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

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South (East) Limited**

# **Dogger Bank South Offshore Wind Farms**

**Environmental Statement**

**Volume 7**

**Appendix 12-1 – Offshore Ornithology Consultation  
Responses**

**June 2024**

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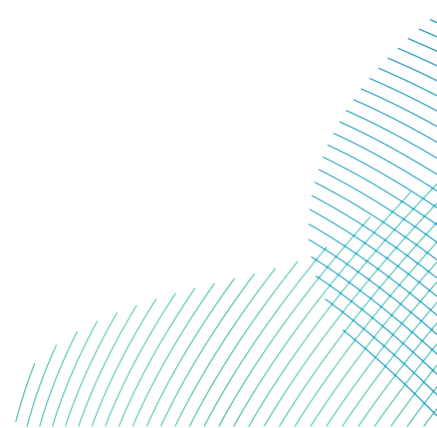
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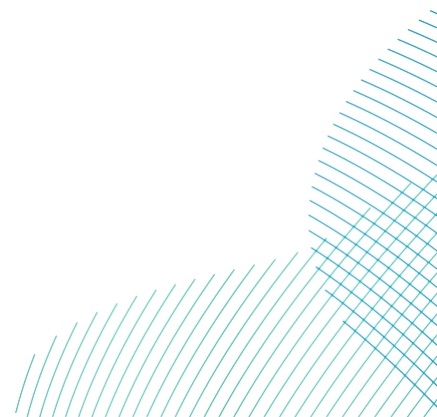
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## Glossary

Term	Definition
Array Areas	The DBS East and DBS West offshore Array Areas, where the wind turbines, offshore platforms and array cables will be located. The Array Areas do not include the Offshore Export Cable Corridor or the Inter-Platform Cable Corridor within which no wind turbines are proposed. Each area is referred to separately as an Array Area.
Collision	The act or process of colliding (crashing) between two moving objects.
Collision Risk Model (CRM)	Quantitative means to estimate the number of predicted collisions between seabirds recorded in the Array Areas and rotating wind turbines.
Cumulative Effects	The combined effect of the Projects in combination with the effects of a number of different (defined cumulative) schemes, on the same single receptor / resource.
Cumulative Effects Assessment (CEA)	The assessment of the combined effect of the Projects in combination with the effects of a number of different (defined cumulative) schemes, on the same single receptor/resource.
Dogger Bank South (DBS) Offshore Wind Farms	The collective name for the two Projects, DBS East and DBS West.
Effect	Term used to express the consequence of an impact. The significance of an effect is determined by correlating the magnitude of the impact with the value, or sensitivity, of the receptor or resource in accordance with defined significance criteria.
Environmental Impact Assessment (EIA)	A statutory process by which certain planned projects must be assessed before a formal decision to proceed can be made. It involves the collection and consideration of environmental information, which fulfils the assessment requirements of the EIA Directive and EIA Regulations, including the publication of an Environmental Statement (ES).

Term	Definition
Evidence Plan Process (EPP)	A voluntary consultation process with specialist stakeholders to agree the approach, and information to support, the Environmental Impact Assessment (EIA) and Habitats Regulations Assessment (HRA) for certain topics.
Expert Topic Group (ETG)	A forum for targeted engagement with regulators and interested stakeholders through the EPP.
Habitats Regulations Assessment (HRA)	The process that determines whether or not a plan or project may have an adverse effect on the integrity of a European Site or European Offshore Marine Site.
Impact	Used to describe a change resulting from an activity via the Projects, i.e. increased suspended sediments / increased noise.
Inter-Platform Cable Corridor	The area where Inter-Platform Cables would route between platforms within the DBS East and DBS West Array Areas, should both Projects be constructed.
Mean Sea Level	The average level of the sea surface over a defined period (usually a year or longer), taking account of all tidal effects and surge events.
Offshore Export Cable Corridor	This is the area which will contain the Offshore Export Cables (and potentially the ESP) between the offshore substation / converter platforms and Transition Joint Bays at the landfall.
Offshore Export Cables	The cables which would bring electricity from the offshore platforms to the Transition Joint Bays (TJBs).
The Applicants	The Applicants for the Projects are RWE Renewables UK Dogger Bank South (East) Limited and RWE Renewables UK Dogger Bank South (West) Limited. The Applicants are themselves jointly owned by the RWE Group of companies (51% stake) and Masdar (49% stake).
The Projects	DBS East and DBS West (collectively referred to as the Dogger Bank South offshore wind farms).



## Acronyms

Term	Definition
BDMPS	Biologically Defined Minimum Population Scale
CEA	Cumulative Effects Assessment
CRM	Collision Risk Model
DBS	Dogger Bank South
EIA	Environmental Impact Assessment
ECC	Export Cable Corridor
EPP	Evidence Plan Process
ES	Environmental Statement
ETG	Expert Topic Group
HRA	Habitats Regulations Assessment
PEIR	Preliminary Environmental Information Report
RSPB	Royal Society for the Protection of Birds
SPA	Special Protection Area

## 12.1. Consultation Responses

### 12.1.1. Introduction

1. This appendix covers those statutory consultation responses that have been received as a response to the Scoping Report (2022), the Preliminary Environmental Information Report (PEIR) (2023), Expect Topic Group (ETG) meetings and requests for comment on assessment methodology.
2. Response from stakeholders and regard given by The Applicants have been captured in **Table 12-1-1**.

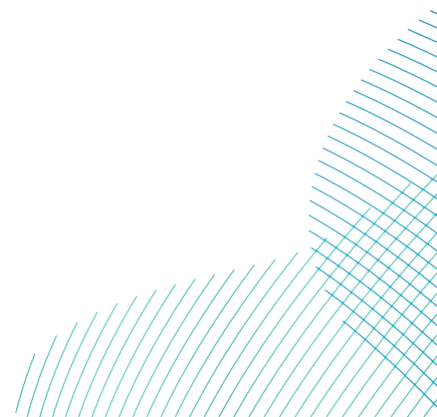


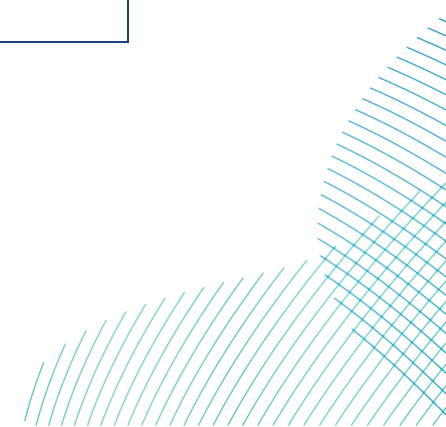
Table 12-1-1 Consultation Responses Related to Chapter 12 Offshore Ornithology

Comment	Project Response
<b>Dogger Bank South Offshore Ornithology ETG – Pre-Scoping 13/10/2021</b>	
Natural England (NE) – Regarding the Offshore Study Area, was its large extent due to offshore ornithology concerns, or is its extent more related to the cable route options for the Projects.	Due to broad onshore grid connection locations under consideration at the time, a wide buffer was drawn for the offshore study area at scoping. The study area was reduced again at both PEIR and ES as the landfall options were narrowed down.
Flight Height Data NE – Which survey provider are you using, will no other sources of flight height data be used?	APEM were the survey provider for the Projects. Generic flight height data set was used in the collision risk model, with the assessment being based on quantitative methods. Discussions were held with stakeholders through the Evidence Plan Process (EPP) on the approach to the assessment and the methods to be used.
RSPB - On the Population Viability Analysis will you be using the Natural England online Tool?	Yes, the NE Population Viability Analysis tool was utilised as a in conjunction with other quantitative methods to inform the assessment.
<b>Planning Inspectorate Scoping Responses 02/09/2022</b>	
<i>Direct temporary habitat loss/disturbance due to construction (arrays and export cable(s)).</i> Table 2-24 indicates that this impact is to be scoped out of the operational phase. The Inspectorate understands that this impact is specific to the construction / decommissioning phases and agrees with this approach. The ES should however assess the likely significant effects of temporary habitat loss/disturbance and define clearly what 'temporary' means in the context of the assessment.	Consideration has been given to the potential for construction effects in <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b> (section 12.6.1).
<i>Indirect impacts through effects on prey species and habitats: accidental pollution (all project phases)</i> Based on the information provided on the proposed mitigation and control measures, the Inspectorate agrees that significant effects from accidental release of pollution during all project phases are unlikely. The ES should provide full details of the proposed mitigation measures for all project phases and describe how they are to be secured.	Project level mitigations are discussed in <b>Volume 7, Chapter 8 Marine Physical Environment (application ref: 7.8)</b> and referenced in Table 12-3 of <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b> .
<i>Barrier effects during construction and decommissioning.</i> The Table indicates that these impacts are to be scoped out of the construction and decommissioning phases. The Inspectorate does not consider that barrier effects are exclusive to the operational phase and cannot agree to scope this matter out. The ES should provide information on the sources of impact and the receptors e.g., migratory birds which could be subject to barrier effects during construction and assess the likely significance of such effects.	Following review of the most recent Natural England guidance (Parker <i>et al.</i> 2022c), barrier effects have not been assessed separately. This approach has been agreed by the Offshore Ornithology ETG on 6 <sup>th</sup> February 2024.  In summary, Parker <i>et al.</i> (2022c) recognises that there is currently insufficient evidence to permit separating barrier effects from displacement effects, and that as a result the recommended displacement assessment approach (which is based on estimates of birds in flight and on the sea and which has been followed in this ES) is intended to be sufficiently general that it incorporates both potential effects (i.e. this makes the assumption that birds on the water are more likely to be subject to displacement and birds in flight are more likely to be at risk of barrier effects).

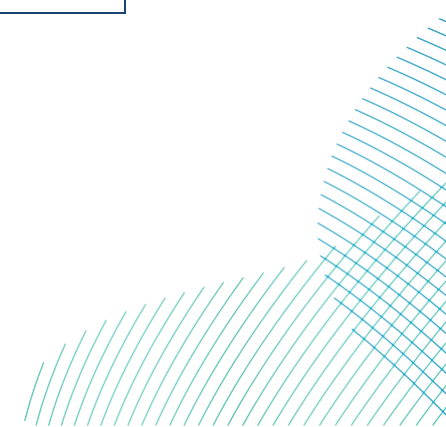


Comment	Project Response
<p><i>Cumulative effects, including transboundary effects, during construction and decommissioning.</i></p> <p>The Scoping Report states that the assessment will focus on operational displacement and collision risk, and Table 2-24 shows ‘cumulative effects’ as scoped out for construction and decommissioning. The Inspectorate considers that the potential exists for cumulative effects during construction given the large number of other developments in the area, and in the absence of construction timescales and locations for the Proposed Development does not agree to scope out cumulative construction effects. A similar rationale applies to the decommissioning phase. The ES should provide an assessment of likely significant cumulative effects for all project phases.</p>	<p>Cumulative construction and decommissioning effects have not been considered in this ES since there is limited information on the potential for overlap of construction activities across wind farms which could contribute to such cumulative effects.</p> <p><b>Volume 7, Chapter 6 EIA Methodology (application ref: 7.6)</b> of this report provides further details of the general framework and approach to the CEA, with assessment of the operational phase being presented in section 12.7 of <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)..</b></p>
<p><i>Study area, surveys, and Characterisation of baseline.</i></p> <p>The Inspectorate notes the reference to the EPP in the Scoping Report. In the context of offshore ornithology, the Inspectorate advises that, amongst other matters, effort is made to agree via the EPP the extent of study area, the methodologies for data collection and characterisation of the baseline, and the assumptions made around connectivity of the populations within the study area to designated sites. The ES should fully explain how the baseline has been established and the outcomes of consultation undertaken in relation to these matters.</p>	<p>These aspects have been discussed via the Evidence Plan Process (EPP), and a method statement outlining proposed approaches submitted to Natural England on 11<sup>th</sup> November 2022 (included in <b>Volume 5, Appendix F1 Non-Statutory ETG Consultation (application ref: 5.7)</b>). <b>Volume 7, Appendix 12-2 (application ref: 7.12.12.2)</b> details the baseline that underpins this assessment, with consultation details being contained within this appendix.</p>
<p><b>Natural England Scoping Responses 02/09/2022</b></p>	
<p><i>The extent of connectivity between seabird SPAs and offshore wind farms during the breeding season is largely a function of distance and will be informed through review of species specific foraging ranges (see Woodward et al. 2019). The scoping report acknowledges the export cable corridor (ECC) will pass through the Greater Wash SPA.</i></p> <p>NE welcome this and advise that colony specific data, where available and appropriate should also be referred to.</p>	<p>Colony specific data has been referred to throughout the chapter as appropriate. However, this comment is of primary relevance to matters which will be covered in the <b>Volume 6, Report to Inform Appropriate Assessment (application ref: 6.1)</b>.</p>
<p><i>Data collected for the Dogger Bank Creyke Beck and Dogger Bank Teesside projects.</i></p> <p>In addition to data collected for the Round 3 Dogger Bank Projects NE advise that data collected at the Round 3 Hornsea projects may also be useful and relevant. (Hornsea 1, 2, 3 and 4).</p>	<p>Other data have been considered as appropriate in the assessment (section 12.5 of <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b>).</p>
<p><i>Flight height data</i></p> <p>NE acknowledge the difficulties obtaining flight height data from current digital aerial imagery, and hence there has been a dependence on established generic flight height data collected via visual boat-based methods (i.e. Johnston et al. 2014a, 2014b). However, we would welcome working with all Round 4 developers to improve the knowledge base on flight height either at a project specific or generic level, and encourage further engagement on this.</p>	<p>The Applicants have continued to engage with Natural England on this topic through the ETG and EPP. Natural England has agreed that use of generic flight height data for Collision Risk Modelling remains the most appropriate option (see <b>Volume 5, Consultation Report, (application ref: 5.1)</b>).</p>

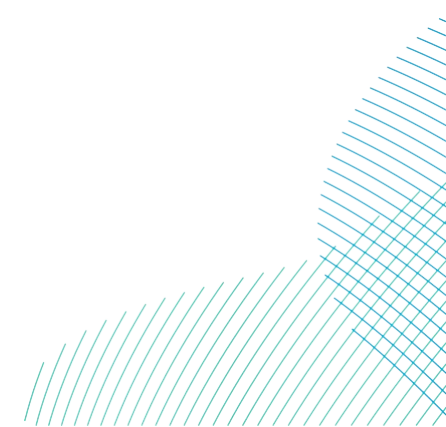
Comment	Project Response
<p><i>Other guidance documents</i></p> <p>SNCB guidance on Displacement has been updated to reflect new evidence for Red Throated Diver. There is also upcoming revised joint SNCB guidance on Collision Risk Modelling (CRM) including revised avoidance rates and other parameters. In the interim, NE has produced a summary of the key parameters and changes expected to be included in this guidance which we will provide to the Applicant through our Discretionary Advice Service.</p>	<p>The Applicants have made reference to the latest guidance in the PEIR as relevant and appropriate (Parker <i>et al.</i> 2022a,b,c).</p>
<p><i>Existing Environment</i></p> <p>Natural England note that no information has been presented to characterise the existing environment.</p>	<p>The scoping report predated analysis of the survey data, hence it was not possible to present baseline array area site characterisation information at that time. The PEIR presented the results from the first 12 months of survey data and the ES has included all 24 months of survey data.</p>
<p><i>Species specific seasons</i></p> <p>NE note that the seasonal definitions provided in Table 2.19 are likely to be appropriate for species at a broad population scale such as at EIA (unless more up to date evidence becomes available, that suggests a change is required). However, NE recommend that colony and project specific data is used to inform colony specific seasons at an HRA level. As such, while the seasons presented in Table 2.19 are likely to be appropriate for the EIA, they are not necessarily appropriate for the HRA.</p>	<p><b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b> has only considered the wider (EIA) scale level of potential impacts, hence these seasonal definitions were considered appropriate, as noted by Natural England. Further consideration has been given in the <b>Volume 6, Report to Inform Appropriate Assessment (application ref: 6.1)</b> to the selection of appropriate seasonal definitions.</p>
<p><i>Approach to Data Collection</i></p> <p>Natural England are in agreement with two years' worth of data being collected via aerial digital surveys on the array area + 4km buffer. However, we urge the applicant to consider other key data gaps in regards quantification of ornithological receptors at the array area, in particular:</p> <ul style="list-style-type: none"> <li>• Flight height of species sensitive to collision risk (and potentially other parameters that inform collision risk such as nocturnal activity and flight speed)</li> <li>• Data contributing to increased understanding connectivity and apportioning of key species (e.g. tracking work, age classes, observations of adults with attendant young).</li> </ul>	<p>The Applicants welcomes the agreement from Natural England on the use of the two years of survey data for the baseline. Other aspects of the assessment have considered available data to inform the results as appropriate.</p>
<p><i>Potential Impacts</i></p> <p>Natural England is in agreement with the potential impacts identified.</p>	<p>The Applicants welcome Natural England's agreement on this matter.</p>
<p><i>Impacts scoped in/out of assessment</i></p> <p>Natural England is broadly in agreement with the potential impacts identified.</p>	<p>The Applicants welcome Natural England's agreement on this matter.</p>
<p><i>Approach to Impact Assessment</i></p> <p>Natural England are broadly in agreement with the proposed approach to assessment presented here but would expect a more thorough approach to assessment to be outlined within the PEIR/ES.</p>	<p>The Applicants welcome Natural England's agreement on this matter and notes that further detail on all matters is presented through this PEIR.</p>



Comment	Project Response
<p><i>Reference population sizes</i></p> <p>NE note that reference populations for specific SPAs should be informed by the most up to date data at that colony rather than depending on Furness (2015).</p>	<p>The Applicants agree with Natural England on this matter and has sought out more recent counts, where available for use in this PEIR.</p>
<p><b>Natural England comments on Ornithology Method Statement 9<sup>th</sup> December 2022 (received under their discretionary advice service)</b></p>	
<p>NE request clarification of the survey schedule, the number of surveys per month, and the months in which surveys are/have been conducted.</p> <p>NE also request clarification that the intention is to present raw data, abundance estimates, and density estimates for all surveys conducted in the 24 month period to inform the final assessment.</p>	<p>Digital Aerial Surveys (DAS) began in March 2021 and were completed in Feb 2023 (i.e. 24 months), with one survey per month.</p> <p>Densities and abundances have been provided in the ES for both years of survey and are presented by calendar month, as standard for a wind farm assessment.</p> <p>The Applicants were unsure what the term 'raw data' means in the current context. Following discussion with NE this request was clarified and the relevant reports have been provided to NE.</p>
<p>NE cannot comment at this time on whether the proposed survey coverage will be sufficient for assessment purposes as this will depend on the data collected.</p> <p>NE recommend that Dogger Bank South consider the possible need to analyse additional data if, following the completion of 2 years baseline survey data collection, the survey coverage does not appear to be sufficient for assessment purposes.</p>	<p>The data presented in the ES were analysed at a minimum of 10% coverage across the array areas and 4km buffers and the results are considered sufficient for assessment purposes.</p>
<p>NE request clarification that upper and lower (95%) confidence limits and precision or coefficient of variation (cv) values will be presented for each estimate.</p>	<p>All densities and abundances have been presented with measures of variation (standard deviation, 95% confidence intervals) and these have been used in the ES assessments as appropriate.</p>
<p>NE request clarification that internal QA and validation methods for processing of digital aerial survey data will be presented.</p>	<p>The DAS contractor (APEM) is carrying out internal Quality Assurance (QA) on the data collected from each of the surveys. Images are assessed in batches with a different APEM staff member responsible for each batch. Each image containing birds and/or marine megafauna is reviewed and checked by APEM's dedicated QA Manager, ensuring that 100% of birds and marine megafauna recorded are subject to internal QA to confirm that all species are correctly identified. Images containing no birds and/or marine megafauna are removed and stored separately for further internal QA. Of these 'blank' images, 10% are randomly selected for QA. If there is &lt;90% agreement, the entire batch is re-analysed independently by a different member of staff.</p>
<p>NE note that no information has been presented on the proposed methodology for determining flight heights.</p>	<p>As agreed with Natural England, the Digital Aerial Survey supplier's flight height calculations were not used for assessment purposes. The Applicants have used published flight height data from Johnston <i>et al</i> 2014a and 2014b.</p>



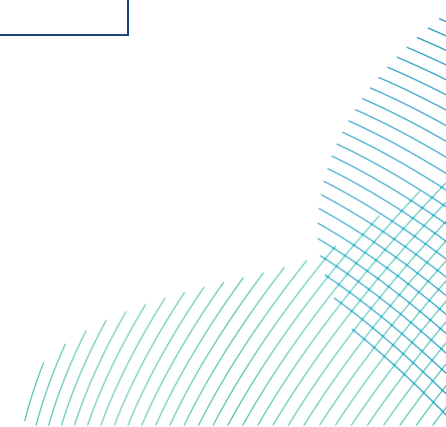
Comment	Project Response
<p>NE note that there is now updated interim advice from NE on collision risk modelling (CRM) parameters – this was provided to the Applicant on the 7<sup>th</sup> November 2022 and is also provided alongside to this advice.</p>	<p>The updated collision avoidance rates (and other parameters) as supplied by NE have been used in <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b> (section 12.6.2.3).</p> <p>Based upon current NE advice the use of the updated parameter values has not been extended to projects within the cumulative assessment, however the impact magnitudes have been discussed with respect to the inherent over-estimation this advised approach introduces.</p>
<p>NE request clarification on the populations being assessed and the baseline mortality parameters being used before we can agree to this methodology – NE looks forward to further engagement with the Applicant on these matters.</p>	<p>The reference populations assessed in the ES vary depending on the species and season. In the breeding season, for species within foraging range of breeding colonies, the population has been derived from the colony population, with allowance for sub-adult age birds to also be present. The reference population for species for which breeding season colony connectivity is not expected have been derived from the estimated sub-adult component of the spring BDMPS. In the nonbreeding seasons, the BDMPS and biogeographic populations have been used. Background mortality rates are appropriate to the age class being assessed. If it is just adults, then the adult mortality rate has been used. If it is all age classes, then a weighted average mortality across all age classes has been used.</p>
<p>NE would like to be clear that while predicted impacts lower than 1% of baseline mortality may not be significant at the project level, they will still need to be considered within the in-combination assessment.</p>	<p>This advice is noted and has been considered in the ES. However, it is also important to clarify that an increase in background mortality ‘lower than 1%’ can include extremely small increases, and in those cases, there is likely to be little justification for considering the potential for cumulative impacts.</p>
<p>NE advise that a site-specific bespoke approach to seasonality may be required for some species and look forward to further engagement with the Applicant on this.</p>	<p>The assessment in <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b> has focussed on wider scale (EIA) effects and impacts, therefore this advice is more relevant to the colony specific assessment presented in the HRA.</p>
<p>NE note the lack of detail provided on apportioning methodology and look forward to further engagement with the Applicant on this.</p>	<p>In the HRA breeding season apportioning has been undertaken using the NatureScot method, although it is worth noting that apart from the Flamborough and Filey Coast (FFC) SPA, the next nearest seabird SPAs (e.g. the Farne Islands) are over 200km from the array area, so connectivity with other SPAs during the breeding season are expected to be minimal at most.</p>



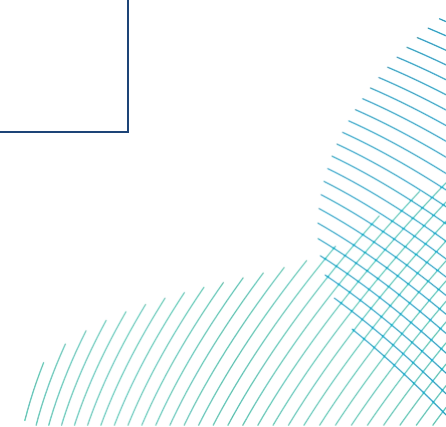


Comment	Project Response
<p>NE note the lack of detail provided on cumulative and in-combination assessment methodology and look forward to further engagement with the Applicant on this.</p>	<p>Cumulative and in-combination assessment has been presented in <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b> (section 12.7) following the approaches taken for the recent Vattenfall Norfolk Projects and the SPR East Anglia Projects, with the inclusion of data for more recent wind farms (e.g. Hornsea 4 and the Dudgeon and Sheringham Extensions).</p> <p>In the ES the totals from the most recent examination available at the time of writing (Dudgeon and Sheringham Extension) and PEIR documents (e.g. Outer Dowsing and Five Estuaries) have been used as the starting point with Project alone numbers added for displacement and collision risk.</p> <p>The interim advice from NE on Collision Risk Modelling parameters has not been incorporated into the cumulative assessments (although note the comment made above that this inconsistency in assessment methods is considered important to resolve).</p>
<p><b>Offshore Ornithology ETG 2 Meeting 02/02/2023</b></p>	
<p><b>Existing Data</b></p> <p>It was agreed with NE that no further digital aerial surveys would be required above the 24 months of data gathered for the Projects (completed in February 2023) to inform the baseline, with the caveat that the level of survey coverage analysed in the results would require review. It was noted that the Applicants must ensure that the level of coverage analysed is suitable to ensure a robust assessment</p>	
<p>Operational Displacement - Preliminary Results (Gannet)</p> <p>RSPB queried if the two sources of modelled mortality (displacement and collision) for gannets were combined in the preliminary modelling?</p>	<p>Yes, a combined gannet displacement assessment is presented in <b>Volume 7, Chapter 12 Offshore ornithology (application ref: 7.12)</b> and <b>Volume 6, Report to Inform Appropriate Assessment (application ref: 6.1)</b>.</p>
<p>Collisions – Preliminary Results (Worst Case Scenario)</p> <p>RSPB - On gannets, RSPB have not yet reached a position on the macro-avoidance correction factor as recommend by NE, as the report it's based on has not been published yet. Understand its due out soon. RSPB advise using the old gannet avoidance rate for now. However, RSPB collision factor recommendation would still lead to low gannet collisions.</p>	<p>We do not think this is of concern even using the RSPB preferred values. The previous 99.2% value is also included in <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b>.</p>
<p>The interim CRM guidance is recommend to be used for Projects alone, but not for updating cumulative totals. Add project alone to existing in-combination figures. Cumulative Effects Framework is hopefully coming soon, still in the works how guidance on this will be provided. Agreed that it does not make sense to do a full cumulative assessment on 12 months of data in a rapidly changing offshore environment. May need site/species specific seasonality data, separate from Furness et al. (2015)</p>	<p>The cumulative assessment has used the most recent data available for other wind farms (submitted: Hornsea 4, Dudgeon and Sheringham, PEIR: Outer Dowsing and Five Estuaries).</p>
<p><b>PEIR Consultation. Natural England, 17/07/2023</b></p>	

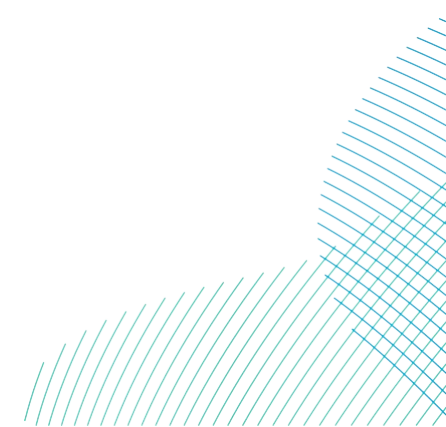
Comment	Project Response
<p>"Table 5-2 Survey data: Only 12 months of baseline survey data have been included in this PEIR. It will not be possible for Natural England to comment on the sufficiency and robustness of the baseline data or on the conclusions of the assessment until we have seen the full assessment using all 24 months of baseline data. It is advised that the full 24 months of baseline survey data are presented and analysed within the ES."</p>	<p>The full 24 months has been presented in the <b>Volume 7, Chapter 12 Offshore ornithology (application ref: 7.12)</b> (section 12.4.2).</p>
<p>We note that only design-based methods have been used to estimate abundance and density. We recommend the use of model-based density and abundance estimates (such as MRSea), and that design-based outputs are presented alongside model-based outputs.</p>	<p>This request is noted, however it is only possible to undertake robust spatial modelling for species present in sufficient numbers that their distributions can be reliably analysed in all months. Since this condition is only met for some species in some months, this would result in a piecemeal set of model results, which it would be not be possible to use in the assessment.</p> <p>Furthermore, the primary purpose of spatial modelling is being able to compare distributions, such as before and after wind farm construction, to understand the nature of observed changes. Therefore, spatial models provide limited benefits for baseline characterisation prior to wind farm construction. Given this, the technical challenges of undertaking spatial modelling and the greater data requirements it has not been considered that the effort is justified for the current situation.</p>
<p>It is noted that no detail has been provided on the methods used to combine abundance estimates of the array +2km buffer of the two arrays, to account for the overlapping buffers.</p>	<p>Following revisions to the Projects the boundaries of DBS East and DBS West are now a minimum of 8km apart and therefore there is no overlap between the Projects even when their respective 4km buffers are included and hence it has not been necessary to account for the overlap referred to in this comment in the final assessment presented in the ES.</p>
<p>Natural England advises that, for EIA, the key assessment should be an annual assessment of impact at the largest population size, and note that in the case of kittiwake, guillemot and puffin, the largest Biologically Defined Minimum Population Scale (BDMPS) is in the breeding season. The reference populations recommended here are advised to be used to assess EIA impacts in the submitted ES.</p>	<p>The population sizes recommended by Natural England have been used in <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b>.</p>
<p>We note that the demographic rates used to calculate 'average mortality' differ from those presented in Horswill &amp; Robinson (2015) for several species. NE advises that the Applicant use the demographic rates as provided in Horswill &amp; Robinson (2015).</p>	<p>These demographic rates have been reviewed and amended as appropriate. This has resulted in only very minor differences in the estimated all-age class average mortality rates.</p>
<p>We do not agree with the approach taken for assessing the impacts of construction or decommissioning displacement. It is recommended that displacement impacts during construction and decommissioning be presented as 50% of the operational displacement impacts.</p>	<p>The assessment has been amended to include this approach (section 12.6.1 of <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b>).</p>



Comment	Project Response
<p>"We note that several migratory species have been screened out due to low numbers. It is our advice that migratory species should not be excluded from Collision Risk Model (CRM) assessments based on low numbers during site-based surveys. The most appropriate method of assessing collision risk to migratory species should be agreed through the Expert Topic Group discussions."</p>	<p>These species have been included in the technical appendices, and also in the relevant sections of <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b> (e.g. section 12.6.2).</p>
<p>"It is noted that the results of CRM using Natural England's recommended avoidance rate are not assessed for gannet. We advise that the results of CRM using NE's recommended avoidance rate are fully presented and assessed for gannet."</p>	<p>This is not considered to be correct. NE's guidance is to use a mean rate of (micro) avoidance of 99.2% in the CRM and to reduce densities by 70% (or a range from 65-85%) to correspond to macro avoidance. The approach taken in the CRM was to combine these sources of avoidance to obtain a single value for use in the modelling: <math display="block">= 1 - ((1 - 0.992) \times (1 - 0.7)) = 0.9976</math> The collision estimates obtained are identical using either the combined rate above or adjusting the densities, however the combined approach is simpler to implement and does not require multiple adjustments to be made.</p>
<p>"We note that no further consideration has been given to impacts assessed as exceeding the 1% threshold of baseline mortality. It is advised that any impacts exceeding the 1% threshold of baseline mortality should be taken through to further assessment, e.g. population modelling, to determine the significance of the mortality for the population in question"</p>	<p>The Applicants' have applied the 1% threshold approach to assessment in <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b>.</p>
<p>"We do not agree with the Applicant's approach of only screening in SPAs within mean max foraging range +1s.d. for potential effects on non-breeding seabirds. We advise that the screening process be revised, considering the information presented in Furness (2015) on potential connectivity of seabird features of SPAs outside the breeding season."</p>	<p><b>Volume 6, Report to Inform Appropriate Assessment (application ref: 6.1)</b> has applied this proposed screening approach (mean maximum foraging range plus 1 standard deviation) for non-breeding season impacts on SPAs.</p>
<p>"Table 5-2 The minimum lower blade tip height has been provided in meters to MSL. We are unclear what MSL refers to. Please provide the minimum clearance height in relation to highest astronomical tide (HAT). We advise that this should be raised above 22m as much as possible to reduce seabird collision risk."</p>	<p>MSL = Mean Sea Level, which is the datum used for seabird flight heights, and the reason why the CRM includes an 'offset' value as turbine clearance heights are often quoted from other datums, such as highest astronomical tide (HAT), mean high water springs, lowest astronomical tide, etc. The use of MSL simplifies this since no other calculation is required.</p>
<p>"Section 12.3.2.3 We note that details have not been provided on the construction of the cable corridor, which will be required to assess impacts. NE would like to see details relating to the construction of the cable corridor i.e., timings, vessel numbers and movements, as well as an assessment of impacts. This is in order to advise on the impacts of the construction of the cable corridor on the SPA."</p>	<p>Assessment of potential impacts along the export cable construction corridor have been included in <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b> (section 12.6.1).</p>

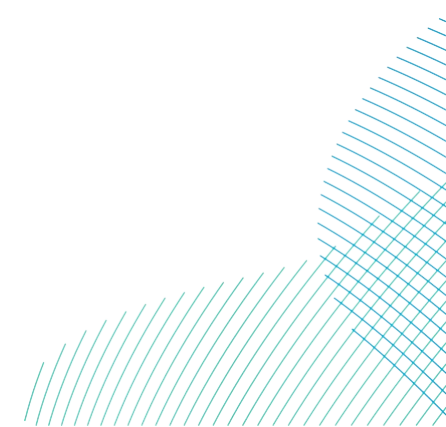


Comment	Project Response
<p>"Section 12.3.2.4, Section 12.3.3</p> <p>Natural England note that no details have been provided of vessel or helicopter movements, routes or schedules, which will be required to assess impacts. Natural England further note that no mitigation measures have been described that relate to disturbance/displacement caused by vessel or helicopter movements.</p> <p>Natural England advise that details of vessel and helicopter movements be provided in the Environmental Statement (ES), along with assessment of potential impacts and details of any relevant mitigation measures."</p>	<p>The potential for displacement due to construction vessels has been assessed in <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b> (section 12.6.1). This has focussed on the potential for effects within the array areas and along the export cable corridor as these are where any likely effects would be anticipated to take place. Any effects due to the passage of vessels and helicopters would be short-term and localised and therefore does not require assessment.</p>
<p>"Section 12.3.2.3</p> <p>Natural England note that there are three potential build-out scenarios, and that the worst-case scenario is accounted for in any population modelling of impacts.</p> <p>Natural England advise that each potential build-out scenario is assessed in terms of the worst-case scenario of any population modelling of impacts."</p>	<p>The worst case scenario for all impacts has been assessed through <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b>.</p>
<p>"Chapter 12, Section 12.4.2.1 Table 12-1, Technical Appendix 12-1</p> <p>Natural England note that only 12 months of baseline characterisation data have been included in this PEIR. It will not be possible for Natural England to comment on the sufficiency and robustness of the baseline data until the full 24 months have been provided.</p> <p>Natural England cannot rule out the possible need to analyse any data already collected (but not analysed) from additional cameras if, following the completion of 2 years of baseline survey data collection, the survey coverage does not appear to be sufficient for assessment purposes (e.g. where measures of confidence in the data suggest analysing images collected but not analysed might improve confidence for certain species).</p> <p>Natural England welcomes the Applicant's intention to present all 24 months of survey data in the Environmental Statement (ES) and to discuss its analysis during post-PEIR consultation.</p> <p>Please include the full 24-months of baseline data in the final assessment, as stated, and engage with Natural England on the analysis of this data through the Evidence Plan Process."</p>	<p>The full 24 months has been presented in the <b>Volume 7, Chapter 12 Offshore ornithology (application ref: 7.12)</b> (section 12.4.2).</p>

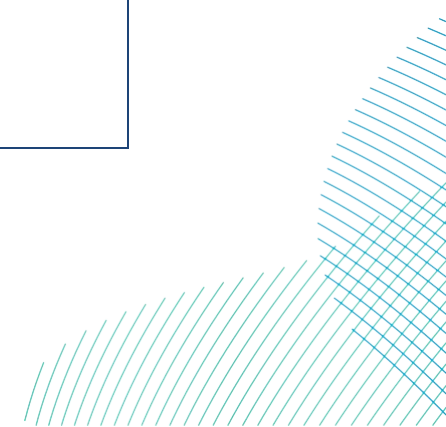




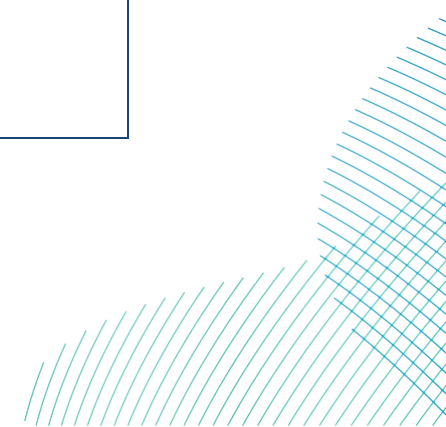
Comment	Project Response
<p>Natural England note that the 24-month period of baseline surveys includes months prior to, and others during, the highly pathogenic avian influenza (HPAI) outbreak in seabirds in summer 2022. Because of this, Natural England may need to discuss data collected from summer 2022 onwards with the Applicant, as stated in our advice note from September 2022.</p>	<p>This point is acknowledged, however further discussions with Natural England and their guidance on this matter* has indicated that there is no clear requirement for further actions to be taken in the assessment. In addition, the colony monitoring undertaken by the RSPB of the Flamborough and Filey Coast SPA (Butcher et al. 2023 and Clarkson et al. 2022) have not found any significant changes in the monitored species counts over this period.</p> <p>* (e.g. <i>Highly Pathogenic Avian Influenza (HPAI) outbreak in seabirds and Natural England advice on impact assessment (specifically relating to offshore wind) September 2022</i>;  <a href="https://defra.sharepoint.com/sites/WorkDelivery2512/SitePages/Home.aspx">https://defra.sharepoint.com/sites/WorkDelivery2512/SitePages/Home.aspx</a>)</p> <p>Butcher, J., Aitken, D., O’Hara, D. (2023) Flamborough and Filey Coast SPA Seabird Monitoring Programme 2023 Report</p> <p>Clarkson, K., Aitken, D., Cope, R., &amp; O’Hara, D. (2022) Flamborough &amp; Filey Coast SPA: 2022 seabird colony count and population trends. Unpublished RSPB report.</p>
<p>"Chapter 12, Section 12.4.2.1            "The survey methodology was discussed and agreed with Natural England through the ETG process"            Natural England do not agree with the statement that Natural England has agreed all aspects of the survey methodology with the Applicant. Natural England has previously requested more detail on the survey methodology than has been presented hitherto. After reviewing this PEIR, Natural England still note a lack of detail provided on the baseline surveys (see comment below)."</p>	<p>The Applicants have provided further details on methodology as requested by Natural England in <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b> and technical appendices.</p>
<p>"Technical Appendix 12-1, Section 2.1            Natural England’s Best Practice Guidance (BPG) states that the following information on baseline surveys for offshore ornithology be presented:            "A table [...] to clearly present the site-specific survey information, , including survey dates, number of transects, total transect length, total area surveyed (measured in km2), percentage coverage of survey area, sea state (range and predominant, and/or number of images/minutes at each sea state), turbidity, and number of images / cameras (where applicable)"            "A figure [...] to display survey transects across the project area, including a readable scale"            Natural England note that the details currently provided do not include survey dates, number of transects, total transect length, total area surveyed per survey, sea state, turbidity, number of images, number of cameras, or a figure showing the location of the transects.            Please present the requested information about the baseline surveys in the submitted ES."</p>	<p>The requested survey information has been provided in the Appendices to the ES chapter (see <b>Volume 7, Appendix 12-2 (application ref: 7.12.12.2)</b>).</p>



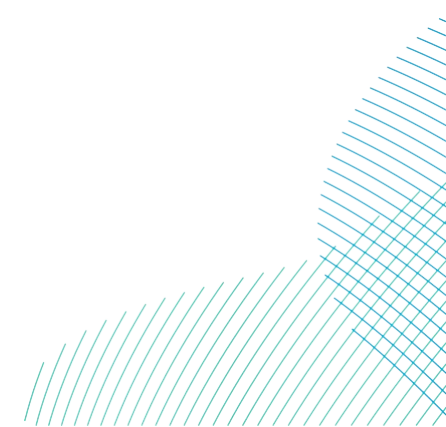
Comment	Project Response
<p>"Technical Appendix 12-1, Section 2.3</p> <p>We note that only design-based methods have been used to estimate abundance and density.</p> <p>We advise consideration is given to the use of model-based (e.g. MRSea) estimates, and that design-based outputs are presented alongside model-based outputs where used, along with distribution maps of the raw survey data. If used, evidence of the suitability of any novel modelling method would need to be provided.</p> <p>Natural England advise the use of model-based (e.g. MRSea) estimates, and that these be presented alongside design-based outputs and distribution maps of the raw survey data."</p>	<p>This request is noted, however robust spatial modelling for all months requires that species are present in large numbers throughout the year, which is not the case with sites this far from the coast. Furthermore, the key strength of spatial modelling is being able to compare distributions, such as before and after wind farm construction. Given this, the technical challenges of undertaking spatial modelling and the greater data requirements it has not been considered that the effort is justified for the current situation.</p>
<p>"Technical Appendix 12-1, Section 2.3</p> <p>We understand from the ETG meeting held on 7th February 2023 that the autocorrelation approach to be applied was novel for OWF applications.</p> <p>Natural England would welcome further discussion on the autocorrelation approach during the EP process."</p>	<p>The Applicants have discussed this approach further with NE in the ETG held on 6<sup>th</sup> February 2024 and provided further information in <b>Volume 7, Appendix 12-2 (application ref: 7.12.12.2)</b> with respect to the methods used.</p>
<p>"Technical Appendix 12 – 2, Technical Appendix 12-3</p> <p>Natural England’s best practice advice states: “Tables of abundance and density estimates should be presented separately for birds in flight, birds on the water, and all birds.”</p> <p>We note that separate abundance and density estimates for birds in flight and birds on the water have not been presented.</p> <p>Please present separate abundance and density estimates for birds in flight, birds on the water, and all birds."</p>	<p><b>Volume 7, Appendix 12-3 to 12-9 (application ref: 7.12.12.3 to 7.12.12.9)</b> provides the full set of tables as requested.</p>
<p>"Chapter 12, Section 12.6.2.1, Technical Appendix 12-2</p> <p>It is stated that: “because the two array areas (East and West) share a border the buffer areas from the two array areas overlap. Therefore, the sum of the number at risk from each array area (when the buffers are included) is greater than the total from analysis of the array areas combined (i.e. as a result of double counting of birds recorded in the overlap zone; this double counting will be addressed in the ES).”</p> <p>The Tables showing abundance estimates for both projects plus buffer combined in Technical Appendix 12-2 state: “Note that the Project Total is Less Than the Sum of East and West Due to Overlap of the Individual 2km Buffers”</p> <p>Natural England note that no detail has been provided on the extent of the overlap of the project buffers, the estimation of abundance within the overlapping zones, or the methods used to add the abundance estimates of Dogger Bank South – East &amp; buffer with those of Dogger Bank South – West &amp; buffer.</p> <p>In the submitted ES, please provide detail on the extent of the overlap of the project buffers, the estimation of abundance within the overlapping zones, and in particular the methods used to add the abundance estimates of Dogger Bank South – East &amp; buffer with those of Dogger Bank South – West &amp; buffer."</p>	<p>Following Project design changes the boundaries of DBS East and DBS West are now a minimum of 8km apart, therefore there is no overlap between the two Projects or their 4km buffers and there is no requirement for the analysis to account for the previous overlap.</p>



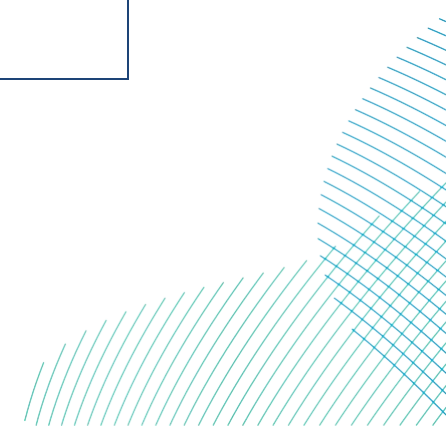
Comment	Project Response
<p>"Chapter 12, Table 12-14, Technical Appendix 12-2, Technical Appendix 12-4</p> <p>Seasonal peak abundances: Natural England notes that there are some discrepancies between the monthly abundance estimates presented in Appendices 12-2 and 12-4 and the seasonal peak abundances presented in Chapter 12, Table 12-14.</p> <p>Ensure seasonal peak abundances are consistent in the submitted ES."</p>	<p>All population estimates have been checked in <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b>.</p>
<p>"Chapter 12, Table 12-14, Technical Appendix 12-2</p> <p>It is advised that 'commic' terns are either:</p> <p>Apportioned to species based on identifiable ratios/migration timings; or,</p> <p>Worst case scenarios are assessed where all 'commic' tern are assumed to be Arctic tern and all 'commic' tern are assumed to be common tern.</p> <p>Please revise the apportioning of 'commic' terns."</p>	<p>The tern assessments have been updated in <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b>.</p>
<p>"Chapter 12, Section 12.5.2 Table 2-11</p> <p>Seasons: Natural England welcomes the use of the 'full' breeding season for species.</p> <p>However, for species where the Projects are beyond foraging range +1sd of any colonies, Natural England note that it is appropriate to define the breeding season as the 'migration-free' breeding period, to ensure that late or early migratory movements are assessed against the appropriate reference populations. For DBS, Natural England note that this would apply to both Arctic and common tern.</p> <p>Please revise the seasons used for Arctic and common tern."</p>	<p>The assignment of full or migration-free breeding seasons have been reviewed and adjusted as appropriate, noting NE's suggested regarding terns.</p>
<p>"Chapter 12, Section 12.5.2, Table 12-11</p> <p>Population scales: Natural England advises that, for EIA, the key assessment should be an annual assessment of impact at the largest population size, and note that in the case of kittiwake, guillemot and puffin, the largest BDMPS is in the breeding season.</p> <p>We advise that the following largest BDMPS be used for these species:</p> <p>Kittiwake (breeding): 839,456</p> <p>Guillemot (breeding): 2,045,078</p> <p>Puffin (breeding): 868,689</p> <p>We note that this has implications for the calculation of baseline mortality against which impacts are assessed throughout for these species.</p> <p>Natural England further recommend that common tern and Arctic tern be treated separately, in terms of BDMPS and baseline mortality.</p> <p>Please revise the reference population sizes for kittiwake, guillemot and puffin.</p> <p>Please assess population size and baseline mortality separately for Arctic and common tern."</p>	<p>The Applicants are grateful for these recommended reference populations for use in the annual EIA assessments. The approach for terns has also been reviewed and updated as appropriate. It should be noted however, that very few terns of any species were recorded at DBS so very little assessment was necessary for these species.</p>



Comment	Project Response
<p>"Chapter 12, Section 12.5.2, Table 12-13</p> <p>Species average mortality: The Applicant states that demographic rates have been taken from Horswill and Robinson (2015).</p> <p>However, we note that the demographic rates presented in Table 12-13 differ from those presented in Horswill &amp; Robinson (2015) for several species (e.g. puffin), with implications for the calculation of the 'average mortality' figures and thus on the calculation of baseline mortality rates against which impacts are assessed.</p> <p>Natural England advise that the demographic rates are used as provided in Horswill &amp; Robinson (2015), and that any deviations from these rates be fully explained.</p> <p>Please use the rates provided in Horswill &amp; Robinson (2015) when calculating 'average mortality'."</p>	<p>These demographic rates have been reviewed and amended as appropriate. It is not anticipated that this will make a large difference to the all-age class average mortality rates.</p>
<p>"Chapter 12, Technical Appendices</p> <p>Natural England note that no consideration has been given to the baseline environment relating to the cable corridor or vessel routes.</p> <p>The scoping report stated "The Offshore Study Area closer to shore, crosses the Greater Wash SPA, for which consideration of potential impacts will need to be given".</p> <p>Provide clarification on the worst-case scenario for vessel movements and cable corridor. Natural England advises that the potential port options (or locations if known) are presented at the Environmental Statement (ES) stage.</p> <p>Please note that recent DAS survey data for the Greater Wash SPA will become available for use in assessments in due course."</p>	<p>Consideration of vessel movements has provided in <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b> and assessed in full in section 12.6.1.</p>
<p>"Natural England note that no additional datasets have been considered to provide context when characterising the baseline environment, beyond the 12 months of project survey data. The Scoping Report stated that data from Dogger Bank Creyke Beck and Dogger Bank Teesside would be included when characterising the baseline environment. Natural England previously advised also using data collected at the Round 3 Hornsea projects.</p> <p>Please draw upon additional data from Dogger Bank Creyke Beck, Dogger Bank Teesside and the Round 3 Hornsea projects where appropriate to contextualise the baseline environment characterisation."</p>	<p>Reference to other datasets have been made in <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b> as appropriate (e.g. section 12.4.2).</p>

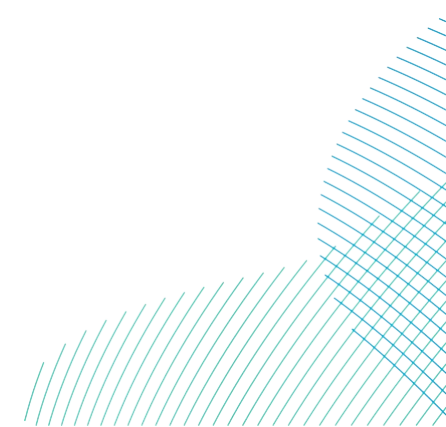


Comment	Project Response
<p>"Chapter 12, Section 12.6.1.1 Construction displacement: Natural England do not agree with the approach taken for assessing the impacts of construction displacement. Natural England do not agree with the statement that "Any impacts resulting from disturbance and displacement from construction activities would be short-term, temporary and reversible in nature, lasting only for the duration of construction activity, with birds expected to return to the area once construction activities have ceased" Natural England consider that displacement is likely to occur within and around the constructed array area, due to the presence of turbines, and where construction activities are ongoing. This will represent and increasing spatial impact as construction progresses. The approach taken by the Applicant does not reflect this, despite stating that "At such time as wind turbines (and other infrastructure) are installed onto foundations the impact of displacement would increase incrementally to the same levels as operational impacts", which Natural England agrees with. Natural England advise that the sensitivity to displacement during construction and decommissioning should be the same as during the operational phase. Natural England recommend that displacement impacts during construction be presented as 50% of the operational displacement impacts, as has been carried out for other recent OWF submissions. Please present construction displacement impacts as 50% of the operational displacement impacts."</p>	<p>The assessment has been amended to include this approach (section 12.6.1 of <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b>).</p>
<p>"Chapter 12, Section 12.6.1.1 Natural England note that no consideration has been given to potential impacts of displacement from construction of the cable corridor. Please include consideration of potential impacts of displacement caused by the construction of the cable corridor. For vessel movements/construction activities within, or within 2km of Greater Wash SPA, the use of the Natural England's Best Practice Protocol for Minimising Disturbance to Red-Throated Diver will be a minimum requirement, and further mitigation may be necessary depending on the scale and intensity of the proposed activity."</p>	<p>Consideration of vessel movements has been provided in <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b> and assessed in full (section 12.6.1).</p>
<p>"Chapter 12, Section 12.6.2.1 Operational displacement: Natural England note that the displacement matrices presented in this section are derived from central abundance estimates alone, and request that matrices are also presented of the upper and lower confidence intervals, so that the full range of impact scenarios can be understood. Please present matrices of the upper and lower confidence intervals."</p>	<p>These have been provided as requested, although to minimise the over-complication and content in <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b> the full tables have been included in the <b>Volume 7, Appendix 12-12 (application ref: 7.12.12.12)</b>, with just the key impact values discussed in the text in relation to the upper and lower abundance estimates.</p>

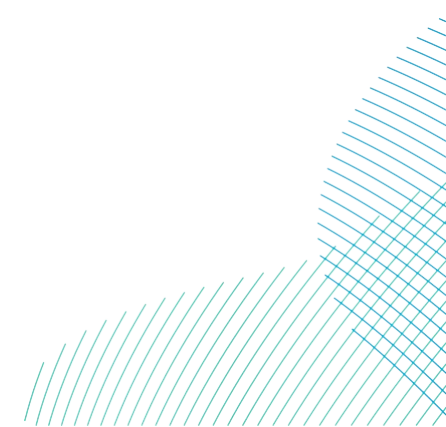




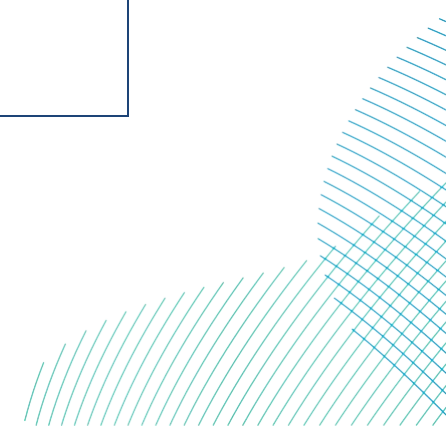
Comment	Project Response
<p>"Chapter 12, Section 12.6.2.1</p> <p>Operational displacement: Whilst Natural England cannot comment on the validity of the conclusions presented, we note that the Applicant's assessment has concluded that impacts exceed the 1% threshold of baseline mortality for guillemot and razorbill, but has assessed the significance of these impacts as 'minor to moderate' for guillemot and 'minor' for razorbill. Natural England's best practice advice advises that any impacts exceeding the 1% threshold of baseline mortality be given further consideration, e.g. through population modelling, to determine the significance of the mortality for the population in question.</p> <p>Please give further consideration, e.g. through population modelling, to any impacts exceeding the 1% threshold of baseline mortality when the full baseline is assessed."</p>	<p><b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b> has provided additional assessment for impacts which exceed the 1% mortality threshold as requested.</p>
<p>"Chapter 12, Section 12.6.2.1, Table 12-20, Paragraph 401</p> <p>Operational displacement (screening): Natural England note that the screening in of species has been done based on the first 12 months of baseline data only and advise that it may be necessary to reconsider which species are screened in for displacement impact assessment following the analysis of the full 24 months of baseline survey data, as the Applicant has stated is the intention with regards to screening for collision risk.</p> <p>Please review the species screened in for assessment once the full 24 months of baseline data has been analysed."</p>	<p>Screening has been revisited during the <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b> assessment as suggested.</p>
<p>"Section 12.6.2.1, Table 12-20</p> <p>Operational displacement: Natural England note that impacts from operational cable maintenance have been screened out as "unlikely to result in detectable effects at either the local or the regional population level".</p> <p>Natural England also notes that while the Applicant states the intention to consider displacement impacts due to maintenance operations associated with the offshore infrastructure, no consideration appears to have been given to the potential displacement impacts of vessel routes and traffic associated with those maintenance operations. Natural England note that consideration of these impacts may affect the species screened in for displacement assessment (e.g. red-throated diver and common scoter).</p> <p>Please consider impacts of disturbance/displacement from operation and maintenance vessels."</p>	<p>Consideration for these potential impacts has been provided in <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b> (section 12.6.2).</p>



Comment	Project Response
<p>"Chapter 12, Section 12.6.2.3, Table 12-70</p> <p>Collision risk (screening): Natural England note that common tern and Arctic tern have been screened out of collision risk assessment due to 'very low' estimated densities of birds in flight within the array areas. We note that it is unclear whether, or how, the recorded densities of 'commic tern' have been assessed in this screening process.</p> <p>Natural England further note that common and Arctic tern have been assessed as at 'low' risk of collisions, while small gulls have been assessed as at 'medium risk' and large gulls as at 'high risk'. These risk categories do not fit with Natural England's latest advice on CRM parameters (see interim note July 2022). According to the revised avoidance rates advocated by Natural England in the interim note, small gulls and large gulls have a similar level of risk, and terns are at higher risk than gulls, having a lower avoidance rate.</p> <p>Natural England also note that the timings of detections of common, Arctic and 'commic' tern within the array suggest that these birds are migrants, and that Natural England's best practice advice states that migratory birds "should not be excluded from CRM assessments based on low numbers recorded during site-based surveys alone. Migrants may travel through an area continuously for certain times of year, but this may not be adequately captured by baseline characterisation surveys which represent a snapshot of conditions at the particular time of the survey. CRM assessments should therefore account for the flux of birds on passage through the site "</p> <p>Natural England therefore advise that common and Arctic tern are screened in for collision risk assessment and assessed appropriately.</p> <p>Please revise the collision 'risk' levels in accordance with Natural England's advice.</p> <p>Please screen in Arctic and common tern for collision risk assessment."</p>	<p>The collision risk assessment for terns has been reviewed as advised and these species are now screened into the assessment.</p>
<p>"Chapter 12, Section 12.6.2.3, Table 12-70</p> <p>Collision risk: Natural England note that little gull, common gull, Arctic skua, and great skua were initially screened in for collision risk assessment, but were subsequently screened out based on low numbers.</p> <p>Natural England also refer the Applicant to the previous comment about migratory species, which apply to these species. Natural England advise that assessment is carried out in line with our BPG and results presented for all species screened in for collision risk assessment, including migratory species.</p> <p>Please screen in little gull, common gull, Arctic skua and great skua for migratory collision risk assessment and assess in line with the BPG."</p>	<p>These species have been included in the technical appendices, and also in <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b>.</p>

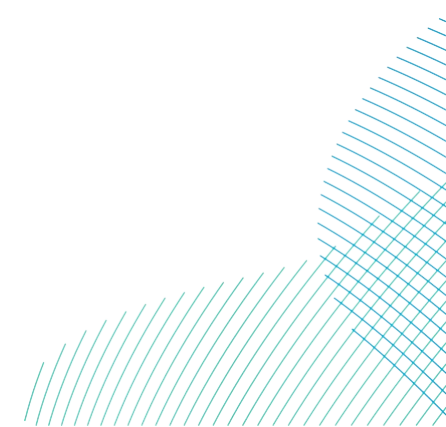


Comment	Project Response
<p>"Chapter 12, Section 12.6.2.3, Table 12-71, Table 12-72, Table 12-73, Table 12-74</p> <p>Natural England note that the Applicant has included the avoidance rate recommended by Natural England for gannet (0.992) and has presented summary outputs from CRM using this avoidance rate in Tables 12-72 and 12-73 and in Appendix 12-6. However, the results of CRM using this avoidance rate are not presented in Table 12-74, and that these are the results used to assess significance of impacts against baseline mortality.</p> <p>Natural England request that full CRM outputs are presented for gannet for the recommended avoidance rate of 0.992, and that these outputs are used to assess significance of impacts against baseline mortality.</p> <p>Please present and assess the results of CRM using Natural England's recommended avoidance rate for gannet."</p>	<p>The gannet CRM has used the avoidance rates advised by Natural England.</p>
<p>"Chapter 12, Section 12.6.2.4</p> <p>Combined collision and displacement: Natural England note that the annual collision figure used for gannet in this combined assessment is the mean between the results of using the two higher avoidance rates, neither of which is Natural England's recommended avoidance rate. The annual mortality as calculated by the Applicant using Natural England's recommended avoidance rate and shown in Table 12-73 is 36.29. The statement in paragraph 424 that combined collision and displacement impacts result in "a maximum of 29.7 individuals" is therefore incorrect.</p> <p>Although Natural England cannot comment on the conclusions presented here due to the incomplete baseline, we advise the Applicant to present CRM outputs using Natural England's recommended avoidance rate when assessing for combined collision and displacement risks for gannet.</p> <p>Please use the results of CRM using Natural England's recommended avoidance rate for gannet when assessing combined collision and displacement for gannet."</p>	<p>The gannet collision risk assessment has been undertaken in line with Natural England advice.</p>
<p>"Chapter 12, Section 12.6.3.1</p> <p>Decommissioning displacement: Natural England do not agree with the Applicant that impacts of decommissioning displacement can be predicted to be negligible. We refer the Applicant to our comments above on construction displacement. Natural England advise that decommissioning displacement impacts be treated the same as construction displacement impacts and that they be presented as 50% of the operational displacement impacts</p> <p>Please present decommissioning displacement impacts as 50% of the operational displacement impacts."</p>	<p>The assessment has been amended to include this approach as appropriate (section 12.6.3 of <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b>).</p>
<p>"Chapter 12, Section 12.7</p> <p>Cumulative effects: Natural England note the lack of detail provided on cumulative assessment methodology, and expect to see a fuller description of methods within the submitted ES.</p> <p>Please provide more detail on cumulative assessment methodology in the submitted ES."</p>	<p>A full CEA has been provided in <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b>.</p>

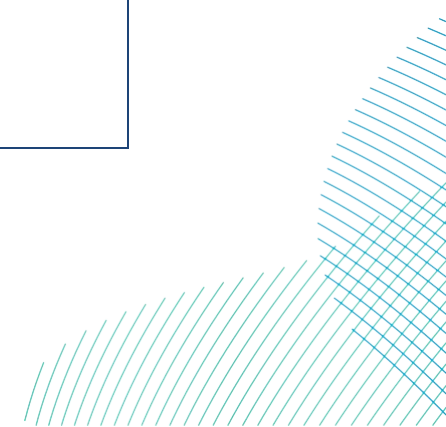




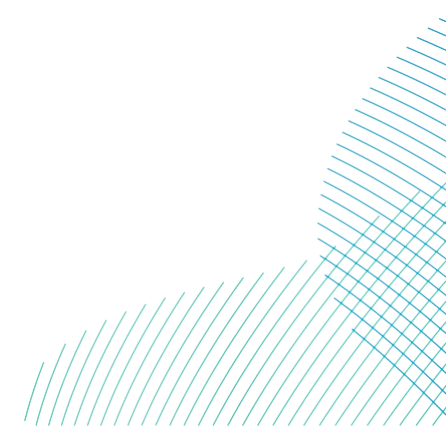
Comment	Project Response
<p>"Chapter 12, Section 12.7, Table 12-79 Cumulative effects (screening): Natural England do not agree with the screening out of decommissioning displacement effects. As stated in comments above, these should be treated the same as construction displacement impacts, and therefore should be screened into the cumulative assessment. Please screen in decommissioning displacement impacts into the cumulative effects assessment."</p>	<p>The assessment has been amended to include this approach as appropriate (section 12.6.7 of <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b>).</p>
<p>"Chapter 12, Section 12.7 Cumulative effects: Natural England note that, when the Applicant produce their ES, the most recent agreed cumulative assessment is likely to be that produced for the Sheringham Shoal &amp; Dudgeon Extension (SEP &amp; DEP) projects by the end of the Examination, and advise that the Applicant refer to the list of projects considered and the agreed cumulative totals from this project in their own cumulative assessment. Natural England note that we have been unable to rule out significant adverse impacts at the EIA scale for gannet, kittiwake, great black-backed gull, guillemot, razorbill, and red-throated diver, irrespective of whether SEP &amp; DEP impacts are included in the cumulative totals (see Natural England relevant representations for SEP &amp; DEP), and we note that SEP &amp; DEP (and therefore DBS) will be further adding to these cumulative totals."</p>	<p>The Applicants note NE's comments on the approach to CEA and have reviewed the ES's available at the time of writing.</p>
<p>"Section 4.4.4.2. Table 4-10, Table 4-11 Non-breeding and migratory seabirds: Natural England do not agree with the Applicant's approach of only screening in SPAs within mean max foraging range +1s.d. for potential effects on non-breeding seabirds. SPAs screened in should not be limited to those determined solely by the breeding season/foraging ranges of their ornithological features, but also account for the potential for the projects to interact with birds from much more distant SPAs during the migration and non-breeding seasons. Furness (2015) provides information for many of the relevant seabird species on the suite of SPAs with potential connectivity to the relevant area outside of the breeding season. This information should be considered when screening in SPAs for impacts on seabird species outside of the breeding season. Natural England advise that the screening process be revised, taking into account the information presented in Furness (2015) on potential connectivity of seabird features of SPAs outside the breeding season."</p>	<p>Non-breeding season impacts have been considered for more distant SPA colonies as per Natural England's advice.</p>



Comment	Project Response
<p>"Section 4.4.4.4, Table 4-10, Table 4-11</p> <p>Transboundary considerations: Natural England does not agree with screening out non-UK SPAs that are within foraging range (mean max + 1sd) for breeding features or that might have connectivity with features during the non-breeding season (see comment above re information in Furness 2015). Non-UK SPAs should be treated the same as for UK SPAs and screened in for assessment where appropriate.</p> <p>Natural England advise that the screening process be revised to include all SPAs that are within foraging range (mean max + 1sd) for breeding features."</p>	<p>This approach has been reviewed and the assessment updated as considered appropriate (section 12.9 of <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b>).</p>
<p>"Table 4-10, Table 4-11</p> <p>FFC SPA: "There is potential for disturbance to breeding cormorant, shag and herring gull from operation &amp; maintenance vessels."</p> <p>Natural England notes that disturbance from operation &amp; maintenance vessels may also affect guillemot, razorbill, and puffin, and advises that these species be screened in for assessment of impacts from operation and maintenance vehicles.</p> <p>Please include consideration of disturbance impacts from operation &amp; maintenance vessels to FFC guillemot, razorbill, and puffin."</p>	<p>This approach has been reviewed and the assessment updated as considered appropriate (section 12.6.2 of <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b>).</p>
<p>"Section 3.3.1</p> <p>Natural England welcomes the Applicant's adoption of the 7-tiered approach advocated in Natural England's best practice advice.</p> <p>We advise the Applicant to review Natural England's recent submissions to the Hornsea Four and SEP &amp; DEP Examinations, particularly with respect to integrity judgements for FFC SPA."</p>	<p>The Applicants have reviewed these assessments and made appropriate use of the information therein.</p>
<p><b>PEIR Consultation, Orsted PEIR Comments, 17/07/2023</b></p>	
<p>We would welcome the opportunity to discuss further the following cumulative and in-combination impacts:</p> <ul style="list-style-type: none"> <li>to shipping and navigation, ornithology, and marine mammals, as well as seabed morphology due to the nature of the increased development in a congested area of sea.</li> </ul>	<p>The final Cumulative Effects Assessments are available in their respective topic chapters within this ES submission.</p>



Comment	Project Response
<p><b>PEIR Consultation, Netherlands Government 15/09/2023</b></p>	
<p><b>Birds</b></p> <p>As already mentioned before, attention for cumulative effects on a transboundary scale is a crucial issue of this PEIR. Since the southern part of the North Sea already harbours various wind farms in the United Kingdom and neighbouring countries in combination with other activities, the combination of all these activities will cause negative cumulative effects on birds. We suggest you consider this in further stages of the process. This is possible with comprehensive monitoring data that is available in the European Seabirds at Sea database. We offer our assistance to analyse these data so that a proper transboundary analysis can be made, if desired.</p> <p>Assessing cumulative impacts is challenging indeed. The Netherlands, however, has been quite successful in conducting such ecological research. We would therefore like to refer to the Framework for Assessing Ecological and Cumulative Effects in which international cumulative effects of wind farms have been calculated.</p> <p>We expect considerable habitat loss for various bird species by this new development and thus we would be grateful if you will pay extra attention and mitigation measures to this aspect in the updated EIA and further activities. Bird species that are of special interest due to possible conservation targets in the Netherlands are razorbill, guillemot, great black-backed gull, northern gannet and kittiwake. It is probable that the construction of this wind farm will have an external effect on bird species living in the four Dutch Natura 2000 areas Dogger Bank, Cleaver Bank, Frisian Front and Central Oyster Grounds, especially considering international cumulative effects.</p> <p>In the Netherlands, bird collisions with wind turbines and habitat loss due to wind farms are perceived to be an essential issue. Unfortunately, in the PEIR bird collisions are only described for the northern gannet and thus the Netherlands proposes to pay extra attention to the great black-backed gull and the kittiwake as we believe these might also be affected by collisions. Mitigation measures should be considered to avoid such collisions.</p> <p>Furthermore, the migration route of razorbill and guillemot from the breeding grounds in the United Kingdom to the moult areas (e.g., Frisian Front) in the Netherlands are not included in the assessment. Also during non-breeding time these species are expected to experience negative effects from additional offshore wind farms. We would appreciate if you would look into mitigation measures to avoid collisions, habitat loss, and barrier effects.</p> <p>The PEIR mentions that research is being done on avian flu, however it is not clear how this has been done. It would be highly appreciated if attention will be paid to avian flu, especially in relation to the northern gannet.</p>	<p>Cumulative effects on offshore ornithology is assessed within section 12.7 of <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b>.</p> <p>The maximum estimated area of habitat loss resulting from the Projects has been reduced considerably since PEIR, with both the Array Areas and Offshore Export Cable Corridor boundaries being reduced, the removal of suction bucket and gravity-base foundations from the design envelope within the Array Areas, the reduction of the number of offshore platforms from eleven to eight and reduction of the potential number of offshore export cables from six to four.</p> <p>Updated collision risk modelling has been undertaken for <b>Volume 7, Chapter 12 Offshore Ornithology (application ref: 7.12)</b> with the results detailed within the chapter.</p> <p>Investigations into the recent Highly Pathogenic Avian Influenza outbreak are currently being undertaken by the appropriate statutory nature conservation bodies and non-governmental organisations. Data collected for the Projects to aid this assessment across the 2022 and 2023 breeding seasons are included in <b>Volume 7, Appendix 12-3 to 12-9 (application ref: 7.12.12.3 to 7.12.12.9)</b> of this submission. It is hoped this data may be used in these investigations to provide an indication of the health of the affected colonies in the vicinity of the Projects in the year following the avian flu outbreak.</p> <p>Indications to date are that the gannet colony at Flamborough and Filey Coast SPA has continued to increase despite apparent losses from HPAI, and there is no clear evidence for changes in the numbers of any species recorded at the DBS Array Areas between 2021 (pre-HPAI in English colonies) and 2022 (during and post HPAI noted at English colonies). It thus appears that despite concerns for a wide range of species, colony numbers have remained relatively unaffected, at least in counts made to date. It should also be noted that NE has specifically requested a breakdown of survey estimates across all months of survey data in order to review this aspect.</p>



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