)
	2022	0 (0-0)			0 (0-0)			0 (0-0)	0 (0-0)	
Aug	2021	0 (0-0)	8.51 (0-51.05)	29.9 (0-102.44)	0 (0-0)	8.5 (0-51.02)	55.14 (0-237.55)	0 (0-0)	8.52 (0-51.12)	62.7 (8.4-176.46)
	2022	17.02 (0-51.05)			17.01 (0-51.02)			17.04 (0-51.12)		
Sep	2021	0 (0-0)	16.96 (0-76.34)	29.9 (0-102.44)	0 (0-0)	55.14 (0-237.55)	55.14 (0-237.55)	0 (0-0)	55.25 (0-246.48)	62.7 (8.4-176.46)
	2022	33.93 (0-84.82)			110.29 (8.48-288.45)			110.49 (8.5-271.98)		
Oct	2021	0 (0-0)	4.23 (0-25.38)	29.9 (0-102.44)	0 (0-0)	4.22 (0-25.32)	55.14 (0-237.55)	8.45 (0-25.36)	8.45 (0-25.36)	62.7 (8.4-176.46)
	2022	8.46 (0-25.38)			8.44 (0-25.32)			8.45 (0-25.36)		
Nov	2021	0 (0-0)	0 (0-0)	29.9 (0-102.44)	9.86 (0-29.59)	4.93 (0-29.59)	55.14 (0-237.55)	9.83 (0-29.5)	4.92 (0-29.5)	62.7 (8.4-176.46)
	2022	0 (0-0)			0 (0-0)	0 (0-0)			0 (0-0)	
Dec	2021	34.15 (0-102.44)	29.9 (0-102.44)	29.9 (0-102.44)	42.53 (0-119.09)	34.2 (0-110.59)	55.14 (0-237.55)	42.64 (0-119.38)	55.9 (0-129.68)	62.7 (8.4-176.46)
	2022	25.65 (0-68.41)			25.86 (0-68.96)			69.16 (17.29-138.54)		

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