DBS Offshore Wind

RWE Renewables UK Dogger Bank South (West) Limited

RWE Renewables UK Dogger Bank South (East) Limited

Dogger Bank South Offshore Wind Farms

Response to Natural England's Relevant Representations (Appendix G & H)

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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 would 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.
Baseline	The existing conditions as represented by the latest available survey and other data which is used as a benchmark for making comparisons to assess the impact of the Projects.
Climate change	A change in global or regional climate patterns. Within this chapter this usually relates to any long-term trend in mean sea level, wave height, wind speed etc, due to climate change.
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.
Cumulative impact	The combined impact of the Projects in combination with the effects of a number of different (defined cumulative) schemes, on the same single receptor / resource.
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for one or more Nationally Significant Infrastructure Project (NSIP).
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

Term	Definition
	assessment requirements of the EIA Directive and EIA Regulations, including the publication of an Environmental Statement (ES).
Environmental Statement (ES)	A document reporting the findings of the EIA and produced in accordance with the EIA Directive as transposed into UK law by the EIA Regulations.
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.
In Isolation Scenario	A potential construction scenario for one Project which includes either the DBS East or DBS West array, associated offshore and onshore cabling and only the eastern Onshore Converter Station within the Onshore Substation Zone and only the northern route of the onward cable route to the proposed Birkhill Wood National Grid Substation.
Intertidal	Area on a shore that lies between Mean High Water Springs (MHWS) and Mean Low Water Springs (MLWS).
Mean High Water Springs (MHWS)	MHWS is the average of the heights of two successive high waters during a 24 hour period.
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.
Movement	A single trip (i.e. the arrival or departure from site) for the transfer of employees or delivery of goods.
Nationally Significant Infrastructure Project (NSIP)	Large scale development including power generating stations which requires development consent under the Planning Act 2008. An offshore wind farm project with a capacity of more than 100 MW constitutes an NSIP.

Term	Definition
Nearshore	The zone which extends from the swash zone to the position marking the start of the offshore zone (~20m).
Preliminary Environmental Information Report (PEIR)	Defined in the EIA Regulations as information referred to in part 1, Schedule 4 (information for inclusion in environmental statements) which has been compiled by the applicants and is reasonably required to assess the environmental effects of the development.
Projects Design (or Rochdale) Envelope	A concept that ensures the EIA is based on assessing the realistic worst-case scenario where flexibility or a range of options is sought as part of the consent application.
Receptor	A distinct part of the environment on which effects could occur and can be the subject of specific assessments. Examples of Receptors include species (or groups) of animals, plants, people (often categorised further such as 'residential' or those using areas for amenity or recreation), watercourses etc.
Sea level	Generally, refers to 'still water level' (excluding wave influences) averaged over a period of time such that periodic changes in level (e.g. due to the tides) are averaged out.
Special Area of Conservation (SAC)	Strictly protected sites designated pursuant to Article 3 of the Habitats Directive (via the Habitats Regulations) for habitats listed on Annex I and species listed on Annex II of the Directive
Special Protection Area (SPA)	Strictly protected sites designated pursuant to Article 4 of the Birds Directive (via the Habitats Regulations) for species listed on Annex I of the Directive and for regularly occurring migratory species
Statutory Nature Conservation Bodies (SNCBs)	Comprised of JNCC, Natural Resources Wales, Department of Agriculture, Environment and Rural Affairs/Northern Ireland Environment Agency, Natural England and Scottish Natural Heritage, these agencies provide advice in relation to nature conservation to government
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
AEoI	Adverse Effect on Integrity
AI	Artificial Intelligence
ANS	Artificial Nesting Structure
AONB	Area of Outstanding Natural Beauty
AoS	Areas of Search
BDMPS	Biologically Defined Minimum Population Scale
BEIS	Dept of Business Enterprise and Industrial Strategy
CI	Confidence Interval
CIMP	Compensation Implementation and Monitoring Plan
CGR	Counterfactual of Growth Rate
COWSC	Collaboration in Offshore Wind Strategic Compensation
CPGR	Counterfactual of Population Growth Rate
CPS	Counterfactual of Population Size
CRM	Collision Risk Model
DBS	Dogger Bank South
DCO	Development Consent Order
DEP & SEP	Dudgeon Extension Project and Sheringham Extension Project
DESNZ	Department of Energy Security and Net Zero
DML	Deemed Marine Licence
EIA	Environmental Impact Assessment
EPP	Evidence Planning Process

Term	Definition
ES	Environmental Statement
ETG	Expert Topic Group
ExA	Examining Authority
FFC	Flamborough and Filey Coast
FID	Final Investment Decision
GRCIMP	Guillemot [and Razorbill] Compensation Implementation and Monitoring Plan
GRCP	Guillemot [and Razorbill] Compensation Plan
HAT	Highest Astronomical Tide
HPAI	Highly Pathogenic Avian Influenza
HRA	Habitats Regulations Assessment
JNCC	Joint Nature Conservation Committee
KCP	Kittiwake Compensation Plan
KSCP	Kittiwake Strategic Compensation Plan
MERP	Marine Ecosystems Research Programme
MHWS	Mean High Water Springs
MMO	Marine Management Organisation
MSL	Mean Sea Level
NE	Natural England
NMG	Non-Material Change
NNSSR	North Norfolk Sandbanks and Saturn Reef
NRW	Natural Resources Wales
NSIP	Nationally Significant Infrastructure Project
NSN	National Site Network

Term	Definition
ODOW	Outer Dowsing
OWF	Offshore Wind Farm
PEIR	Preliminary Environmental Information Report
PINS	Planning Inspectorate
PVA	Population Viability Analysis
RAG	Red, Amber, Green
RIAA	Report to Inform Appropriate Assessment
RR	Relevant Representation
RSPB	Royal Society for the Protection of Birds
RTD	Red-Throated Diver
SAC	Special Area of Conservation
SANS	Strategic Artificial Nesting Structure
SeaMaST	Seabird Mapping and Sensitivity Tool
SD	Standard Deviation
SNCB	Statutory Nature Conservation Body
SPA	Special Protection Area
TCE	The Crown Estate
UK	United Kingdom

1 Introduction

1. This document presents the Applicants' responses to Appendices G (Offshore Ornithology) and H (Offshore Ornithology Compensation) of Natural England's Relevant Representations (RR-039) received following the closure of the Dogger Bank South statutory consultation period under section 56 of the Planning Act 2008.

2. The Applicants' responses to Relevant Representations received from other Interested Parties were submitted to The Planning Inspectorate at the pre-examination procedural deadline of the 8th October 2024 (see **The Applicants' Responses to Relevant Representations** [PDA-013].

3. Natural England's Relevant Representation [RR-039] outlines that its purpose is also to act as the Written Representation for Natural England on the proposals, and the size of the representation was therefore considered by the Applicants to be too substantial to enable reasoned responses to comments made within the two weeks notification provided by the **Rule 6 letter** [PD-002].

4. The Applicants are submitting responses to Appendix G and H of Natural England's Relevant Representation [RR-039] now, in response to The Examining Authority's Procedural Decision **Rule 9 and 17 letter** [PD-005], dated 22nd October 2024, requesting further information to provide clarity on how Natural England's representations are being approached by the Applicants.

5. It is the Applicants' intention to submit the remaining responses to Natural England's Relevant Representation including Appendices A though F, and Appendix I in early November.

6. For ease of referencing and to facilitate future cross-referencing, the Applicants have used the existing Planning Inspectorate RR identification number (e.g. RR-001) and created a unique identifier for each response by itemising the RR into paragraphs or sections (e.g. RR-001: 1.1). The ID numbers can be found in the first column of each table.

2 Responses to Natural England's Relevant Representation

7. The Applicants' responses to Relevant Representations received from Natural England relating to Offshore Ornithology and Offshore Ornithology Compensation are provided in this section.

8. The Applicants' approach to addressing Natural England's comments on offshore ornithology in **Table 2.1.1** is to provide the requested information in order to minimise the risk of delaying discussions due to disagreement over methodological differences which will not have a material effect on the assessment conclusions. Thus, while Natural England has provided a long list of comments and requirements for updates [RR-039], the Applicants consider that addressing these will not materially or substantively change the conclusions presented in the original application, and this will be evident in the revised assessment which is being prepared.

9. An example of this is Natural England's observation that the seabird abundances (when the buffers are included) for the combined DBS East and DBS West total do not always match the sum of the individual values for the two sites. This is because the method used to estimate the abundance was repeated three times: for DBS East, for DBS West and for the DBS East and DBS West data combined. This approach, which had to be used for the PEIR assessment due to overlapping buffers at that time and was retained for the ES, can generate results which are slightly different for the DBS East/West combined analysis than summing the individual values from DBS East and DBS West. However, these differences are small (the average difference across all species and surveys is <0.006%), not biased (E/W combined can be higher or lower than the E+W), and most importantly will not materially alter the assessment conclusions. It should also be noted that there is no right or wrong way to undertake an analysis such as this and the Applicants remain of the position that the assessments undertaken to date are robust and meet the relevant legal and policy requirements. While the Applicants have agreed to revise the values as per Natural England's request, this is being done in order to avoid delays caused by debating this matter through the Examination.

10. Other updates requested by Natural England are due to their guidance being received too late for inclusion prior to the application submission (e.g. updated demographic rates and reference population sizes), or after submission (addition of a post-breeding period for guillemot). The Applicants note that other offshore wind farms currently in examination are undertaking similar exercises to account for this new guidance. As noted above, such updates will not materially alter the assessment conclusions.

2.1 Responses to Appendix G Offshore Ornithology

Table 2.1.1 Applicants' responses to Natural England's Appendix G Offshore Ornithology

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
RR-039: G 1	N/A	Deviation from Natural England/SNCB advice Natural England cannot agree with the EIA or HRA conclusions presented due to several aspects of the assessment not being provided in line with SNCB advice given during the EPP and/or our Best Practice Advice	Natural England advise that a full assessment is provided in line with SNCB Best Practice Guidance and the advice included within this Representation, alongside the Applicant's preferred approach. Natural England will not be able to advise the ExA on our EIA and HRA conclusions until this information is provided.		An updated assessment will be provided in mid-November 2024 (**Offshore Ornithology EIA Update** [document reference 12.5] and **Offshore Ornithology RIAA HRA Update** [document reference 12.6]). This is being provided in order to reduce the risk of delays, but critically the changes requested by Natural England will not substantively alter the conclusions of the original application. At most the amount of compensation required may be affected (but not to such an extent as to affect the suitability of the Applicants' proposed compensatory measures), but no other material affects will result. Furthermore, it should be noted that in some cases the Applicants consider that Natural England's comments are mistaken (i.e. the information requested has already been provided – see responses to Natural England comments RR-039: G17, G18 and G23), the approach taken by the Applicants have already followed the advice given (i.e. the Applicants consider there to be no requirement to update the assessment) or there are robust reasons for the manner in which the assessment has been conducted. These instances are clearly explained in this response at the relevant points.
RR-039: G 2	N/A	Methods used to combine impacts of the two arrays. Natural England do not agree that the approach taken by the Applicant to calculate the combined impacts of the Dogger Bank South (DBS) East and West arrays is appropriate or accurately reflects the worst-case scenario.	Natural England advise that the monthly abundance estimates for the arrays combined should be calculated as the sum of the monthly abundance estimates for each separate array. The impacts for the arrays combined should then be calculated as the sum of the impacts of each array. Natural England will not be able to advise the ExA further until this information is provided.		The Applicants consider the analysis to be robust and that the update to be provided mid-November 2024 (**Offshore Ornithology EIA Update** [document reference 12.5] and **Offshore Ornithology RIAA HRA Update** [document reference 12.6]) will make no material or substantive differences to the assessment. However, an update to the East plus West combined assessment will be provided in mid-November 2024. Further detail on these points is provided in the detailed comments section (RR-039: G15), but note that as stated in the introduction to this document, the changes to the East and West combined seabird abundances are very small and will not change the assessment conclusions.
RR-039: G 3	N/A	Calculation of impacts on guillemot and razorbill at FFC SPA Natural England do not agree with the approach taken by the Applicant in assessing and apportioning impacts on guillemot and razorbill to Flamborough and Filey Coast Special Protection Area (FFC SPA). Whilst we welcome that the Applicant has considered the need for a bespoke approach to apportioning guillemot in August and September, we consider	Natural England advise that an assessment of impacts on guillemot and razorbill at FFC SPA is presented in line with the detailed advice provided in Annex G1.		The Applicants will provide a revised assessment in mid-November 2024 (**Offshore Ornithology EIA Update** [document reference 12.5] and **Offshore Ornithology RIAA HRA Update** [document reference 12.6]) incorporating this new guidance from Natural England.

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
		that the inclusion of these months within an extended breeding season under-represents the impacts. For razorbill, we consider that the use of the Biologically Defined Minimum Population Scale (BDMPS) method for apportioning impacts during the post-breeding migration season also under-represents the impacts.			
RR-039: G 4	N/A	<u>Lack of in-combination assessments</u> In-combination assessments have not been carried out for the majority of SPA features on the basis of project alone impacts being low. This is even the case where the increase in adult mortality for the projects alone is above the 1% detectability threshold when calculated using Natural England's advised approach. We highlight that a small alone impact can still contribute to an adverse effect on site integrity (AEoI).	Natural England advise that in-combination assessments should be carried out for all SPA features that have been screened in for assessment for the projects alone. As a minimum, we consider that in-combination assessments should be carried out for all species that meet the 1% baseline mortality threshold (calculated according to SNCB guidance), specifically guillemot at Farne Islands SPA, and Red-throated diver at the Greater Wash SPA. We consider there would also be merit in in-combination assessments being carried out for puffins at Farne Islands SPA and FFC SPA.		Additional assessment will be provided in mid-November 2024 (**Offshore Ornithology EIA Update** [document reference 12.5] and **Offshore Ornithology RIAA HRA Update** [document reference 12.6]) for guillemot at Farne Islands SPA, puffin at Flamborough and Filey Coast (FFC) SPA, puffin at Farne Islands SPA and red-throated diver at Greater Wash SPA as requested (in the detailed point on this matter in RR-039: G50).
RR-039: G 5	N/A	<u>Inadequate in-combination assessments</u> Impacts from several developments that have recently submitted applications or are material considerations in the planning process, have been excluded from the in-combination assessments, including: • Outer Dowsing • Five Estuaries • North Falls • Dogger Bank D Whilst we acknowledge that the final submissions of these Projects were likely too close to the DBS submission to allow for full inclusion, information will have been in the public domain from the Preliminary Environmental Information Reports to allow them to be a material consideration. The Applicant has also not included the impacts of projects where compensation has been agreed. Natural England agree that this may be appropriate for impacts on kittiwake, however we advise that impacts from Hornsea Project Four on guillemot should be included due to the current	Natural England advise that all relevant projects should be included in the in-combination assessments, including Outer Dowsing, Five Estuaries, and North Falls OWF. In order to minimise the number of iterations of the in-combination assessments, we recommend the Applicant collaborate with the above developers to agree how updated impact values (based on SNCB advice) can be efficiently incorporated into each other's assessment. We recommend that the in-combination assessments build upon those agreed during the Examination of recently consented projects. We also advise that in-combination totals that include the impacts of compensated-for projects should also be presented for consideration.		An updated in-combination assessment will be provided in mid-November 2024 (**Offshore Ornithology EIA Update** [document reference 12.5] and **Offshore Ornithology RIAA HRA Update** [document reference 12.6]) which will include projects for which assessment totals are now available. It is expected this will include Outer Dowsing, Five Estuaries and North Falls as these have submitted their final applications (although it is important to note that some of their estimated impacts are subject to requests for revision by Natural England so these totals are expected to be preliminary until final agreements have been reached between each project and Natural England). Dogger Bank D has not submitted a PEIR at this stage and it is considered unlikely that this will occur within the timescale of the DBS examination. In the updates to be provided in mid-November 2024 (**Offshore Ornithology EIA Update** [document reference 12.5] and **Offshore Ornithology RIAA HRA Update** [document reference 12.6]) the Applicants will include impact estimates for projects that have agreed compensation, although the Applicants consider that it is more appropriate to apply a consistent approach for impacts that have agreed compensation (i.e. guillemot compensation should be treated the same as kittiwake compensation in terms of in-

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
		uncertainty regarding the effectiveness of compensation measures for auks.			combination assessment). The inclusion of these additional projects to the in-combination assessments are not expected to make any material or substantive differences to the conclusions presented in the original application.
RR-039: G 6	N/A	Lack of full assessment for the project alone The Applicant has not assessed and/or presented the outputs of Population Viability Analysis (PVA) for the impacts of the projects alone (i.e. DBS East and West combined). This is even the case where the increase in adult mortality for the projects alone is above the 1% detectability threshold when calculated using Natural England's advised approach (e.g. kittiwake, guillemot and razorbill at FFC SPA).	Natural England advise that full impact assessments are provided for DBS East and West combined, including the outputs of PVAs, where species have reached the 1% threshold according to the SNCB advised approach.		Updated PVAs will be provided as requested in mid-November 2024 (**Offshore Ornithology EIA Update** [document reference 12.5] and **Offshore Ornithology RIAA HRA Update** [document reference 12.6]).
RR-039: G 7	N/A	Potential mitigation measures Notwithstanding Natural England's outstanding concerns regarding the assessment methodology, our review of the baseline survey information indicates the potential for very high impacts on seabirds at both the EIA and HRA scales. Natural England advises that further consideration should urgently be given to potential mitigation measures to reduce impacts. This could include array area reductions, changes to the design envelope and layout of arrays, or increasing hub height of turbines. We note that hotspot modelling of seabird densities and distributions in the study area, such as carried out by Hornsea 4 OWF, may help to identify areas where impacts on seabird features are particularly high and thereby inform an improved mitigation approach.	Natural England advise that further consideration is given to potential mitigation measures to reduce impacts on seabird features, such as array reductions, changes to design and layout of arrays, or increasing the hub height of turbines.		Mitigation relating to air gaps has been applied in accordance with the Round 4 plan level Habitats Regulation Assessment (The Crown Estate 2022) whereby, to reduce potential collisions with birds in flight (particularly kittiwakes), the clearance of the blades above the water was set ats a minimum 34m above MSL. This mitigation measure has been adhered to within the design envelopes of the Projects. As part of the progression of project design from the Preliminary Environmental Information Report to the application stage the array area boundaries were reduced and refined. A number of factors, including bird distribution data, were considered as part of the boundary refinement exercise. Density mapping data based on the site-specific aerial survey data was collated and examined to indicate areas within The Crown Estate lease options that showed higher and lower densities of birds, and this was used alongside other environmental and technical information to enact the boundary change. An outline of the factors considered in the boundary refinement exercise was presented as part of the minutes from the ornithology ETG meeting 6/2/24). The refinements to the array area boundaries was, therefore, undertaken to help reduce impacts on important bird populations.
RR-039: G 8	N/A	Indirect effects For HRA, the Applicant suggests that if there were no significant impacts identified for potential prey species in their respective assessments then there would be no	Natural England advise that an understanding of the relative importance of the site and wider areas of impact as a foraging area is needed. Whilst we acknowledge that the indirect effects on seabirds may only be considered		The supporting role of benthic habitats for other features is considered within the ornithology assessment (**Environmental Statement Chapter 12 - Offshore Ornithology** [APP- 103] and **Report to Inform Appropriate Assessment Habitats Regulations Assessment Part 4 of 4** [APP-048]). The impacts are assessed within **ES Chapter 9 – Benthic and Intertidal Ecology** [APP-085]

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
		significant impacts on ornithology receptors. Natural England disagree with this. The assessments undertaken in the Fish and Shellfish chapter only consider impacts at a regional population level, and the HRA has only considered direct construction impacts to fish species rather than the indirect effects of permanent spawning habitat loss. This is of concern given the widely acknowledged importance of the Dogger Bank for foraging seabirds.	qualitatively, the potential for any impacts on prey abundance and distribution is important for framing the predicted impacts that can be quantified. Further assessment is therefore needed to understand how impacts on fish and shellfish receptors on the Dogger Bank might influence prey availability for seabirds. See Appendix E for detailed comments on the indirect effects assessment.		and **ES Chapter 10 - Fish and Shellfish Ecology** [APP-091] then cross-referenced in the relevant assessments for all phases of the projects (construction, operation and decommissioning). The Applicants consider that the assessment is in line with best practice for offshore wind assessments. In addition, **RIAA Appendix B – Sandeel Habitat Potential in the Dogger Bank SAC and Southern North Sea SAC** [APP-050] presents an overview of sandeel habitats across the two SACs (based upon modelling of the potential for habitat to be suitable for sandeel) considering impact footprints of the Projects in the context of the SACs and also the wider Southern North Sea across which ornithological and marine mammal features forage. Impacts upon prey are also considered in the Plan Level HRA (RIAA Appendix H – Ornithology Array Assessment Part 2, The Crown Estate, 2022) under the following pressures P1 Habitat Loss/ Gain, P2 Direct Physical Damage and P3 Indirect Physical Damage. In all cases the HRA concludes that: *"All seabird species screened in forage widely within the marine environment and the predicted area of habitat damaged represents a very small proportion of the foraging habitat available. Any impact is, therefore, considered to be negligible and would not make an appreciable difference to any in-combination impact."* The Applicants consider there to be good evidence that seabird populations will be very little affected by any impacts on their prey, even during construction which is the period when there is the most risk of effects on prey species (and for which consideration was made in the assessment). For example, the impact of seabirds on their prey stock biomass is very small (estimated across five ecosystems to average about 1% of the primary forage fish being consumed by all seabird species (Saraux et al. 2020[1])). Furthermore, forage fish stock biomass varies enormously from year to year while seabird population sizes change much more slowly. Thus, two things are apparent from this: fish stock fluctuations are not caused by seabird population fluctuations and seabird populations are little affected by the inter-annual variations in their prey. Population fluctuations are typical of forage fish species because their survival is very low while recruitment varies very widely from year to year. These factors taken together therefore indicate that small changes in prey stock biomass, as assessed in the Fish and Shellfish assessment (**ES Chapter 10 - Fish and Shellfish Ecology** [APP-

[1] Saraux C, Sydeman WJ, Piatt J, et al. Seabird-induced natural mortality of forage fish varies with fish abundance: Evidence from five ecosystems. Fish and Fisheries. 2020;00:1–18. https://doi.org/10.1111/faf.12517

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
					091]), will have undetectable effects on the seabird populations which prey on those stocks, and even if prey stocks are affected more widely than currently assessed, this would still not result in seabird population impacts.
RR-039: G 9	N/A	Characterisation of Natural England/SNCB advice Whilst we welcome that the Applicant has at times sought to provide analysis that aligns with Natural England's advice, we note that this and wider SNCB advice on both methodology and interpretation of results is frequently referred to as "overly precautionary" or not based in evidence, whilst the Applicant's preferred methods are characterised as "evidence-based". The SNCB approach is no less evidence-led than that of the Applicant. It is simply a different interpretation of the same evidence, and one which takes account of the evidence-poor, high-uncertainty environment within which the assessments are carried out, as well as the requirements of the Habitats Regulations. Ultimately this is a matter of ecological judgment and given Natural England's role as the appropriate national conservation body, considerable weight ought to be given to its advice and there should be cogent and compelling reasons for departing from it.[2]	To note.		The Applicants acknowledge that Natural England draws its guidance from evidence and it is important to note that the Applicants followed the Natural England guidance available to them at the time of the assessment. However, this does not preclude the fact that there are several points within the methods used to undertake assessment at which Natural England adopt the worst case or upper levels of statistical distributions as the starting point for the following stage of the assessment. Thus, while many of the individual steps are indeed evidence based, there is a tendency to combine them in such a manner which can result in the overall assessment of impact magnitude being highly precautionary.

Project Parameters - Document(s) Used:

[APP-048] 6.1 RIAA HRA Part 4 of 4 – Marine Ornithological Features

[APP-071] 7.5 ES Chapter 5 - Project Description

[APP-103] 7.12 ES Chapter 12 - Offshore Ornithology

[APP-105] 7.12.12.2 ES Appendix 12-2 - Technical Appendix

[APP-106] 7.12.12.3 ES Appendix 12-3a-c - Monthly Abundance - All, Sitting, Flying

[APP-107] 7.12.12.4 ES Appendix 12-4a-c - Monthly Densities - All, Sitting, Flying

[APP-108] 7.12.12.5 ES Appendix 12-5a-c - Seasonal Peak

[APP-109] 7.12.12.6 ES Appendix 12-6a-c - Seasonal Peak Density - All, Sitting, Flying

[APP-110] 7.12.12.7 ES Appendix 12-7a-c - Survey Abundances - All, Sitting, Flying

[APP-111] 7.12.12.8 ES Appendix 12-8a-c - Survey Densities - All, Sitting, Flying

[2] Akester & Anor (On Behalf of the Lymington River Association), R (on the application of) v Department for Environment, Food and Rural Affairs [2010] EWHC 232 (Admin), para 112

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
RR-039: G 10	7.5 – Table 5-2	The minimum lower blade tip clearance has been provided as 34m to Mean Sea Level (MSL) rather than Highest Astronomical Tide (HAT). We acknowledge the Applicant's reasons for using MSL but consider that HAT provides the true minimum clearance and is also consistent with the parameters presented across other projects.	Natural England advise that Table 5-2 is updated to include minimum blade tip clearance against HAT as well as Mean Sea Level. We also advise that confirmation is needed that use of MSL aligns with the requirements of the Crown Estate Record of the Round 4 Habitats Regulations Assessment2, which specifies 'sea level' rather than 'mean sea level'.		The reason for stating blade tip heights with respect to MSL is that this is the sea-level datum used for seabird flight heights in the collision risk model.
RR-039: G 11	6.1, 7.5, 7.12.12.3, 7.12.12.4, 7.12.12.5	Natural England does not support the approach taken by the Applicant to combine the impacts of the two arrays for several aspects of the project assessment (e.g. abundance estimates and displacement) as it underrepresents the impacts and does not reflect the worst case scenario. We note that the Applicant has acknowledged that the arrays should be considered as NSIPs in their own right and assessed separately, and that if separate applications were to be submitted their impacts would be calculated separately and summed. However, the Applicant has not followed this approach in their assessment.	Natural England advise that the impacts for the arrays should be calculated separately and summed to represent the worst-case scenario. This is the approach that has been taken in other applications with multiple arrays, such as the Dudgeon and Sheringham Extension projects ('DEP&SEP'). See comments G15.		While Natural England is correct that the combined totals for the wind farm plus buffers do not always match the sum of the individual sites (East and West) the Applicants consider the approach taken for estimating the combined abundances was robust. To estimate the baseline abundances for PEIR, at which time the East and West sites shared a common border and the buffers overlapped, it was necessary to perform calculations on the East plus West datasets combined since summing the buffer areas would result in double-counting of birds recorded in the buffer zones. This methodological approach was retained for the DCO submission, and this is why there can be differences between the sum of East and West and the combined abundances. While the mean estimates for East and West can be summed to obtain the combined total, and an updated assessment will be provided mid-November 2024 using this approach (as Natural England has requested), it remains the case that the measures of uncertainty (SD and 95% c.i.) are more robustly obtained from the combined analysis rather than the sum of the individual values for East and West.

Baseline Characterisation - Document(s) Used:

[APP-048] 6.1 RIAA HRA Part 4 of 4 – Marine Ornithological Features

[APP-071] 7.05 ES Chapter 5 - Project Description

[APP-103] 7.12 ES Chapter 12 - Offshore Ornithology

[APP-105] 7.12.12.2 ES Appendix 12-2 - Technical Appendix

[APP-106] 7.12.12.3 ES Appendix 12-3a-c - Monthly Abundance - All, Sitting, Flying

[APP-107] 7.12.12.4 ES Appendix 12-4a-c - Monthly Densities - All, Sitting, Flying

[APP-108] 7.12.12.5 ES Appendix 12-5a-c - Seasonal Peak

[APP-109] 7.12.12.6 ES Appendix 12-6a-c - Seasonal Peak Density - All, Sitting, Flying

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
[APP-110] 7.12.12.7 ES Appendix 12-7a-c - Survey Abundances - All, Sitting, Flying [APP-111] 7.12.12.8 ES Appendix 12-8a-c - Survey Densities - All, Sitting, Flying					
RR-039: G 12	7.12	Natural England consider that the baseline surveys undertaken are broadly appropriate, however there are outstanding issues with how the data has been characterised.	To note.		The Applicants acknowledge this comment.
RR-039: G 13	7.12; 7.12.12.7	<u>Representativeness of baseline data</u> Natural England note that there is considerable variation in the abundance and density estimates between survey years for several species, however no assessment of between-year variation has been undertaken and no additional datasets have been considered when characterising the baseline. This is particularly important given that the baseline survey period includes months before and during the recent highly pathogenic avian influenza (HPAI) outbreaks. To aid understanding of any influence of HPAI on the baseline, NE provided the Applicant with our Advice note "*Highly Pathogenic Avian Influenza (HPAI) outbreak in seabirds and Natural England advice on impact assessment (specifically relating to offshore wind)*"(September 2022) during the Evidence Plan Process and advised that relevant datasets from other developments in the area (e.g. the other Dogger Bank offshore wind farms) or modelled datasets (e.g. MERP (Waggitt et al 20203) or SeaMaST) should be considered when characterising the project baseline. We note that Outer Dowsing OWF recently submitted an application covering a similar baseline period, and in line with NE advice provided an assessment of between-year variation and consideration of baseline data from nearby OWF projects, to assess the representativeness of their baseline data.	Natural England advise that the Applicant provides an assessment of between-year variation in their baseline data with consideration of additional datasets, such as baseline data from other nearby OWF projects and modelled datasets, to characterise and assess the representativeness of the baseline.		Consideration of the points raised by Natural England will be provided as context for the survey results in mid-November 2024 (**Offshore Ornithology EIA Update** [document reference 12.5] and **Offshore Ornithology RIAA HRA Update** [document reference 12.6]).
RR-039: G 14	6.1; 7.12 – para 59	In Chapter 7.12 the Applicant states that "*the results of the current seabird census (Seabirds Count) will provide important information*" on seabird population trends. However, the results of the most recent seabird census were published in October 2023 (Burnell et al, 2023[3]) and have not been used in	Natural England advise that the Applicant consider all relevant evidence on seabird population trends when assessing impacts and present an updated assessment that reflects this.		Discussion of seabird trends will be provided mid-November 2024 in **Offshore Ornithology EIA Update** [document reference 12.5] and **Offshore Ornithology RIAA HRA Update** [document reference 12.6].

[3] Burnell, D., Perkins, A.J., Newton, S.F., Bolton, M., Tierney, T.D. & Dunn, T.E. (2023). Seabirds Count: a census of breeding seabirds in Britain and Ireland (2015–2021). Lynx Nature Books, Barcelona

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
		this assessment when considering seabird population trends, particularly when interpreting the results of PVAs. We also note that an assessment of the impacts of the recent HPAI outbreaks on seabird populations since the Seabirds Count surveys is now available (Tremlett et al, 2024[4]). We advise that this is a useful reference when considering seabird population trends, which has not been referred to in this assessment.			
RR-039: G 15	7.12.12.3; 7.12.12.7; 7.12.12.10	<u>Abundance estimates of arrays combined</u> Natural England note that the monthly abundance estimates for the arrays combined are not the sum of the monthly abundance estimates for each separate array (DBS E and DBS W), but have instead been calculated from density estimates for the array areas combined. We note that the design-based approach used to estimate abundance relies on the assumption that the sampled transects are representative of the entire area. However, the spatial distributions of most species do not appear to be even across the area of the two arrays. Further, the standard deviations for the abundance estimates for the combined arrays are often much higher than those of the abundance estimates for either array alone, indicating that this method has lower precision than the estimates for either array alone. Natural England therefore consider that this approach to estimating abundance for the array areas combined is inappropriate.	As the 2km buffers for the two arrays do not overlap, Natural England advise that the monthly abundance estimates for the arrays combined should be calculated as the sum of the monthly abundance estimates for each separate array. This is the approach that would be taken if the arrays were to submit separate applications and is the approach that has been taken in other project applications with more than one array. See G11.		See response to point RR-039: G11.
RR-039: G 16	7.12 - para 491; 7.5 - paras 6-9; 7.12.12.3;7.12.12.6; 7.12.12.7	<u>Seasonal peak abundances for the arrays combined</u> The Applicant states in 7.12: "*the combined seasonal peak abundance across the DBS East and DBS West sites used for assessment will be lower than the individual site peaks when the peaks on the latter occurred in different months. For example, if the breeding season peak on DBS East was recorded in March and the peak on DBS West in May, the combined peak will not be obtained as the sum of those values (March plus*	Natural England advise that seasonal peak abundances and displacement impacts are calculated separately for each array. The displacement impacts can then be summed to assess the displacement impacts of the arrays combined. This material should be submitted as part of an updated assessment.		The Applicants disagree with Natural England on this aspect because the East and West sites were surveyed on the same day on each occasion so it would be inappropriate to obtain seasonal peaks as the sum of abundances in East and West obtained from different months as Natural England has proposed, as this would almost certainly result in double counting.

[4] Tremlett, C.J., Morley, N., and Wilson, L.J. (2024). UK seabird colony counts in 2023 following the 2021-22 outbreak of Highly Pathogenic Avian Influenza. RSPB Research Report 76. RSPB Centre for Conservation Science, RSPB, The Lodge, Sandy, Bedfordshire, SG19 2DL

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
		May), but instead is the highest of the DBS East plus DBS West values in each month". Natural England do not support this approach as it under-represents the impacts of the arrays combined. For example, when following the SNCB approach the sum of the seasonal peak abundances for guillemot in the breeding season for DBS E and DBS W would be 17,813.99, however the seasonal peak abundance presented by the Applicant is 14,927.69 (Table 57, Appendix 7.12.12.5). This will cause the impacts calculated in the displacement assessment to also be underestimated (see G21).			
RR-039: G 17	7.12; 7.12.12.2; 7.12.12.3; 7.12.12.5; 7.12.12.7	<u>Abundance estimates for razorbill</u> Natural England note that there appear to be several inconsistencies in the abundance estimates presented for razorbill. The monthly and seasonal mean peak abundances presented for razorbill in Tables 27, 55, and 87 of Appendix 7.12.12.4 and Tables 22, 44, and 68 of Appendix 7.12.12.5, bear no relationship to the survey abundances presented in Tables 27, 55, and 87 of Appendix 7.12.12.7, or to the monthly and seasonal mean peaks presented in Tables 3.7 and 3.8 in Appendix 7.12.12.2. For example, the monthly abundance estimates for razorbill for DBS E in the array plus 2km buffer in August 2021 and August 2022 are 100.83 and 9270.43, respectively (Table 27, Appendix 7.12.12.7). This results in a mean monthly abundance for August across the two years of 4685.63, which is also the seasonal mean peak for the post-breeding migration period. However, the monthly mean for August presented in Table 27 of Appendix 7.12.12.4 is 0, and the seasonal mean peak for the post-breeding migration ('Autumn') season presented in Table 22 of Appendix 7.12.12.5 is 480.87. The correct mean monthly abundance estimates for August and the correct seasonal mean peak abundance for the post-breeding migration season appear to have been presented in Table 3.7 of Appendix 7.12.12.2 and in Chapter 7.12 paragraph 593. The abundance estimates presented in Appendix 7.12.12.7 and Appendix 7.12.12.2 appear to have been used in the displacement assessment but we advise that all razorbill	Natural England advise that all razorbill monthly and seasonal mean peak abundance estimates for both arrays are checked to ensure accuracy and consistency, and that the Applicant check that the correct abundance estimates have been used for displacement assessments throughout. If necessary, updates to the assessment should be provided. See also G15 & 16		The Applicants have reviewed the razorbill tables and are confident that the numbers presented in the various appendices are correct and that Natural England's concern on this has been caused by comparisons of the wrong tables. In the examples given by Natural England: - monthly abundance estimates for razorbill for DBS East in the array plus 2km buffer in August 2021 and August 2022 are 100.83 and 9270.43, respectively (Table 27, Appendix 7.12.12.7 [App-110]). This results in a mean monthly abundance for August across the two years of 4685.63, which is also the seasonal mean peak for the post-breeding migration period. However, Natural England has compared these abundances (i.e. population sizes) which represent all birds on the water and in flight with those in Appendix 7.12.12.4 [App-107], which provides densities (not abundances) and also Natural England has referenced Table 27 of Appendix 7.12.12.4 [App-107] which provides estimates for birds recorded in flight only, as stated in the table legend and can also be noted as this table is denoted in the header as 'Appendix 12-4c'. In all of these baseline appendices [App-106 to App-111] the letter 'a' at the end denotes birds in flight and on the sea, 'b' denotes birds on the water and 'c' birds in flight. This information is also stated on the front page of each of these appendices. The same mis-match of tables explains the other apparent discrepancies which Natural England identifies. As Natural England note in this comment - the correct values have been used in the assessment.

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
		abundance estimates for both arrays are checked for accuracy and consistency throughout the assessment.			

Environmental Impact Assessment - Document Used:

[APP-048] 6.1 RIAA HRA Part 4 of 4 – Marine Ornithological Features

[APP-071] 7.5 ES Chapter 5 - Project Description

[APP-067] 7.4 ES Chapter 4 - Site Selection and Assessment of Alternatives

[APP-103] 7.12 ES Chapter 12 - Offshore Ornithology

[APP-105] 7.12.12.2 ES Appendix 12-2 - Technical Appendix

[APP-106] 7.12.12.3 ES Appendix 12-3a-c - Monthly Abundance - All, Sitting, Flying

[APP-107] 7.12.12.4 ES Appendix 12-4a-c - Monthly Densities - All, Sitting, Flying

[APP-108] 7.12.12.5 ES Appendix 12-5a-c - Seasonal Peak

[APP-109] 7.12.12.6 ES Appendix 12-6a-c - Seasonal Peak Density - All, Sitting, Flying

[APP-110] 7.12.12.7 ES Appendix 12-7a-c - Survey Abundances - All, Sitting, Flying

[APP-111] 7.12.12.8 ES Appendix 12-8a-c - Survey Densities - All, Sitting, Flying

[APP-231] 8.6 Commitments Register

RR-039: G 18	7.12 - 12.6.3	<u>Decommissioning displacement</u> The Applicant has not included an assessment of displacement impacts for the decommissioning phase. We note that we previously advised the Applicant that this should be included (advice dated 27th February 2024) and that the PINS EIA Scoping response also stated that decommissioning impacts should not be scoped out of the assessment.	Natural England advise that displacement impacts at decommissioning are included for all species in the displacement assessment and calculated as per construction displacement impacts (see G23).		Section 12.6.3 of **Chapter 12 Offshore Ornithology** [APP-103] provides the decommissioning assessment which has reasonably been assumed to be equivalent to construction effects. The approach to the presentation of this assessment is proportionate and in line with best practice.
RR-039: G 19	7.12 - Table 12.13 12.16, 12.18, 12.19 12.33, 12.59, 12.69, 12.74, 12.76, 12.78	The Applicant has not used Natural England's advised baseline mortality rates or EIA reference populations for several species. We note that these were provided to the Applicant with our post-PEIR advice note "*NE and NRW interim advice regarding demographic rates, EIA scale mortality rates and reference populations for use in offshore wind impact assessments (dated 8th March 2024, sent to applicant 13th March 2024)*". The use of non-NE-recommended EIA baseline mortality rates and reference populations has resulted in estimates of annual background mortality that differ from those calculated using the Natural England-recommended values for the affected species.	Natural England advise that an updated assessment is provided using the SNCB advised EIA reference populations and baseline mortality rates to calculate annual background mortality for all species, and that impacts be assessed against these annual background mortality rates.		This updated information was received too late to be applied to the assessment. An update to the assessment will be provided in mid-November 2024 in the **Offshore Ornithology EIA Update** [document reference 12.5].

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
		The NE-recommended mortality rates for EIA for these species are provided below (see table provided in Natural England's Relevant Representation). The NE-recommended reference populations for EIA for these species are provided below (see table provided in Natural England's Relevant Representation).			
RR-039: G 20	7.12 – para 554	The Applicant has used mean maximum foraging ranges when determining connectivity of the projects to seabird breeding colonies instead of the recommended mean maximum foraging ranges + 1SD. This has resulted in the Applicant concluding that "*There are no breeding colonies for guillemot and razorbill within foraging range of the DBS Offshore Wind Farms (guillemot mean maximum range: 73km; razorbill mean maximum foraging range 88km).*" The SNCB recommended mean maximum foraging ranges + 1SD for guillemot and razorbill are 153.7km and 164.6km respectively (Woodward et al 2019). Applying these ranges establishes connectivity between the projects and the breeding colonies at Flamborough and Filey Coast Special Protection Area (FFC SPA).	Natural England advise the Applicant uses mean maximum foraging ranges plus 1SD (Woodward et al., 20196) when establishing connectivity between the projects and seabird breeding colonies and updates the assessment where needed.		This comment is of relevance primarily to the HRA (**Report to Inform Appropriate Assessment Habitats Regulations Assessment Part 4 of 4** [App-048]) which does apply the longer foraging ranges (mean max plus 1SD). As the portion of assessment referred to here is consideration of effects against the wider EIA population the Applicants do not consider there to be any requirement to update the assessment for this aspect.
RR-039: G 21	7.5 - para 6-9; 7.12 - Tables 12.16, 12.17, 12.18, 12.19, 12.33, 12.43, 12.59, 12.69.	<u>Displacement impacts of arrays combined</u> Natural England note that the displacement assessment impacts for the arrays combined presented by the Applicant do not reflect the sum of the displacement impacts of the arrays summed, due to the method used to calculate seasonal peak abundance for the arrays combined. See G16. Further, the titles of Tables 12.16-12.19, 12.33, 12.43, 12.59 and 12.69 state "*that the Project Total is Less Than the Sum of East and West due to Overlap of the Individual 2km Buffers.*" However, the figures provided in the application show that the 2km buffers do not overlap. We consider that these titles misrepresent the data and the project impacts, as the reason for the project total impacts being lower than the summed impacts is due to the method used to calculate seasonal peak abundances.	Natural England advise that seasonal peak abundances and displacement impacts are calculated separately for each array. The displacement impacts should then be summed to assess the displacement impacts of the arrays combined.		The Applicants acknowledge that the table headings incorrectly stated there was an overlap of buffers. This was accidently retained from the PEIR submission when the two Projects were adjacent to one another and their buffers overlapped. However, the Applicants disagree that the displacement assessment for the combined East plus West is underestimated, for the reasons set out in response to comment RR-039: G16.
RR-039: G 22	7.12.12.10 - Figures 12.10.3a-d, 12.10.4a-c,	<u>High densities of auks between the arrays</u> The spatial distribution figures provided in 7.12.12.10 show that high densities of auks (particularly guillemot and razorbill) were recorded in the area between the two arrays,	Natural England advise that the Applicant provides an assessment of cumulative displacement impacts on auks between the arrays.		A response to the points in RR-039: G25 is provided below. This response is pertinent to this comment since the Applicants cite a recent published study (Trinder et al. 2024[9]) which has found no evidence that auks are displaced from wind farms, which strongly indicates that the 2km buffer advised by Natural England in

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
	12.10.5a-b, 12.10.6	but outside the 2km buffer. Natural England consider it is likely that birds in this area will be vulnerable to cumulative displacement impacts from the arrays on either side, and advised the Applicant during the EPP that further assessment may be needed (advice dated 27th February 2024). We also highlight that whilst 2km is standard SNCB guidance for assessments, it should be recognised that multiple studies have found displacement effects on auks beyond 2km. Please refer to G25 for further detail.			standard SNCB guidance is indeed precautionary and applying this beyond that distance inappropriate. As noted against RR-039: G25, the studies cited by Natural England are based on before-after analyses which suffer from an inability to distinguish natural variations between years from wind farm effects. Notably Zuur (2018[5]) found that very few such studies of seabird displacement (before-after) had sufficient statistical power to detect the changes they claimed to find.
RR-039: G 23	7.12 -12.6.1	Construction displacement The Applicant has not followed the SNCB Best Practice Guidance for calculating construction displacement impacts, which is to halve the operational impacts.	Natural England advise that the assessment is updated with construction displacement impacts calculated by halving the operational impacts.		Construction effects have been assessed as Natural England advised. An example of the headings in this section of **Chapter 12 Offshore Ornithology** [APP-103] illustrates this: 12.6.1.1.1.1 Gannet 12.6.1.1.1.1.1 Significance of effect - DBS East in isolation 12.6.1.1.1.1.1.1 Breeding season - construction vessels 12.6.1.1.1.1.1.2 Breeding season - 50% installed turbines 12.6.1.1.1.1.1.3 Breeding season - construction vessels and 50% installed turbines. This same structure is repeated for all the sites and all the species assessed in **Chapter 12 Offshore Ornithology** [APP-103], showing that the Applicants have followed the SNCB Best practice guidance in assessing construction displacement as being half that of operational displacement, combined with the potential impact from construction vessels.
RR-039: G 24	7.12; 7.12.12.2 – Para 559	Calculation of seasonal mean peak abundances for guillemot Natural England do not agree with the approach taken for seasonality when assessing impacts on guillemot. The Applicant has only used two seasons (breeding and non-breeding) for guillemot. Natural England advise that August and September should be treated as a separate 'chick rearing and moult' season, with seasonal mean peaks and impacts calculated accordingly. Our detailed advice on the assessment of impacts for guillemot is provided in Annex G1.	Natural England advise that the assessment is updated with August and September treated as a separate 'chick rearing and moult' season for guillemot, with seasonal mean peaks and impacts calculated accordingly. Please see Annex G1 for further detail.		The Applicants will provide revised assessment mid-November 2024 (**Offshore Ornithology EIA Update** [document reference 12.5] and **Offshore Ornithology RIAA HRA Update** [document reference 12.6]) taking Natural England's revised advice on this matter into account.
RR-039: G 25	7.12; 6.1	Appropriate displacement and mortality rates for auks and characterisation of SNCB advice	Natural England anticipate that the forthcoming Offshore Renewables Joint Industry Programme (ORJIP) project		The Applicants acknowledge that Natural England adopts a different approach to that applied by the Applicants, but would note that the review on which the Applicants have drawn (Vattenfall

[5] Zuur, A. F. (2018). Effects of wind farms on the spatial distribution of guillemots.Unpublished report Vol. 31 (Wageningen Marine Research T), 317.

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
		Natural England note that whilst the Applicant has presented the results of the displacement assessment for auks using Natural England's advised ranges for displacement and mortality rates, they have consistently stated that these advised rates are not appropriate or evidence-based and have not considered impacts calculated using these rates in their conclusions. The Applicant repeatedly states that there is little or no evidence in support of either the recommended 70% displacement rate or the 10% mortality rate, whilst referring to their own preferred rates of 50% displacement and 1% mortality as "*evidence-based*". Natural England strongly disagrees with the Applicant's characterisation of the evidence base for each approach. Natural England's advice is based on a thorough appraisal of the available evidence, and takes into account the evidence-poor, high-uncertainty environment in which assessments are carried out, as well as the requirements of the Habitats Regulations (see SNCB advice note 2022[6]). We consider that the SNCB advised approach is no less evidence-based than that of the Applicant - it is simply a different interpretation of the same evidence base. This evidence base is limited but indicates that the extent to which auks are displaced varies depending on the location of the development and colonies with connectivity. We highlight that a recent study in the German North Sea (Peschko et al, 2024[7]) found that guillemots displayed significant macro-avoidance and that the effect distance (~20km) greatly exceeded that currently considered by UK OWF displacement assessments. Further Lamb et al, (2024)[8] found displacement and attraction effects were more frequently detected during the breeding season and in studies with a larger overall study area footprint relative to the size of the wind farm. Effects were also found to be greater at wind farms further offshore and with lower turbine densities.	'Improving understanding of distributional change for relevant seabird species (ImpUDis)' will provide a comprehensive overview of auk displacement. Until this project returns evidence which can inform displacement rates of auks, Natural England continue to advise the use of the displacement matrix set out in our Best Practice Guidance and will base our conclusions on impacts calculated using these rates.		2019) was undertaken by Prof Bob Furness, one of the most well respected and eminent seabird ecologists. It is also of note that the Applicants' rates of 50% displaced and 1% mortality were still categorised in this review as precautionary. Natural England cites, as evidence to support its position, studies which have undertaken before-after comparisons of auk abundance. These studies are prone to a fundamental weakness since they are incapable of distinguishing natural inter-annual variations in seabird distributions and local abundance from the effects of wind farms. For precisely this reason, an alternative method was developed in a monitoring study of the Beatrice wind farm which removes the confounding issue of between year variations (Trinder *et al*. 2024[9]). This study was unable to find any compelling evidence that breeding auks were displaced from the wind farm, with individuals recorded in large numbers throughout the wind farm, including within 100m of operating turbines. In this context, even 50% displacement can be regarded as highly precautionary. Furthermore, if there is little or no displacement, there is arguably no consequent mortality either.

[6] https://data.jncc.gov.uk/data/9aecb87c-80c5-4cfb-9102-39f0228dcc9a/joint-sncb-interim-displacement-advice-note-2022.pdf

[7] Peschko, V., Schwemmer, H., Mercker, M. et al. Cumulative effects of offshore wind farms on common guillemots (Uria aalge) in the southern North Sea - climate versus biodiversity? Biodivers Conserv 33, 949–970 (2024).

[8] Juliet Lamb, Julia Gulka, Evan Adams, Aonghais Cook, Kathryn A. Williams, (2024) A synthetic analysis of post-construction displacement and attraction of marine birds at offshore wind energy installations, Environmental Impact Assessment Review, Volume 108

[9] https://www.frontiersin.org/journals/marine-science/articles/10.3389/fmars.2024.1235061/full

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
		We also note that empirical evidence of the likely consequences of displacement on mortality is lacking. The Applicant's statement in paragraph 70 that "*even in the case of breeding seabirds that are displaced on a daily basis, there is likely to be little or no impact on survival unless the offshore windfarm is close to the breeding colony*" is not supported by the references cited, which make clear that "*there are no measurements of survival consequences of displacement of seabirds from OWF sites*" (Searle et al 2018, cited by the Applicant as Searle et al 2017).			
RR-039: G 26	7.12 - Table 12.74; 7.12.12.9	<u>Gannet collision</u> The Applicant has not followed the SNCB advised approach for assessing gannet collision risk. The Applicant has calculated their own, single avoidance rate for Gannet of 99.79%, incorporating Natural England's advised avoidance rate of 99.3% and a macro-avoidance rate of 70%. Natural England's advice on the application of macro-avoidance rates for gannet collision risk modelling (CRM) remains as per our interim advice note on CRM parameters (July 2022), provided to the Applicant during the EPP. This advises that a range of macro-avoidance rates between 65% and 85%, or a single rate of 70% be applied for gannet, with an avoidance rate of 99.3%. Given the remaining uncertainties around potential sources of variation in macro avoidance and uncertainties over the long-term impacts of HPAI on gannet populations, Natural England believe that this range-based approach is most appropriate.	Natural England advise the Applicant assesses gannet collision using an avoidance rate of 99.3%, along with a range of macro-avoidance rates between 65-85%.		While the Applicants consider that they have followed the advice provided by Natural England it is also a simple matter to calculate collisions for alternative avoidance rates (simply multiply the collisions by old avoidance rate divided by new avoidance rates). For information the combined avoidance rate (including meso and micro avoidance at 99.3%) at 65% macro avoidance is 99.755% and for 85% avoidance is 99.895%. These will respectively increase collisions by 16% (x 1.16) and decrease them by 50% (x 0.5). These will be presented in the updated assessment in mid-November 2024 in the **Offshore Ornithology EIA Update** [document reference 12.5].
RR-039: G 27	7.12 -Table 12.79	<u>Lack of cumulative assessment for impacts on Red-threated Diver</u> Natural England note that the Applicant has screened out construction impacts of "*Direct Disturbance and Displacement*" for Red throated diver from the cumulative effects assessment, due to "*very low likelihood of temporal and spatial coincidence of disturbance/displacement from other schemes in the area acting on the same populations*". Natural England is becoming increasingly concerned in relation to disturbance and/or displacement of red-throated divers from the more persistent presence of OWF-related vessels. In this context, we feel that it is inappropriate to	Natural England advise that disturbance and displacement impacts are screened into the cumulative assessment for Red-throated Diver and relevant mitigation measures identified e.g. use of existing shipping lanes until beyond 2km of the SPA.		Additional assessment of red-throated diver effects due to vessel movements will be provided mid-November 2024 in the **Offshore Ornithology EIA Update** [document reference 12.5].

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
		screen out cumulative assessment of these impacts on Red-throated Diver.			
RR-039: G 28	7.12 - 12.3.3; 8.6 7.4 – Table 4-5	Given the scale of the predicted impacts of the projects on seabird features, further consideration should be given to potential mitigation measures to reduce impacts, such as array reductions, changes to the design and/or layout of arrays or increasing the hub height of turbines. Hotspot modelling of seabird densities and distributions in the study area may help to identify areas where impacts are particularly high, and that might be suitable for changes to array size or layout to mitigate impacts. We understand that ornithological data was considered to inform the post-PEIR reductions in the array red line boundaries, and areas of elevated non-breeding guillemot and razorbill were noted. However, this data/mapping was not provided for review and Natural England were not consulted on the reduction process. It is unclear to what extent the ornithological mapping was used to inform the array reductions, and whether further impact reductions could be achieved.	Natural England advise that further consideration is given to potential mitigation measures to reduce impacts on bird features, such as array reductions, changes to design and layout of arrays, or increasing the hub height of turbines.		See RR-039: G 7.
RR-039: G 29	7.12 - 12.12	Natural England cannot agree with the EIA conclusions presented due to there being outstanding concerns with several aspects of the assessment, including: • baseline mortality rates and EIA reference populations used (G19) • guillemot seasonality (G24) • gannet collision risk (G26) • approach taken to combining the impacts of the two arrays (G11)	Natural England advise that updated assessments are provided in line with SNCB Best Practice Guidance.		As noted above the following revisions will be provided mid-November 2024 in the **Offshore Ornithology EIA Update** [document reference 12.5]: • RR-039: G19 - these revised demographic rates were provided too late for the assessment and an update for these will be submitted. • RR-039: G24 - the Applicants will provide updated assessment following this new guidance. • RR-039: G26 - the Applicants will provide the additional collision risks for gannet as requested although these will make only a small difference to the conclusions reached. • RR-039: G11 - As per the response above the Applicants have explained the reasons for the approach taken and why the assessment is considered robust, nonetheless updated assessment for the East and West sites combined will be provided.

HRA - Document Used:

[APP-048] 6.1 RIAA HRA Part 4 of 4 – Marine Ornithological Features

[APP-071] 7.05 ES Chapter 5 - Project Description

[APP-103] 7.12 ES Chapter 12 - Offshore Ornithology

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
[APP-231] 8.6 Commitments Register					
RR-039: G 30	N/A	Natural England is broadly content with the features and pathways screened in for assessment, however, please see G50 with respect to in-combination assessments.	N/A		The Applicants acknowledge Natural England's agreement with the assessed features and impacts. Comment RR-039: G50 is addressed below.
RR-039: G 31	6.1 -Para 26-28, Tables 9.6 & 9.7	Breeding season apportioning Insufficient detail has been provided on the methods and parameters used to determine apportioning proportions during the breeding season. There are also inconsistencies in the Applicant's description of the approach taken, with paragraph 28 stating that SPA populations were obtained from SPA citations, whilst Tables 9.6 and 9.7 indicate that more recent SPA population sizes were used.	Natural England advise that further detail and clarity is provided on the foraging ranges and SPA populations used to calculate breeding season apportioning proportions. We advise that the more up-to-date and contemporaneous SPA populations from Seabirds Count data (Burnell et al 2023) should be used to determine proportions for apportioning during the breeding season, rather than SPA citation populations, unless more recent counts are available.		Further details will be provided on the apportioning methods and populations used mid-November 2024 in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6].
RR-039: G 32	6.1 -9.5.2.1	Calculation of adult baseline mortality of gannet at FFC SPA The Applicant has used an adult mortality rate for gannet of 8.8%, cited as being from the recommended demographic rates published in Horswill & Robinson (2015). However, the adult mortality rate from that source is 8.1%. When combined with the 2022 population estimate, this gives an adult baseline mortality of 2126 birds, not 2310.	Natural England advise that the adult baseline mortality for FFC SPA gannet is recalculated using the 8.1% mortality rate from Horswill and Robinson (2015), and the rest of the assessment of impacts on this population adjusted accordingly.		This adjustment will be made to the assessment and presented mid-November 2024 in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6].
RR-039: G 33	6.1-9.5.2.1	Calculation of adult baseline mortality of kittiwake at FFC SPA The Applicant has referred to the FFC SPA Kittiwake count from Burnell et al (2023) as being more recent than the FFC SPA colony count from Clarkson et al (2022)[10]. However, Burnell et al (2023) covers the time period 2015 – 2021 and uses the kittiwake count for FFC SPA from the 2017 SPA census. We consider that the Clarkson et al (2022) count is more contemporaneous with the baseline surveys for the Dogger Bank South projects, and we note that the Applicant has used this population size when calculating breeding season apportioning (Table 9.5). We therefore recommend that the Clarkson et al (2022) counts be used for calculating baseline mortality of kittiwakes	Natural England advise that the Applicant recalculate adult baseline mortality for the FFC SPA kittiwake using the 2022 population estimate and adjust the rest of their assessment of impacts on this population accordingly.		This adjustment will be made to the assessment and presented mid-November 2024 in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6].

[10] Clarkson, K., Aitken, D., Cope, R. and O' Hara, D. (2022) Flamborough and Filey Coast SPA: 2022 seabird colony count and population trends. RSPB, The Lodge, Sandy, Bedfordshire, SG19 2DL

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
		at FFC SPA and note that this would give a baseline mortality of 13,016 breeding adult birds per year, not 13,287 (paragraph 144).			
RR-039: G 34	6.1 -9.5.2.4, Table 9.7	Calculation of adult baseline mortality of puffin at FFC SPA The Applicant has used a population estimate for puffin at FFC SPA of 4279 apparently occupied nests, equating to 8558 individuals, taken from Burnell et al (2023). We note that this figure is not presented in Burnell et al (2023) as an accurate count for the SPA, and that the authors state "the change to a less accurate survey method has introduced some uncertainty in this trend." Further, this figure is more than double the highest most recent count of individuals at the SPA. Natural England advise the most recent count undertaken at the SPA is used, which was of 3080 individuals (Clarkson et al 2022). This would give an adult baseline mortality for the population of 290 per year, not 804 as presented by the Applicant. We further note that the Applicant has given the 2022 population as 4929 (Table 9.7) and used this figure for breeding season apportioning rates.	Natural England advise that the Applicant recalculate adult baseline mortality and breeding season apportioning for FFC SPA puffin using the 2022 count and adjust the rest of their assessment of impacts on this population accordingly.		This adjustment will be made to the assessment and presented mid-November 2024 in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6].
RR-039: G 35	6.1 -9.5.2.5	Calculation of adult baseline mortality of razorbill at FFC SPA The Applicant has used a count for FFC SPA razorbill of 55,934 individuals from 2017 and have stated that this is the most recent count. Natural England note that the most recent count for razorbill at FFC SPA is the 2022 count of 45,780 individuals, which when corrected according to standard methodology gives 61,345 individuals (Clarkson et al 2022)[7]. This gives an adult baseline mortality for the razorbill population at FFC SPA of 6441, not 5873 as presented by the Applicant.	Natural England advise that the Applicant recalculates adult baseline mortality for FFC SPA razorbill using the 2022 count and adjust the rest of their assessment of impacts on this population accordingly.		This adjustment will be made to the assessment and presented mid-November 2024 in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6].
RR-039: G 36	6.1-9.5.2 Para 24	Use of stable age structure to apportion impacts on breeding adults Natural England welcomes that the Applicant has provided impact values with 100% adult apportioning to SPA colonies in line with SNCB advice, alongside their own approach using stable age structure.	To note.		No response is required.

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
		Natural England disagrees with the use of a theoretical generalised stable age structure to apportion impacts to adults from SPA colonies as it is unlikely to represent actual proportions of adults present and may lead to underestimation of impacts. Our conclusions on impacts will therefore be based on the values provided in line with SNCB advice.			
RR-039: G 37	6.1- 9.5.2	Appropriate displacement and mortality rates for auks and characterisation of SNCB advice See comment G25.	Natural England advise that the results of displacement assessments for auks using Natural England's advised range of displacement and mortality rates are used to determine SPA features for Population Viability Analysis (PVA), and when assessing potential for AEoI at SPAs. See G25 for further detail.		The Applicants are unclear what additional assessment this comment relates to over and above those stated elsewhere in their RR [RR-039]. Comment RR-039: G25, which is referred to by Natural England in this comment, is classed as 'purple' which Natural England define as '*Note for Examiners and/or competent authority. May relate to DCO/DML*'. Therefore, the Applicants would like to request that Natural England clarifies if this comment requires any additional responses from them.
RR-039: G 38	6.1 -para 174	Guillemot apportioning to FFC SPA - seasonality Natural England do not support the approach taken to seasonality when assessing impacts on guillemot. Natural England recognise and welcome that the Applicant has considered the need for a bespoke approach to apportioning guillemot to FFC SPA in August and September. However, we consider that the approach taken by the Applicant, of including August and September within an extended breeding season, under-represents impacts on guillemot breeding at FFC SPA. Given the peaks in density and abundance of guillemot in the array areas plus 2km buffer during August and September, the proximity of the arrays to FFC SPA, and the ecological sensitivity of guillemot to impacts during these months, Natural England advise that August and September be treated as a separate 'chick rearing and moult' season, with seasonal mean peaks and impacts calculated accordingly. Detailed advice on apportioning of guillemot impacts to FFC SPA is provided in Annex G1.	Natural England advise that for apportioning of guillemot impacts to FFC SPA, August and September be treated as a separate 'chick rearing and moult' season, with seasonal mean peaks and impacts calculated accordingly. See Annex G1 for our detailed advice on apportioning of guillemot impacts to FFC SPA.		A revised assessment using the new advice will be provided and presented mid-November 2024 in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6].
RR-039: G 39	6.1 -Para 174	Guillemot apportioning to FFC SPA – adult proportions in August and September The Applicant has assumed that up to 70% of guillemot in August and September could be breeding adults from FFC	The Applicant should clarify their apportioning method. Natural England advice is that adult proportions of guillemot during August and September be calculated according to the published productivity data for guillemot at FFC SPA		The Applicants will provide revised assessment in mid-November 2024 (**Offshore Ornithology EIA Update** [document reference 12.5] and **Offshore Ornithology RIAA HRA Update** [document reference 12.6]) taking Natural England's revised advice on this matter into account.

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
		SPA, however insufficient detail has been provided as to how this proportion has been calculated. Natural England advise that the likely adult proportions during August and September should be calculated based on the published productivity data for guillemot at FFC SPA during the years that the baseline surveys were undertaken (Cope et al 2021[11], Cope et al 2022[12]). This data indicates that 75.75% of guillemot during August and September would be breeding adults. Due to the possibility of some degree of dilution by adults from other colonies to North, it is precautionary to assume that around 90% of these adults come from FFC SPA. This would result in an apportioning rate during August and September of 68.2%. Natural England note that this is close to the 70% rate used by the Applicant (notwithstanding Natural England's position on the treatment of August and September as a separate season, see previous comment).	during the years that the baseline surveys were undertaken (Cope et al 2021, Cope et al 2022), as detailed in Annex G1.		
RR-039: G 40	6.1-para 242	Razorbill apportioning to FFC SPA Natural England do not agree with the use of the Biologically Defined Minimum Population Scale (BDMPS) method for apportioning razorbill impacts to FFC SPA in the post-breeding migration season. Given the peaks in density and abundance of razorbill in the array areas plus 2km buffer during August and September, the proximity of the arrays to FFC SPA, and the ecological sensitivity of razorbill to impacts during these months, we consider the Applicant's approach under-represents impacts on razorbill breeding at FFC SPA.	Based on the published productivity data for razorbill at FFC SPA during the years that the baseline surveys were undertaken (Cope et al 202111, Cope et al 202212), and allowing for the possibility of some degree of dilution by adults from other colonies to North, Natural England advise that 69.93% of razorbill are apportioned as breeding adults at FFC SPA during the post-breeding migration season, as detailed in Annex G1.		The Applicants will provide revised assessment mid-November 2024 (**Offshore Ornithology EIA Update** [document reference 12.5] and **Offshore Ornithology RIAA HRA Update** [document reference 12.6]) taking Natural England's revised advice on this matter into account.
RR-039: G 41	6.1 -Tables 9.6, 9.7	Kittiwake apportioning in the breeding season Table 9.6 states that the minimum distance from FFC SPA to DBS is 125.29 km. Natural England note that this is the minimum distance from FFC SPA to DBS East, whilst the minimum distance from FFC SPA to DBS West (and thus to the arrays combined) is 103 km (Table 9.7).	Natural England advise that the Applicant check that the correct minimum distance between FFC SPA and the arrays has been applied when considering apportioning rates to FFC SPA for kittiwake.		This value will be checked against the calculations and amended as necessary mid-November 2024 in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6].

[11] Cope, R., Aitken, D. & O'Hara, D. (2021) Flamborough and Filey Coast SPA Seabird Monitoring Programme 2021 Report. RSPB, The Lodge, Sandy, Bedfordshire, SG19 2DL

[12] Cope, R., Aitken, D. & O'Hara, D. (2022) Flamborough and Filey Coast SPA Seabird Monitoring Programme 2022 Report. RSPB, The Lodge, Sandy, Bedfordshire, SG19 2DL

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
RR-039: G 42	6.1 – Para 122	<u>Impacts on gannet at FFC SPA</u> Natural England note that the combined impacts of collision and displacement on FFC SPA gannet in the Applicant's assessment for the arrays combined results in an increase in mortality rate of 0.9%. This is very close to the 1% detectability threshold. If Natural England's advised approach to calculating seasonal mean peaks for the arrays combined, collision impacts, and baseline mortality were used, impacts may well exceed the 1% threshold.	Natural England advise that if when calculated according to Natural England's advised approach the impacts of the arrays combined on FFC SPA gannet exceed the 1% threshold, then PVA should be undertaken for impacts of the projects alone.		The Applicants will review each component of the assessment and determine how this affects the estimated mortality level and update the assessment as necessary mid-November 2024 in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6].
RR-039: G 43	6.1 - Para 190-193, 196-197 Table 9.28, Para 256, 259, 261-263	<u>Lack of PVA for impacts on guillemot and razorbill at FFC SPA</u> The Applicant has assessed displacement impacts on guillemot and razorbill at FFC SPA using NE's recommended range of mortality and displacement rates and age apportioning. The results of this assessment show an increase in the adult mortality rate for the arrays combined of up to 12.1% and 7.9% for guillemot and razorbill respectively, well above the 1% threshold above which it is recommended PVA is undertaken. Further, if Natural England's advised approach was taken for calculating seasonal mean peaks and apportioning guillemot and razorbill impacts to FFC SPA, the displacement impacts would be even higher than those currently presented by the Applicant for Natural England's advised range of displacement and mortality rates. The high densities of guillemot and razorbill in the area between the two arrays and without the 2km buffer are also not included in the Applicant's assessment, which we consider are likely to be vulnerable to cumulative effects of displacement from the two arrays. However, the Applicant has not undertaken a PVA for displacement impacts on razorbill or guillemot for the projects alone (i.e. DBS East and West combined), on the basis that applying their own preferred displacement and mortality rates reduces the increase in adult mortality to below 1%, and therefore no further assessment is required. Natural England do not agree that a 50% displacement rate and 1% mortality rate are more appropriate for displacement assessments of guillemot or razorbill (see G27). We also note that the Applicant's assessment using NE's advised displacement and mortality rates results in an increase in adult mortality rate above 1% for DBS East (7.3%	Natural England advise that PVAs are carried out for the impacts of the projects alone (i.e. DBS East and West combined) on guillemot and razorbill at FFC SPA.		The Applicants will review each component of the assessment and determine how this affects the estimated mortality level and update the assessment as necessary mid-November 2024 in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6].

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
		guillemot; 2.1% razorbill) and DBS West (7.1%; 6.3% razorbill) alone. These values would likely be higher were the full assessment conducted in line with SNCB advice. In other words, each project would normally trigger the need for a PVA.			
RR-039: G 44	6.1 – Para 145	Impacts on kittiwake at FFC SPA The Applicant's assessment of collision impacts on FFC SPA kittiwake for the arrays combined, using Natural England's advised age-apportioning, results in an increase in the adult mortality rate of 1.37%. By the Applicant's own admission, this exceeds the 1% threshold above which Natural England advise that PVA be undertaken. However, the Applicant has not undertaken a PVA, and no explanation has been provided for this omission. Given the large numbers of kittiwake recorded during baseline surveys, Natural England considers there is potential for AEOI alone conclusions.	Natural England advise that a PVA is carried out for the impacts of the projects alone (i.e. DBS East and West combined) on kittiwake at FFC SPA.		Paragraph 154 of the **Report to Inform Appropriate Assessment Habitats Regulations Assessment Part 4 of 4** [APP-048] concludes with a statement that PVA for this species is provided below. This PVA considered the in-combination impact (which includes the Project alone), and the Applicants conceded that the in-combination impact would give rise to an AEoI, so it is unclear what additional benefit is to be gained from presentation of PVA results for the Project alone. Nonetheless this will be provided mid-November 2024 in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6].
RR-039: G 45	6.1 - Table 9.12, Para 109, 121	Displacement impacts on gannet at FFC SPA There appears to be a discrepancy between the annual operational displacement impacts of the arrays combined on FFC SPA gannet presented in Table 9.12 (13.17) compared to the text in paragraph 109 (12.5). We note that the latter value has been used to calculate the annual operational impacts of displacement and collision on gannet at FFC SPA, as presented in paragraph 121.	Natural England advise that the annual operational impacts on gannet at FFC SPA for the arrays combined are checked, and the appropriate values are used to calculate the impacts of displacement and collision combined.		The values in paragraph 109 of the **Report to Inform Appropriate Assessment Habitats Regulations Assessment Part 4 of 4** [APP-048] are incorrect as these refer to the breeding season only, however paragraph 110 uses the correct annual values to estimate the change in mortality rate expected. Furthermore paragraph 121 of the **Report to Inform Appropriate Assessment Habitats Regulations Assessment Part 4 of 4** [APP-048] states that the 12.5 value only relates to the breeding season, which is correct - to this are added 0.6 (autumn) and 0.08 (spring) to give an annual total of 13.18, which is the correct value (allowing for differences due to rounding), and this was used as the basis for assessment. In conclusion, this error is only in paragraph 109 and the correct values were used in the **Report to Inform Appropriate Assessment Habitats Regulations Assessment Part 4 of 4** [APP-048].
RR-039: G 46	6.1 -Table 9.14, Para 121-122	Combined displacement and collision impacts on gannet at FFC SPA The annual combined impacts of displacement and mortality on FFC SPA gannet presented in Table 9.14 (21.6) are not consistent with those presented in the text (21.9).	Natural England advise that the figures for displacement and collision impacts on FFC SPA gannet are checked and updated as needed.		The collision values in table 9-14 of the **Report to Inform Appropriate Assessment Habitats Regulations Assessment Part 4 of 4** [APP-048] are correct, and correspond to those in table 9-13. The combined impact value is therefore 21.6 as stated in the table, not the slightly higher value of 21.9 in the text. However this difference (0.3) makes no material difference to the estimated change in mortality rate and no further update is therefore required.

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
RR-039: G 47	6.1 – Para 472 7.12 – Para 55	Inconsistency between approach taken with respect to red-throated diver densities in the Greater Wash SPA The descriptions of red-throated diver densities in the area of the Greater Wash SPA crossed by the cable corridor given in Chapter 7.12 and in Chapter 6.1 do not correspond. In Chapter 7.12 they are given as 0.68 and 0.87 birds per km², whilst in Chapter 6.1 the density is given as 0.5 birds per km².	Natural England advise that the Applicant clearly presents the calculated densities of red-throated diver for the area of the cable corridor that overlaps with the Greater Wash SPA and ensures that these are used in all relevant parts of the assessment.		These density estimates will be reviewed and amended as appropriate mid-November 2024 in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6].
RR-039: G 48	6.1-9.4.2.1	Red-throated diver at the Greater Wash SPA The assessment of impacts on red-throated diver in the Greater Wash SPA does not consider impacts of the reduction in habitat resulting from disturbance/displacement during cable installation. Given the proposed duration of the cable installation phase, Natural England consider this aspect needs to be properly assessed. We highlight that the DEP&SEP projects committed to a seasonal restriction of cable installation within the Greater Wash SPA and advise that sufficient assessment of effective habitat loss is needed to determine whether a similar restriction will be needed here.	Natural England advise that implications of cable installation on extent of available habitat for red-throated diver in the Greater Wash SPA is assessed and robust mitigation be brought forward.		The Applicants will review this potential impact and update the assessment as appropriate mid-November 2024 in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6].
RR-039: G 49	6.1-9.5.2.2.5.2; 7.12.12.13 - Tables 3 & 7	PVA population size The initial population sizes used in the PVA for kittiwake and razorbill at FFC SPA are 91,008 and 30,673 respectively. We advise that the appropriate population sizes to use are the 2022 count figures of 89,148 (kittiwake) and 61,345 (razorbill) (Clarkson et al 2022).	Natural England advise that PVAs for kittiwake and razorbill at FFC SPA be re-run using the appropriate initial population sizes (Clarkson et al 202210).		The PVA will be updated using these alternative population estimates as advised and presented mid-November 2024 in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6].
RR-039: G 50	6.1 - 9.5.2	In-combination assessments In-combination assessments have not been carried out for a number of SPA features, including guillemot and puffins at Farne Islands SPA, puffins at FFC SPA and Red-throated diver at the Greater Wash SPA. The Applicant consistently explains the lack of in-combination assessment by stating that the impacts of the projects alone cause no "measurable increase" in mortality. This is not in line with SNCB Best Practice Guidance (Parker, 2022[13]), which is clear that: "*Species should not be scoped out of cumulative / in-combination assessments because the project*	Natural England advise that it would be best practice for the Applicant carry out in-combination assessments for all SPA features that have been screened in for assessment. As a minimum, we consider that in-combination assessments should be carried out for all species that meet the 1% baseline mortality threshold (calculated according to SNCB guidance), specifically guillemot at Farne Islands SPA, and Red-throated diver at the Greater Wash SPA. We consider there would also		The Applicants will provide the additional in-combination assessment mid-November 2024 in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6] for the features and SPAs identified by Natural England (guillemot at Farne Islands SPA, Red-throated diver at the Greater Wash SPA and puffins at Farne Islands SPA and FFC SPA).

[13] Parker, J., Fawcett, A., Banks, A., Rowson, T., Allen, S., Rowell, H., Harwood, A., Ludgate, C., Humphrey, O., Axelsson, M., Baker, A. & Copley, V. (2022c), 'Offshore Wind Marine Environmental Assessments: Best Practice Advice for Evidence and Data Standards. Phase III: Expectations for data analysis and presentation at examination for offshore wind applications', Natural England, 1.2: 140.

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
		alone level impacts are deemed to be small (e.g. less than 1% of baseline mortality), as the combined impacts have to be assessed across projects within the spatial scale". Natural England highlights that a small alone impact may still contribute to an adverse effect on integrity (AEoI). In any event, there are several SPA features for which the increase in adult mortality for the projects alone, when calculated using NE's advised approach, is assessed to be above the 1% detectability threshold used by the Applicant, and yet for which no in-combination assessments have been carried out. We also highlight that BEIS (now DESNZ) have used the following text in such circumstances in their HRAs: "*The contribution from the Project to the in-combination collision total will be small, but the Secretary of State notes that the Habitats Regulations do not include any reference to the exclusion of small-scale effects, or to treating effects as de minimis. The relevant test in Regulation 63 of the Habitats Regulations is whether there would be effects from a project alone or in-combination with other projects. This implies that however small an effect is, it may still contribute to an adverse effect on integrity.*"	be merit in in-combination assessments being carried out for puffins at Farne Islands SPA and FFC SPA.		
RR-039: G 51	6.1-Tables 9.15, 9.16, 9.20, 9.24, 9.30	<u>Projects included in the in-combination assessment</u> The impacts of several relevant Tier 4 projects have been left out of the in-combination assessments, including Outer Dowsing, Five Estuaries and North Falls offshore wind farms (OWF). These Projects have all recently submitted applications and there is therefore information on predicted impacts in the public domain that should be included by the Applicant. Dogger Bank D OWF should also be included as a Tier 6 project.	Natural England advise that the in-combination assessment should be updated to include all relevant projects.		The list of wind farms included in the assessment will be reviewed and updated as appropriate mid-November 2024 in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6]. It is expected this will include Outer Dowsing, Five Estuaries and North Falls as these have submitted their final applications, however it is important to note that some of their estimated impacts are subject to requests for revision by Natural England as these projects are also currently in Examination. These totals are expected to be preliminary until final agreements have been reached between each project and Natural England, which may not be until determination by the Secretary of State.
RR-039: G 52	6.1- Table 9.20, para 157	<u>Exclusion of 'compensated for' projects from in-combination assessment for FFC SPA kittiwake</u> The Applicant has excluded projects for which kittiwake compensation measures are required (Hornsea Three, Norfolk Boreas, Norfolk Vanguard, East Anglia Two, East Anglia One North, Hornsea Four, SEP&DEP) from their in-combination assessment, which substantially reduces the in-combination totals. We highlight that recent DESNZ appropriate	Natural England advise that the Applicant should present in-combination assessments that both include and exclude compensated-for projects.		The Applicants will review the RIAA and provide additional assessment as appropriate mid-November 2024 in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6].

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
		assessments have considered in-combination totals both including and excluding compensated-for projects, and therefore it would be appropriate for the Applicant to present both in any in-combination assessment updated.			
RR-039: G 53	6.1 - Para 201, Table 9.24	<u>Exclusion of Hornsea Project 4 guillemot totals from in-combination assessment for FFC SPA</u> The Applicant has excluded the impacts of Hornsea Project 4 from their in-combination assessment of impacts on guillemot at FFC SPA "*as this project's impacts are subject to compensation*". Natural England do not support Hornsea 4 guillemot impacts being excluded from in-combination totals, as a high degree of uncertainty remains regarding the likely effectiveness of available measures to fully compensate for their impacts.	Natural England advise that in-combination totals should be presented both with and without the impacts of compensated-for projects due to the current uncertainty regarding the effectiveness of compensatory measures for auks.		The Applicants will review the **Report to Inform Appropriate Assessment Habitats Regulations Assessment Part 4 of 4** [APP-048] and provide additional assessment mid-November 2024 in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6].
RR-039: G 54	6.1 -Table 9.15, 9.16, 9.18, 9.20, 9.24, 9.30, Para 131, 153, 157, 201, 262, 267,	<u>In-combination impacts on FFC SPA features</u> The in-combination totals calculated for impacts on kittiwake, guillemot razorbill and gannet at FFC SPA do not appear to reflect the combined impacts of the arrays with other relevant projects. Natural England note that the most recent agreed in-combination totals are for DEP&SEP and that the Appropriate Assessment for those projects referred to those values in making integrity judgements. Accordingly, NE advised during the EPP that these figures be used by DBS. The in-combination impacts for DBS should necessarily be higher than those presented for DEP&SEP, as they will include the impacts of the DBS arrays and those of other more recent projects (see G51&52). However, the in-combination totals presented by the Applicant are often lower than those presented for DEP&SEP, or lower that would be expected based on the DBS alone impacts. This casts major doubt over the value of the Applicant's in-combination assessment.	Natural England advise that the in-combination totals for impacts on kittiwake, guillemot, razorbill and gannet at FFC SPA be recalculated, taking into account the impacts of all relevant projects (see G51&52) and any updated assessments resulting from advice within this Representation.		The Applicants will review the **Report to Inform Appropriate Assessment Habitats Regulations Assessment Part 4 of 4** [APP-048] and provide additional assessment as appropriate mid-November 2024 in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6].
RR-039: G 55	6.1 – Tables 9.15, 9.24, 9.30, Para 126, 201, 267	<u>Presentation of in-combination totals for displacement impacts</u> For the in-combination assessment of displacement impacts, the Applicant has presented apportioned abundance estimates for other projects, and then presented minimum (30% displacement and 1% mortality for auks, 60%	Natural England advise that the Applicant presents the details of the in-combination displacement assessment in full to allow the methods used and full range of predicted impacts to be evaluated.		The Applicants will review the **Report to Inform Appropriate Assessment Habitats Regulations Assessment Part 4 of 4** [APP-048] and provide additional assessment mid-November 2024 in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6].

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		displacement and 1% mortality for gannet) and maximum (70% displacement and 10% mortality for auks, 80% displacement and 1% mortality for gannets) displacement impacts in the text. The full methods and displacement matrices for these assessments have not been provided, and it is therefore not possible for us to evaluate the methods or the potential range of predicted impacts. We note that the approach taken does not allow consideration of other displacement and mortality rate combinations which have previously been considered as appropriate indications of predicted impacts for other projects, such as 70% displacement and 2% mortality (SEP&DEP) and 70% displacement and 5% mortality (Hornsea 4). Nor does the approach taken by the Applicant allow for variation in the methods used for other projects, e.g. the bespoke apportioning methods for auks recently advised for other North Sea projects.			
RR-039: G 56	6.1-Tables 9.17, 9.21 9.25, 9.31	<u>Displacement and mortality rate range represented in PVAs for guillemot and razorbill</u> While Natural England appreciate the Applicant presenting PVA results for guillemot and razorbill considering both ends of Natural England's advised range for displacement and mortality rates (i.e. from 30% displacement and 1% mortality to 70% displacement and 10% mortality) as well as Natural England's advised adult apportioning rates, we note that only a limited number of results are presented from within this range. We note that it may be necessary to assess impacts on populations at different combinations of displacement and mortality rates not presented, e.g. 70% displacement and 2% mortality.	Natural England advise the Applicant to present the results of the full range of displacement impacts on guillemot and razorbill in the PVA modelling.		The Applicants will review the **Report to Inform Appropriate Assessment Habitats Regulations Assessment Part 4 of 4** [APP-048] and provide additional assessment as appropriate. However, the Applicants require greater clarity from Natural England on what combinations of displacement and mortality they would like to see in the PVA as 'the full range' from 30-70% displaced and 1-10% mortality would potentially require a considerable number of PVA scenarios to be run, depending on the increments adopted.
RR-039: G 57	6.1 – Para 140	<u>Interpretation of PVA results: Counterfactual of Population Size</u> When interpreting results of PVAs, the Applicant has argued that the counterfactual of population size (CPS) is not appropriate for assessing the results of a PVA that does not incorporate density-dependence, and that the counterfactual of population growth rate (CGR) is more appropriate, stating that "*The lack of density dependence in the PVA means the CPS values in particular present overly pessimistic outcomes which are very unlikely to occur*".	Natural England advise that our integrity judgements will take into account both the CPS and CGR metrics to quantify the relative changes in population response to impacts.		The Applicants acknowledge Natural England's position on this matter and consider it important to note that they provided the full range of outputs from the PVA in the **Report to Inform Appropriate Assessment Habitats Regulations Assessment Part 4 of 4** [APP-048] as advised by Natural England in their guidance. However, the Applicants' position remains the same as presented in the Application, namely that greater weight should be placed on CPGR when interpreting the results of density-independent models and greater weight should be placed on CPS when interpreting density dependent models. Since Natural England's advice on conducting seabird PVA is to undertake these as density independent models, the Applicant's consider the CPGR to be the more robust metric to

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		Natural England disagree with this position and highlight that the use of both CGR and CPS is supported in the literature (e.g. Cook & Robinson, 2016; Jital et al., 2017) and recommended in SNCB Best Practice Guidance. We therefore advise that assessments should focus on both the CGR and CPS to quantify the relative changes in population response to anthropogenic impacts, as they have been shown to be the least sensitive metrics to misspecification of the population trend and demographic rates used in the PVA model. Further, Natural England's Best Practice Guidance states that "*where there is limited information on population regulation for the focal population, it is recommended that a density independent model is used*". We note that there is currently no empirical evidence of density dependence mechanisms operating at the relevant population scale for the impacted species, and that the Applicant has not contested this fact. In the absence of such evidence, incorporating unproven assumptions about compensatory density dependent responses into population models has the potential to underestimate impacts on seabird populations.			use. This position is based on the considerable experience of their consultants who have spent over 25 years developing and interpreting population models and their outputs.
RR-039: G 58	6.1 - Para 140, 165,	<u>Interpretation of PVA results: use of mean peak abundance estimates</u> The Applicant has stated that "*The use of mean peak abundance estimates in the displacement assessment is likely to result in unrealistically high predictions about displaced effects, especially when combined across wind farms*" (para 140). Natural England acknowledge that our advised approach of summing seasonal impacts based on seasonal mean peak abundance estimates could result in individual birds being assessed in more than one season. However, we advise that this approach is required in the absence of empirical evidence on turnover at development sites. The use of seasonal mean peak estimates allows for between-year variation in the timing and magnitude of peak abundance to be taken into account, and that it is likely that a large proportion of the birds present in one season may be different individuals from those present in another. We further note that the abundance estimates presented in the baseline data show a considerable amount of variation, with low precision and high standard deviations, such that confidence intervals for estimates are very high, and that this	In the absence of more robust empirical evidence on within-year and between-year variations in abundance, and on turnover rates, Natural England continue to advise that the use of seasonal mean		The Applicants acknowledge Natural England's position on this matter, but maintain that when taken together Natural England's approach to assessment results in overly precautionary impacts (see RR-039: G 9).

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		represents a source of uncertainty and potential under-precaution in the impact assessment. The two years of baseline characterisation surveys are also temporally and spatially restricted, and only provide a 'snapshot' of the baseline environment, this means there is a need for some level of precaution within the assessment.			
RR-039: G 59	6.1 -Para 140, 165, 208, 274	Interpretation of PVA results: characterisation of 1% mortality rate Natural England disagree with the Applicant's statement that a 1% mortality rate for the displacement assessment on gannet (and referenced for other species) is "*not based on any scientific evidence*". We refer the Applicant to our comments on the characterisation of NE advice in G25.	See G25.		The Applicants acknowledge Natural England's position on this matter, but maintain that when taken together Natural England's approach to assessment results in overly precautionary impacts (see RR-039: G 9).
RR-039: G 60	6.1 -Para 140, 165, 208, 274	Interpretation of PVA results: use of as built parameters The Applicant states that the inclusion of project impacts from other wind farms based on their consented designs rather than their actual built designs will "*over-estimate collision risks*" in the in-combination assessment. Natural England is actively engaged with industry considering ways that 'as-built' parameters can be used within assessments. However, at present we do not consider it appropriate to reduce impact estimates by considering as-built parameters unless those parameters are legally secured. Speculation of impacts from 'as built' scenarios in in-combination/cumulative impact assessments are of little value unless legal agreements are put in place to ensure existing projects will not expand further. Without such agreements, there is no option other than to use impacts from consented designs in in-combination and cumulative assessments.	To note.		The Applicants acknowledge Natural England's position on this matter, but consider it fails to recognise that wind farms are only consented for single construction campaigns and typically make full spatial use of their sites. Consequently, there are compelling reasons for accepting as-built wind farm impacts rather than consented for most if not all operational wind farms. The aspect is further illustration of the over-precaution in Natural England's approach to impact assessment. The above explanation notwithstanding, it should be clarified that the Applicants did not incorporate as-built impacts in their assessment but rather used the consented impacts as advised by Natural England[14].
RR-039: G 61	6.1 - Para 140, 165, 208, 274	Interpretation of PVA results: PVAs run as "closed populations" The Applicant has stated that, because PVA models are run as closed populations, "*a large degree of resilience*" in seabird populations is "*absent from the assessment*".	To note.		The Applicants agree that rates of exchange between colonies are poorly understood, but that does not negate the Applicants' position which is that this omission (i.e. treating populations as isolated) does result in more precautionary results.

[14] Parker, J., Fawcett, A., Banks, A., Rowson, T., Allen, S., Rowell, H., Harwood, A., Ludgate, C., Humphrey, O., Axelsson, M., Baker, A. & Copley, V. (2022c). Offshore Wind Marine Environmental Assessments: Best Practice Advice for Evidence and Data Standards. Phase III: Expectations for data analysis and presentation at examination for offshore wind applications. Natural England. Version 1.2. 140 pp.

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
		Natural England note that there is currently an absence of robust empirical evidence on the levels of immigration and emigration affecting the relevant seabird populations. In the absence of such evidence, it is impossible to construct population models that reliably represent metapopulation dynamics, and incorporating unproven assumptions about immigration and emigration into population models has the potential to underestimate development impacts on seabird populations. We further note that the Applicant's statement that "*The interconnections in seabird populations will confer a large degree of resilience which is absent from the assessment*" is unsubstantiated, and we stress that no assumptions can be made about unquantified resilience in wider populations, particularly given the many pressures acting on seabird populations throughout the region.			
RR-039: G 62	6.1 - Tables 9.17, 9.21, 9.25, 9.31 6.1-9.5.2.1.5.4 9.5.2.2.5.2 9.5.2.2.5.2 9.5.2.5.5.2 7.12 -12.5.3	<u>Interpretation of PVA results for FFC SPA gannet, kittiwake, guillemot and razorbill</u> In the Applicant's interpretation of the PVA results for in-combination impacts on gannet, kittiwake, guillemot and razorbill at FFC SPA, they cite recent population growth at the SPA as a reason for concluding no AEoI is likely. Whilst we do not dispute the evidence of population growth at the colony in past years, we do not consider it appropriate to assume the same growth rate will continue over the next 30 years. It is highly likely that the populations will experience density-dependent mechanisms over the lifetime of the Project, and there are uncertainties about the long-term population impacts of HPAI and a wide range of other environmental pressures. We note that the Applicant has acknowledged the importance of considering density dependence and other pressures including HPAI and climate change elsewhere in the Application, but they have not considered these in their interpretation of the PVA results. Further, recent surveys have shown that UK gannet, kittiwake and guillemot populations declined by 25%, 18% and 20% respectively between the results of the last seabird census which covered the period between 2015 and 2021 (Burnell et al 2023), and the summer of 2023 (Tremlett et al 2024) and that neither this significant recent population decline nor the	Natural England advise that the Applicant considers realistic assessments of current and future population trends, considering all relevant evidence, when interpreting the results of updated PVAs.		The Applicants are surprised by Natural England's comment that the assessment failed to take density dependence into account in the PVA since their long-standing position on this matter is that there is insufficient information on density dependence in seabird populations to permit its inclusion in PVA, and when such models have been included in assessments Natural England has been very clear that they do not support their use for this purpose. It is therefore somewhat contradictory for Natural England to advise the Applicants to consider density dependent effects while also being advised to undertake density independent PVA. While there was considerable and justifiable concern that HPAI would have large impacts on seabird populations, the reality appears to have been much less significant than feared and (with some exceptions) this appears to have resulted in temporary impacts on population growth rather than any long-lasting effects. It is also notable that the study cited by Natural England (Tremlett *et al.* 2024) reported that the gannet population at FFC SPA increased across the period in question (albeit this was the only monitored colony which increased) and the UK population of kittiwake actually increased overall by 10% (contrary to Natural England's statement that there had been an 18% decline). The populations of guillemot and kittiwake at FFC SPA were not included in Tremlett *et al.* (2024), however plot counts at the SPA monitored every year since 2009 by the RSPB found that for guillemot the positive trend (plot counts began) was maintained in 2023 while the kittiwake plot count, which has been largely stable in

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
		uncertainties regarding longer-term population impacts have been referred to.			recent years, had a small decrease of around 4% compared with the previous year (Butcher et al. 2023[15]). Therefore, it appears that for the FFC SPA colonies there is no need to make allowance for the population level effects of HPAI in the PVA, not least because the counterfactual outputs are robust to such considerations.
RR-039: G 63	7.12 - Section 12.3.3; 8.6	Have the impacts been avoided/reduced by the use of appropriate mitigation? Natural England advise that comments made in relation to EIA mitigation are also applicable here.	See G28.		See RR-039: G 7.
RR-039: G 64	7.12 - Table 12.3; 8.6 - C181	Embedded mitigation for red-throated diver Natural England welcome the inclusion of embedded mitigation for potential impacts on red-throated (RTD) diver in the Greater Wash SPA during construction, operation and maintenance, through adherence to our Best Practice Protocol for Minimising Disturbance on RTD. However, we note that the avoidance of works during the over-wintering period (1st November to 31st March inclusive) has not been included.	Natural England advise that careful consideration should be given to avoiding or restricting cable installation works within 2km of the Greater Wash SPA during the over-wintering period (1st November to 31st March inclusive) to avoid adverse effects.		As noted by Natural England, the Applicants have included embedded mitigation for red-throated diver (RTD) in the Greater Wash SPA during construction, operation and maintenance, through adherence to Natural England's Best Practice Protocol for Minimising Disturbance on RTD. The **Report to Inform Appropriate Assessment Habitats Regulations Assessment Part 4 of 4** [APP-048] concluded that any potential effects on red-throated diver due to construction of the export cable through the Greater Wash SPA for either DBS East or DBS West in isolation or for both together would not adversely affect the integrity of the Greater Wash SPA. **Chapter 12 Offshore Ornithology** [APP-103] concludes that the impact significance for red-throated is **minor adverse**. As this impact is not significant in EIA terms, the Applicants consider that sufficient embedded mitigation measures have been provided to mitigate potential impacts on red-throated divers and no additional mitigation is required.
RR-039: G 65	6.1	As outlined in the comments above, there are several areas where the assessment methodology deviates from SNCB Best Practice Guidance. Natural England acknowledge the right of the Applicant to submit an assessment following their chosen methods, however in such circumstances an assessment should also be provided in line with SNCB advice. **We are therefore unable to comment on the assessment conclusions at this time.** However, we note that since Hornsea Project Three Natural England's position has been that the in-combination total of collision mortality across consented plans/projects has	Natural England advise that updated assessments are provided in line with SNCB Best Practice Guidance and the advice provided in this Representation.		The Applicants will review the individual comments and update the assessment as appropriate mid-November 2024 in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6].

[15] Flamborough and Filey Coast SPA Seabird Monitoring Programme 2023 Report; Butcher, J., Aitken, D., O'Hara, D. RSPB.

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		already exceeded levels which are considered to be of an AEoI to Kittiwake at FFC SPA, and that any additional mortality arising from these proposals would only reinforce this conclusion. We now consider this to also be the case for in-combination impacts on guillemot at FFC SPA (Hornsea 4 onwards). Moreover, we have already advised regulators that we cannot rule out an in-combination AEOI on razorbill from FFC SPA, due to the impacts of North Sea windfarms and guillemot at the Farne Islands SPA due to the substantial impacts of the Berwick Bank OWF. We further note that the impacts of the projects alone on kittiwake at FFC SPA appear to be considerable, and that at this stage we are unable to rule out the possibility of AEoI on			
RR-039: G 66	6.1 – 9.1.3	<u>Indirect effects</u> Natural England disagree that it can be concluded that there is no risk of AEoI to ornithology SPA features as a result of impacts on prey species, solely due to impacts being ruled out at EIA scale. Consideration has also only been given to temporary construction impacts on prey in the RIAA, rather than the indirect effects of permanent spawning habitat loss that will also occur.	Please see Appendix E for our detailed comments on the indirect effects assessment.		See response to comment RR-039: G8.
RR-039: G 67	N/A	Please see Appendix H for our comments on offshore ornithology compensatory measures	To note.		Please see Table 2.2.1 for the Applicants' responses to Natural England's comments on offshore ornithology compensatory measures.
RR-039: Annex G1 .1	N/A	**"Annex G1: Natural England's additional guidance on the assessment and apportioning of guillemot and razorbill displacement impacts for the Dogger Bank South Offshore Wind Farms** **Overview** 1 This document provides additional advice to the Applicant on the assessment and apportioning of displacement impacts on common guillemot (*Uria aalge*, hereafter 'guillemot') and razorbill (*Alca torda*) that may arise from the construction, operation, and maintenance phase of the proposed Dogger Bank South Offshore Wind Farms (DBS OWF). Natural England previously advised the Applicant during the Evidence Plan Process that a bespoke approach to apportioning of impacts on these species to Flamborough and Filey Coast Special Protection Area (FFC SPA) might be required (Ornithology ETG060224, Sent 27th February 2024), given	N/A	N/A	The Applicants will consider the revised advice on this matter provided by Natural England and will consider undertaking a revised assessment mid-November 2024 in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6].

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		apparent peaks in density and abundance in August and September in the array areas plus 2km buffer and the proximity of the projects to the SPA. However, we were unable to advise on what this approach should be until the full 24 months of baseline survey data were provided for review to better understand the seasonal variations. As this has now been provided with the application, Natural England can now set out our advice on how displacement impacts from the project should be apportioned to FFC SPA in these months."			

2.2 Responses to Appendix H Offshore Ornithology Compensation

Table 2.2.1 Applicants' responses to Natural England's Appendix H Offshore Ornithology Compensation

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
RR-039: H 0.0.1	N/A	**1. Introduction** 1.1. As the derogations material differs in content/structure to a standard Environmental Statement chapter, our comments are provided in a different format to the other Appendices. Within this Appendix we provide our current position on our confidence in each proposed compensation measure and key consenting concerns applicable to all measures, followed by detailed comments on the compensation plans and supporting documents. For clarity, we have also provided a summary RAG table for each measure alongside our position to highlight areas of agreement and outstanding concern. We have used the following criteria to assess each category in the summaries: NE has broad confidence in this aspect of the measure, though there may be some uncertainties that need addressing. There are significant concerns/uncertainties regarding this aspect of the measure, but they have the potential to be resolvable. Major uncertainties remain with this aspect of the measure, which if not resolved would make compensation undeliverable. NE cannot be confident at this stage that the measure is deliverable.	N/A	N/A	No response is required.
RR-039: H 0.0.2	N/A	1.2.Natural England compensatory measures 'check list' To assist developers and regulators, Natural England has developed a checklist of aspects that need to be described in detail in compensation submissions, to give confidence that the measures can be secured (see Annex H1). This checklist forms the basis of the summary table criteria.	N/A	N/A	No response is required.

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RR-039: H 0.0.3	N/A	2.Natural England's Advice and Recommendations 2.1. Tables 1 and 2 set out Natural England's summary position for each proposed compensation measure, with detailed comments on the compensation plans and supporting documents presented in Table 3.	N/A	N/A	No response is required.
Summary position of compensation measure proposed for kittiwake					
RR-039: H 0.1.1	N/A	The measure has merit and is technically feasible for kittiwake, and we note it is the preferred measure in the Kittiwake Strategic Compensation Plan (KSCP). The key questions remaining are around the scale of compensation needed, the location of the measure and the mechanism for delivery via the various options being progressed.	N/A		The Applicants will be providing a further update regarding the location of offshore Artificial Nesting Structure (ANS) and delivery in an updated **Kittiwake Compensation Plan** [APP-052] and the **Project-Level Kittiwake Artificial Nesting Structure (ANS) Site Selection Report** [document ref: 10.19]**.** These documents will be submitted on 29 October 2024 with the Applicants' response to the Examining Authority's Rule 9 and 17 letter dated 22 October 2024 [PD-005]. These documents will include details on further site selection work undertaken following submission, and details on project-led and collaborative ANS implementation. Updates on the scale of this measure will be provided by the Applicants in mid-November 2024 following Ornithology HRA updates addressing comments raised in Relevant Representations in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6]. These updates to the HRA are not expected to have a material impact on the proposed compensation measure.
RR-039: H 0.1.2	N/A	Natural England agree that the proposed measure has the potential to increase the number of recruits into the wider kittiwake population, although the scale of benefit to the impacted site will be indirect and is likely to be unquantifiable.	N/A		The Applicants acknowledge this comment.
RR-039: H 0.1.3	N/A	Logistics will be challenging offshore but viable options are likely to be available for providing new structures and/or repurposing existing ones.	N/A		The Applicants have progressed additional site selection work, updates on identifying a number of Areas of Search (AoS) for the placement of offshore ANS currently being taken forward for further studies, prior to further down-selection that will be undertaken in mid-December 2024, in advance of preparation for Site Investigation programmed for Q2 2025. A full update of the work undertaken since DCO submission and the work currently underway will be provided in the updated **Kittiwake Compensation Plan** [APP-052] and the **Project-Level Kittiwake Artificial Nesting Structure (ANS) Site Selection Report** [document ref: 10.19]. These documents are being submitted on 29 October 2024 with the

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
					Applicants' response to the Examining Authority's Rule 9 and 17 letter dated 22 October 2024 [PD-005]. The repurposing of existing structures has been ruled out following engagement with asset owners of structures due to be decommissioned and consultation with relevant stakeholders. The Applicants understand that challenges surrounding liability and health and safety of structures near the end of their lifespan are insurmountable. The Applicants' focus is delivery of purpose-built offshore ANS. Further details are provided on the validity of repurposing existing structures in the updated **Kittiwake Compensation Plan** [APP-052] and the **Project-Level Kittiwake Artificial Nesting Structure (ANS) Site Selection Report** [document ref: 10.19]. These documents are being submitted on 29 October 2024 with the Applicants' response to the Examining Authority's Rule 9 and 17 letter dated 22 October 2024 [PD-005].
RR-039: H 0.1.4	N/A	Natural England do not agree with the methods used by the Applicant to assess impacts on kittiwake or determine the scale of compensation required (see Appendix G). It will not be possible to agree impact levels requiring compensation until an assessment is provided in line with SNCB guidance.	N/A		Updates on the scale of compensation will be provided by the Applicant in mid-November 2024 following Ornithology EIA and Ornithology HRA Updates addressing comments raised in Relevant Representations in two documents: **Offshore Ornithology EIA Update** [document reference 12.5] and **Offshore Ornithology RIAA HRA Update** [document reference 12.6]. The scale of compensation is not expected to change such that an offshore ANS would not provide sufficient compensation.
RR-039: H 0.1.5	N/A	The Applicant has proposed up to two ANS being provided (one project-led), each with a maximum capacity of 2,250 nesting spaces. The scale of delivery required cannot be confirmed until the impact levels are agreed, however we consider that based on the current predicted impacts, one ANS will likely be insufficient to meet the Project's needs alone. It is also possible that the two ANS will be insufficient to compensate for the Project's impacts combined with Outer Dowsing offshore wind farm under a strategic delivery scenario, due to the combined impacts of the Dogger Bank South projects and ODOW. The Applicant has proposed a compensation ratio of 2:1, however no justification has been provided for this.	N/A		Predicted kittiwake impacts and scale of compensation are unaffected by Natural England's comments on the ornithology assessment as revisions only affect displacement impacts, not collisions. Updates for demographic rates and reference populations) have no bearing on the collision risk modelling (CRM). The overall compensation quantum required to offset the predicted impacts of the Projects would therefore be 534 to 972 kittiwake pairs per annum (upper 95% CI 972 to 1,920 kittiwake pairs per annum). While the Applicants ornithological assessment as submitted and referred to in the **Kittiwake Compensation Plan** [APP-052] was fit for purpose and followed the appropriate guidance at the point of submission, the reassessment was undertaken at Natural England's request, updating the numbers in line with new guidance (to be provided in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6]) in mid-November 2024. The Applicants do not expect the numbers for kittiwake to change at all, thus, the

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					scale of compensation proposed will not be impacted. The design capacity (number of nesting spaces) to be provided by respective project-led and collaborative structures will be confirmed following the finalisation of commercial agreements between the Applicants and collaborative developer(s) and the completion of the Applicants' topside design concept study which is ongoing. The detailed topside design process will ensure that sufficient nesting spaces are provided. Updates will be provided on the concept design via updates to the **Kittiwake Compensation Plan** [APP-052] later in the Examination process (anticipated to be by March/April 2025). The Applicants maintain that two offshore ANS is sufficient to compensate for the predicted impacts of the Projects. This aligns with the delivery options outlined in the **Kittiwake Strategic Compensation Plan** [APP-053] which supports the construction of two offshore ANS. This approach has been approved by the Kittiwake Strategic Compensation Plan Steering Group, which includes Natural England. This is evidenced in the Steering Group Agreement Log (Table 4.1 of the **Kittiwake Strategic Compensation Plan** [APP-053]) in which Natural England confirmed agreement that two structures are the preferred delivery approach. Furthermore, the Applicants presented their approach to delivering two offshore ANS (whether project-led, collaborative or strategic) during the expert topic group (ETG) meeting on 25th April 2024 which was attended by Natural England, the Marine Management Organisation (MMO) and Royal Society for Protection of Birds (RSPB). During this meeting the Applicants received confirmation that the delivery of two ANS would be sufficient (as recorded in the meeting minutes). There is no ecological evidence that has been made available to the Applicants to suggest that two ANS, if suitably designed to accommodate sufficient nesting spaces would not be the most appropriate compensatory delivery arrangement. The methods for kittiwake compensation calculation employed by the Applicants aligns closely to that of Hornsea 4 which progressed with a compensation ratio of a minimum of 2:1. Furthermore it is established that ratios can be applied to account for risk associated with the success of compensation measures. A considerable amount of risk will be offset for the Projects by the implementation of multiple ANS in separate locations. Therefore, a compensation

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					ratio of 2:1 is considered to be appropriate and will be advanced by the Applicants.
RR-039: H 0.1.6	N/A	The Applicant states that a new structure would be installed at least three breeding seasons prior to operation. Kittiwake do not breed until they are 4+ years old, and therefore breeding recruits will not enter the biogeographic population until that point. Colony establishment would be occurring in the early years of operation, and until the target population/productivity is met a mortality debt will accumulate. Therefore, although the measure will be in place it is highly unlikely to be delivering compensation at the scale required before impacts occur. We advise that the structure should be provided four breeding seasons prior to operation.	N/A		Draft Defra guidance (Defra, 2021) states that compensation should ideally be in place, functioning and contributing to the coherence of the UK national site network prior to any impact occurring, which in this case is at the start of OWF operation. A proportion of kittiwake breed at three years old (Coulson, 2011), meaning that implementation of compensation measures three breeding seasons in advance of operation would allow sufficient time for recruitment of juveniles to the adult population. A staggered approach to the implementation of two offshore ANS is considered acceptable for the Round 4 Plan. This may allow delivery of a single offshore ANS four years in advance of operation of the Projects, dependent on the progression of collaborative efforts with other OWF developers whose projects are at a more advanced stage. The Applicants are continuing to consider their position with respect to project-led and collaborative compensation delivery timescales in light of ongoing discussions with other OWF developers and emerging evidence related to the impacts resulting from a short compensation delay. The Applicants continue to review and consider the timescales for the delivery of offshore ANS by other projects. The Applicants note that Hornsea Projects 3 and 4 have recently received approval of a non-material change (NMC) regarding the requirement to implement their ANS four breeding seasons ahead of operation, to reduce to two breeding seasons, upon the provision of evidence that new colonies would reach the accumulated mortality impact for the respective projects. Further details on the implementation programme are provided in the updated **Kittiwake Compensation Plan** [APP-052] and the **Project-Level Kittiwake Artificial Nesting Structure (ANS) Site Selection Report** [document reference 10.19]**.** These documents will be submitted on 29 October 2024 with the Applicants' response to the Examining Authority's Rule 9 and 17 letter dated 22 October 2024 [PD-005].
RR-039: H 0.1.7	N/A	The final location remains undetermined; however, the Applicant has identified a shortlist of possible locations developed through the KSCP Steering Group. We note that further work needs to be done before a location or locations are definitively selected, and that an update is expected early within the Examination.	N/A		Please see response to RR-039: H 0.1.1.

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RR-039: H 0.1.8	N/A	There is very little detail provided regarding the long-term implementation and maintenance of the measure, nor monitoring or adaptive management, within the Outline Kittiwake Compensation Implementation and Monitoring Plan. Whilst Natural England recognise the current uncertainty around the implementation of strategic kittiwake compensation, given the project is also proposing project-led compensation we consider that it is appropriate for the Applicant to provide a detailed kittiwake CIMP within the Examination process.	N/A		The **Outline Kittiwake Compensation Implementation and Monitoring Plan** (CIMP) [APP-054] will be updated if appropriate during examination as information becomes available, and finalised post-consent. There is currently some uncertainty as to whether it will be necessary for the Applicants to provide a Kittiwake CIMP and establish a governance process in addition to that which is required at the plan level for The Crown Estate's Round 4 derogation. If required, this document will be developed in detail post-consent with oversight from the Kittiwake Steering Group in accordance with the timelines taken by other offshore wind farm projects developing compensatory measures. This will be secured through Part 2 of Sch 18 to the DCO. Furthermore, the monitoring programme developed by the Applicants for offshore ANS is contingent on the outcomes of the Projects' onshore ANS monitoring programme at Gateshead (refer to RR-039: H 0.1.9 and RR-039: H 0.1.10 for details). The Applicants have been testing and appraising the most suitable approach to monitoring for kittiwake by assessing data outcomes across a range of monitoring methods and frequencies at the onshore ANS. This approach will ensure that the monitoring programme for offshore ANS will be robust, and evidence led. The Applicants are also developing machine learning algorithms to work in tandem with motion detection cameras. The AI project, combined with lessons learned from monitoring Kittiwakery in 2024 will enable the Applicants to devise a robust, cost effective and evidence-led monitoring programme for the DBS offshore ANS.
RR-039: H 0.1.9	N/A	Success criteria have not been clearly defined for the measure. Monitoring efforts are likely to need to be wider in scope than just the artificial structure, and the current understanding of existing offshore colonies and their productivity will need to be built on to fully evidence the additional benefit of a new or repurposed structure. This will be challenging offshore.Both apparently occupied nests (AONs) and productivity should be considered in success criteria. The DCO schedule should be clear that both require monitoring.	N/A		Success criteria are under development and will be defined in detail post-consent in the Kittiwake CIMP. The Applicants would like to highlight the ongoing work at the RWE's onshore Kittiwake tower in Gateshead (Kittiwakery) (refer to RR-039: H 0.1.10 for details), where the Applicants are carrying out ongoing monitoring, while developing both monitoring techniques and a set of criteria for monitoring the early indicator of colony establishment (Stevenson *et al.,* 2024). The advantage of the having the onshore tower is that it allows monitoring equipment and techniques to be fitted and tested in a more easily accessible and less challenging environment, therefore providing an ideal test bench for future monitoring programmes offshore. While metrics for determining the success of the measure will be in alignment with categories outlined in section 12 of the **Kittiwake**

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					Strategic Compensation Plan [APP-053] and will include apparently occupied nests (AONs) and productivity monitoring, it should be noted that through the work at the onshore ANS in Gateshead, indicators of early colony formation that that capture relevant pre-colonisation metrics (such as prospecting, practice nest building which preclude AONs and productivity) are being developed to feed into agreed success criteria. The Applicants understand that some of these pre-colonisation indicators should be used in any future Kittiwake Compensation Implementation & Monitoring Plan, as a measure of success prior to monitoring AONs and productivity, in order to allow adaptive management to be undertaken at an earlier stage if required, and therefore promote the earlier development of successful colony. The AI project, combined with lessons learned from monitoring Kittiwakery in 2024 will enable the Applicants to devise a robust, cost effective and evidence-led monitoring programme for the DBS offshore ANS.
RR-039: H 0.1.10	N/A	The proposed measure has the potential to be suitable as the sole compensation measure for kittiwake. We note that the Applicant has suggested the use of an existing onshore ANS as a supporting measure or adaptive management. Natural England consider this could form a minor part of a wider compensation package but cannot comment on the relative contribution of this measure until information on the location and scale of the proposed offshore ANS is provided by the applicant. We welcome that the Applicant is exploring options for collaborative or strategic delivery of the offshore ANS.	N/A		The Applicants acknowledge this comment and would like to highlight that the onshore ANS (Kittiwakery) has been installed by RWE at Gateshead since 2023 and is showing positive signs of colony establishment (Stevenson *et al.,* 2024). Although no chicks have yet been produced on this ANS, there were 164 individual observations made of kittiwake present between 01 May and 24 July 2024, including displaying/calling for a mate, pair courtship and bonding, copulation, nest building, and nest defence. Kittiwake were also observed on the ANS sleeping/resting and undertaking self-maintenance such as preening. In addition, two motion detection trail cameras were installed, preliminary estimates suggest circa 500 videos have further captured additional kittiwake activity and behaviours, similar to those observed during manual surveys. Although rejected by Natural England as a viable measure in TCE process, the Applicants highlight that onshore ANS have been implemented for several consented NSIPs and maintain the position that as this is already in place and has a present capacity of circa 240 breeding pairs, with planning permission in place to expand to circa 480 breeding pairs, this measure is considered to be readily available to deliver a proportion of predicted compensation requirements for the Projects if required. Given Natural England's position that onshore ANS cannot be counted as compensation for

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					DBS, discussions are underway with other offshore wind developments to share the benefits of the onshore ANS.
RR-039: H 0.1.11	N/A	The Applicant has included proposals to progress strategic, collaborative and project-led delivery of offshore ANS. We recognise the current uncertainty around the implementation of the KSCP and welcome the Applicant's consideration of project-led and collaborative measures that align with the measures and approach outlined in the KSCP. However, it is unclear how the delivery mechanism will be decided and/or secured as the proposals are intertwined, and some will only be progressed if others prove to be unavailable and/or unviable.	N/A		The Applicants' intention is to progress one project-led offshore ANS, while ODOW intend to progress another offshore ANS, the two projects are exploring the potential for nesting space to be shared to present reciprocal resilience across the compensation measure (an MoU is currently being drafted between the two parties), therefore delivering the strategic measure and approach in line with the KSCP, collaboratively through the installation of individual project-led ANS. As stated above, the Applicants are in discussions with other developers in relation to sharing the benefit of HRA compensation for kittiwake on a strategic basis. Discussions have included the potential for the Applicants to take reciprocal shares of compensation benefits in ANS constructed by ODOW and by the Applicants. Should this be taken forward it is noted that ODOW has included for the potential for an ANS within their Development Consent Order application. The Applicants will provide updates on these discussions through the Examination including progress on a Memorandum of Understanding (MoU) (or equivalent) between the Parties by end of January 2025. Details of how the collaboration will work in practice will be provided in the updated Kittiwake CIMP [APP-054] and Part 2 (paragraph 4(d)) of Schedule 18 to the **Draft DCO** [APP-027] provides for collaboration with another party as a potential delivery mechanism for the compensation measures. Updates on delivery will be provided in updates to the **Kittiwake Compensation Plan** [APP-052] and the **Project-Level Kittiwake Artificial Nesting Structure (ANS) Site Selection Report** [document reference 10.19]. These documents will be submitted on 29 October 2024 with the Applicants' response to the Examining Authority's Rule 9 and 17 letter dated 22 October 2024 [PD-005]. Updates on strategic delivery mechanisms will be provided at the appropriate deadline during Examination as details are confirmed.
Summary position of compensation measure proposed for guillemot and razorbill					
RR-039: H 0.2.1	N/A	Whilst delivering compensation via predator eradication is theoretically possible, a location for implementation has not been identified and it cannot be guaranteed that a location will be found. Based on the submitted material, Natural England cannot	N/A		Since submission the Applicants have undertaken an extensive feasibility surveys campaign over the 2024 breeding season, comprising of colony surveys where the numbers of birds, likelihood of predator presence and the availability of additional

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		have any certainty that the measure will be deliverable or make any assessment of the scale of benefits that might be achievable.			nesting habitat was assessed. This was carried out in parallel with landowner/lease holder consultation regarding both the presence of rats and the appetite for predator eradication schemes. From this the Applicants have identified a number of locations where predator eradication schemes could be delivered that would provide the number of rat free nesting spaces required for the predicted scale of compensation required. Further details on location and scale are provided in the **Guillemot and Razorbill Compensation Site Shortlist Refinement Report** [document reference 10.20] and the updated **Guillemot [and Razorbill] Compensation Plan** [APP-056]. These documents will be submitted on 29 October 2024 with the Applicants' response to the Examining Authority's Rule 9 and 17 letter dated 22 October 2024 [PD-005].
RR-039: H 0.2.2	N/A	Removing predators could allow for colonisation of new areas or reduce predation pressure on existing colonies, and thus increase both breeding populations and productivity of seabirds. However, evidence of it being effective for guillemot and razorbill is limited as these species have not been the target beneficiary for previous predator eradications. The effectiveness of this measure also depends on it being implemented at a location where guillemot and razorbill populations are currently being negatively impacted by predators, and where eradication is feasible. Further, the benefits are likely to be felt at the wider biogeographic level rather than at the impacted site, in which case the benefits to the national site network need to be clearly articulated, in order to demonstrate that the coherence of the network will be protected.	N/A		We understand that COWSC are investigating effectiveness of predator eradication for guillemot and razorbill. The Applicants will provide further information on the specifics of the proposed eradication programme and the potential impact of predation at the chosen compensation site(s) at the appropriate Deadline following the detailed pre-eradication study. The approach being taken by the Applicants is aligned with the hierarchy within the Defra guidance, whereby compensation was considered first within the affected site. However, as was discussed in the ETG meeting on 10th April 2024, there is no opportunity for provision of compensation for guillemot or razorbill within the Flamborough and Filey Coast SPA. Therefore, the Applicants have expanded the compensation site selection to provide measures that benefit the same feature outside the affected site. The Applicants are factoring in connectivity and coherence of NSN, amongst a range of other factors, as part of site consideration.
RR-039: H 0.2.3	N/A	Proven techniques exist for the eradication of rats on islands, and ongoing biosecurity measures can maintain rat free status. However, eradication programs are challenging, can be prone to delays, and other issues arising from unforeseen circumstances.	N/A		The Applicants acknowledge this comment.
RR-039: H 0.2.4	N/A	Natural England do not agree with the methods used by the Applicant to assess impacts on guillemot and razorbill. It will not be possible to agree impact levels requiring compensation until an assessment is provided in line with SNCB guidance.	N/A		Updates on the scale of compensation will be provided by the Applicants in mid-November 2024 following Ornithology EIA and ornithology HRA updates addressing comments raised in Relevant Representations in two documents: **Offshore Ornithology EIA Update** [document reference 12.5] and **Offshore Ornithology RIAA HRA Update** [document reference 12.6]. The Applicants are

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					confident that the updated quantum of compensation can be accommodated by the sites identified in the **Guillemot and Razorbill Compensation Site Shortlist Refinement Report** [document reference 10.20] submitted on 29 October 2024 with the Applicants' response to the Examining Authority's Rule 9 and 17 letter dated 22 October 2024 [PD-005].
RR-039: H 0.2.5	N/A	An assessment of the scale achievable cannot be determined until a location is selected.	N/A		Please see response to RR-039: H0.2.1.
RR-039: H 0.2.6	N/A	Natural England note that the Applicant has proposed to begin predator eradication two years prior to the first wind farm being installed. We highlight that eradication might take longer than the 2 years allocated, and eradication is also not the ultimate measure of success. The compensation will not be delivering until the required number of chicks are being produced and have reached age of first breeding (i.e. recruited into the breeding population). We do not consider implementation before impact to be analogous to delivering compensation before impact.	N/A		The Applicants propose to initiate the predator eradication two years prior to installation of the first turbine. While the Applicants acknowledge that this does not allow for adults lost from the population to be replaced, it is a practical approach that will enable productivity to increase prior to any impact. Defra (2021) guidance states "*A protected feature should not be impacted before compensation is secured. Ideally, measures should be in place, functioning and contributing to the network before development begins. Defra recognises that in some cases and for certain habitats and species this could take several years and therefore it may not be feasible for the compensatory measures to be complete before the impact takes place. Where this is not possible, it is important that necessary licences are in place, finances are secured, and realistic implementation plans have been agreed with the appropriate bodies to demonstrate that the compensatory measure is secured.*" Therefore, the Applicants consider that the compensation can be adequately secured in line with the Defra guidance. Furthermore, the Applicants note that there is no precedent within Offshore Wind Farm consenting, for the implementation of compensation up to six years in advance, which is what is being suggested.
RR-039: H 0.2.7	N/A	A precise location is yet to be determined. We are concerned that several locations on the Applicant's shortlist have previously been discounted by other projects, and Natural England consider a further two to be unsuitable. Further, feasibility studies to determine predator presence and auk habitat suitability have yet to be provided which could lead to more sites being removed from consideration.	N/A		The Applicants acknowledge this comment. The Applicants have undertaken a significant amount of work with regards to the shortlisted locations (see response to RR-039: H 0.2.1) and are currently in the planning phase of pre-eradication surveys at selected locations. Further details on location are provided in the **Guillemot and Razorbill Compensation Site Shortlist Refinement Report** [document reference 10.20] and the updated **Guillemot [and Razorbill] Compensation Plan** [APP-056] which will be submitted on 29 October 2024 with the Applicants' response to the

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					Examining Authority's Rule 9 and 17 letter dated 22 October 2024 [PD-005].
RR-039: H 0.2.8	N/A	Very little detail has been provided within the Outline Guillemot [and Razorbill] Compensation Implementation and Monitoring Plan. We advise that the Applicant should provide a detailed guillemot and razorbill CIMP as soon as possible within the Examination Process. We acknowledge that adaptive management measures have been provided and consider that these are appropriate, however the evidence base for them remains incomplete.	N/A		Implementation and monitoring of the predator eradication will be location specific therefore the **Outline Guillemot [and Razorbill] Compensation Implementation and Monitoring Plan** [APP-057] will be updated as appropriate during examination when the pre-eradication studies have provided sufficient location specific information. Furthermore, the Applicants are aware of the current development of innovative monitoring methods that may prove, in the relatively near future, to be the most effective methods for inclusion within the monitoring plan. This document will be developed in detail and finalised post-consent with oversight from the Guillemot [and Razorbill] Steering Group as secured through Part 3 of Schedule 18 to **the Draft Development Consent Order** [APP-027]. The Applicants acknowledge the comment on adaptive management and will continue to regularly review the available evidence base.
RR-039: H 0.2.9	N/A	Success criteria have not currently been detailed. We consider that increased productivity of the target colonies will be an essential measure of success.	N/A		The Applicants acknowledge this comment. Success criteria are under development and will be defined in the Guillemot [and Razorbill] CIMP which will be updated as appropriate during examination and finalised post-consent (please see response to RR-039: Ho.2.8). Metrics for determining the success of the measure will include colony counts (Individual Adult on land (above intertidal areas)), and productivity monitoring, alongside monitoring of predator presence and biosecurity.
RR-039: H 0.2.10	N/A	There remains considerable uncertainty regarding the ability of predator eradication to deliver benefits to guillemot and razorbill populations at the scale required. We welcome the Applicant's commitment to exploring the potential of ANS provision as a compensatory measure for guillemot and razorbill, which could potentially be a useful adaptive management measure. The applicant's commitment to implementing bycatch reduction measures as a compensatory measure, should effective techniques for the reduction of bycatch become available for these species, is also welcomed.	N/A		The Applicants acknowledge this comment. However, the Applicants wish to clarify that bycatch reduction measures are included as a potential adaptive management measure and there is no commitment to implement these measures unless required as adaptive management. The Applicants also would like to query if this should be a red category risk.

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RR-039: H 0.2.11	N/A	It remains unclear whether the Applicant will be able to identify and secure a suitable location to deliver the measure. It is entirely possible that none of the short-listed locations are appropriate.	N/A		The Applicants have undertaken a significant amount of work with regards to the shortlisted locations, including site surveys and landowner consultation. These studies have identified locations suitable for delivery of the compensation measure, whereby auk colonies have been identified where rats are confirmed as present, and there is additional available habitat for auks to colonies and where there is landowner appetite for predator eradication. The Applicants are in discussions with landowners to agree access for pre-eradication survey work, and to secure sites. Further details on location are provided in the **Guillemot and Razorbill Compensation Site Shortlist Refinement Report** [document reference 10.20] and the updated **Guillemot [and Razorbill] Compensation Plan** [APP-056] which will be submitted on 29 October 2024 with the Applicants' response to the Examining Authority's Rule 9 and 17 letter dated 22 October 2024 [PD-005].
RR-039: H 0.2.12	N/A	Natural England consider the auk compensation proposals submitted to be poorly developed. A significant amount of work remains to be done in terms of feasibility assessments which are essential to identify a suitable location and quantify the scale of compensation that might be achieved. We would ordinarily expect much of this to have been completed prior to Application.	N/A		The Applicants acknowledge this comment. Please see response to RR-039: H0.2.1.
RR-039: H 0.3.1	N/A	Natural England advise that the species-specific Implementation and Management Plans should be submitted into the Examination process in a fully populated state, rather than as skeleton documents. These documents are of key importance as the success of proposed compensation measures are intrinsically linked to these Plans.	N/A	N/A	Please see response to RR-039: H 0.2.8.
Document Used: [APP-052] 6.2.1 Appendix 1 - Project-Level Kittiwake Compensation Plan					
RR-039: H 1	6.2.1- 1.2	Natural England recognises the current uncertainty around the implementation of the Kittiwake Strategic Compensation Plan (KSCP) and welcomes the provision of project-led kittiwake compensation measures, the alignment of these with the measures and approach outlined in the KSCP, and the commitment to securing these measures as a requirement of the DCO.	N/A		The Applicants recognise the importance of developing and securing options for project-led measures considering uncertainty surrounding the delivery of strategic measures.

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RR-039: H 2	6.2.1-3.1.2, Para 58	The Applicant has omitted the section of the KSCP which states: '11.1.2 The construction of two offshore SANS was preferred by the Steering Group to provide mitigation of risk of failure at one offshore SANS. Within this there was an ecological preference that these were in different locations, however it was agreed by the Steering Group that when considering the balance of economics that the two structures near to each other was perfectly acceptable.' Further, we also highlight that only the first two options listed by the Applicant were supported by the SNCBs (Natural England and JNCC) in the Kittiwake Steering Group.	Natural England consider this is an important statement which should be considered by the Applicant in the development of their project-led compensation proposals.		The Applicants recognise Natural England's preference for two offshore ANS to be in different locations, with the acknowledgement that two structures near to one another was accepted by the Steering Group. Further details on ANS site selection are provided in the updated **Kittiwake Compensation Plan** [APP-052] and the **Project-Level Kittiwake Artificial Nesting Structure (ANS) Site Selection Report** [document reference 10.19]. These documents will be submitted on 29 October 2024 with the Applicants' response to the Examining Authority's Rule 9 and 17 letter dated 22 October 2024 [PD-005].
RR-039: H 3	6.2.1 –4.4, 5	Section 4.4 and Section 5 present the Applicant's position on the predicted impacts on kittiwake and the population required per annum to compensate for that impact level. Natural England highlight that several aspects of the ornithology assessment have not been provided in line with SNCB advice. We therefore cannot agree with the predicted impact values and compensation levels presented.	Natural England advise that the KCP is updated following any reassessments undertaken in response to the advice provided in Appendix G. We advise that compensation metrics should be presented in line with both the Applicant's preferred method and SNCB guidance.		The Applicants cannot determine the exact impact at present, this will be confirmed through DCO examination (and partly determined by the outcome of other projects going though examination regarding in combination effects). While our ornithological assessment as submitted and referred to in the **Kittiwake Compensation Plan** [APP-052] was fit for purpose and followed the appropriate guidance at the point of submission the reassessment was undertaken at Natural England's request, updating the numbers in line with new guidance (to be provided in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6]), the Applicants do not expect the numbers for kittiwake to change in a substantive way that would affect the broad scale of compensation proposed.
RR-039: H 4	6.2.1 - 4.4.1.1, Para 83	It cannot be assumed that data obtained from Outer Dowsing (ODOW) OWF regarding the presence of kittiwake on oil and gas structures is transferable to DBS and would lead to a reduction in apportioning of kittiwake to FFC SPA. For the proportion of kittiwake apportioned to FFC SPA to be reduced for DBS, it would need to be demonstrated that the data presented by ODOW are applicable to this project. We provisionally consider this unlikely due to the close proximity of ODOW to several oil and gas platforms compared to DBS.	Until such time as evidence is provided to support appropriate apportioning rates of kittiwake to offshore colonies for the Dogger Bank South projects, we continue to advise that the colony apportioning method followed in the impact assessment is appropriately precautionary.		The Applicants did not use data obtained by ODOW regarding the presence of kittiwake to reduce the Projects' apportionment of kittiwake to Flamborough and Filey Coast SPA. Reference to work undertaken by ODOW in the **Kittiwake Compensation Plan** [APP-052] was used only to support the viability of offshore ANS as a measure by evidencing the presence of breeding kittiwake colonies on oil and gas structures in the North Sea, and to identify additional recruitment pools.
RR-039: H 5	6.2.1 – 4.4.1.1, Para 84	Whilst Natural England cannot currently agree with the impact values presented (see H3), we consider it important to highlight that the impacts currently predicted for the Projects alone (182.2 (CIs 91.4 – 359.3)) make DBS the highest impacting project on FFC SPA kittiwake to date, and would likely result in an adverse effect on site integrity (AEoI) alone.	Natural England advise that further consideration needs to be given to reducing the Projects' impacts, prior to the need for compensation. This could include reducing the overall array size, removing hotspots, concentrating		The Applicants maintain that the Hornsea Project 3 calculation method represents a precautionary estimate and concedes adverse effect on site integrity (AEoI) for in-combination collision mortality only. Predicted kittiwake impacts and scale of compensation are unaffected by Natural England's comments on the ornithology

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			turbines in cold spots, and/or raising the hub height to 40m above HAT.		assessment therefore there is no requirement to update the **Kittiwake Compensation Plan** [APP-052] as submitted for these aspects.
RR-039: H 6	6.2.1- 5.1, Table 5.1	The Applicant has presented two approaches for determining the appropriate scale of compensation required and have concluded that they consider the approach used by Hornsea 4 to be more appropriate. Natural England consider that the approach taken by Hornsea 3 step 2 (the 'New Colony Approach') is the most appropriate method for determining the appropriate scale of compensation required when considering artificial nest structures (ANS), as this method takes into account the size of the ANS structure and the number of adult birds that need to be produced by a colony to sustain itself. This was the preferred option from the KSCP Steering Group. We also highlight that Table 5.1 presents compensation values at a 1:1 ratio which Natural England do not support and does not consider the implications of apportioning kittiwake produced to the wider biogeographic population rather than directly to FFC SPA.	Natural England advise that the Hornsea 3 ('New Colony approach') approach should be used to determine the appropriate scale of compensation required for ANS, as recommended in the KSCP. Further discussion will also be needed on the appropriate compensation ratio and/or means of addressing uncertainty in the level of compensation provided.		The Applicants note Natural England's position but considers the Hornsea 3 method to contain methodological flaws which severely limit its suitability. These include the use of 'age at recruitment' as a measure of the distribution of ages within the breeding population. For example, the method assumes that because 26% of 3-year-old birds begin breeding at that age this means that 26% of all breeding birds are this age, which is incorrect since it fails to account for the high survival rate of breeding age birds. Thus, in the Hornsea 3 method younger age classes make a disproportionate contribution to overall productivity. This is compounded by the capping of productivity at the age of 10. While this is a realistic upper limit on the age at which birds first breed, it fails to allow for the fact that many birds will continue to breed for several years after this age and likely make up a significant proportion of the breeding age class.
RR-039: H 7	6.2.1 –5.2, Para 100	The Applicant has incorrectly stated the upper estimate of nest provision required for DBS East, DBS West and ODOW as 5,000 nesting spaces. We advise that the 'compensation envelope' was 5,500 in the published KSCP. We also highlight that this was based on lower impact predictions than have now been submitted.	Natural England advise that the assessment should be updated to reflect this.		This error has been corrected and an amendment is provided in the updated **Kittiwake Compensation Plan** [APP-052]. This update will be submitted on 29 October 2024 with the Applicants' response to the Examining Authority's Rule 9 and 17 letter dated 22 October 2024 [PD-005].
RR-039: H 8	6.2.1- 5.3, Para 103-104	Natural England highlight that the values presented here are based on the Applicant's and ODOW's preferred approaches to the assessment. We are also unclear what 'project-specific advice' from Natural England is being referred to here. We welcome that a compensation ratio greater than 1:1 has been suggested, however we have not specifically agreed to a ratio of 2:1. We also highlight that ratios are only one way of addressing the uncertainty associated with measuring success, and consider that well-designed and located measures based on agreed targets may be a surer way to achieve success than the application of crude ratios.	Natural England advise that compensation totals are provided in line with SNCB guidance alongside the Applicant's preferred approach.		The project specific advice referred to by the Applicants concerns consultation with Natural England during an ETG meeting (25th April 2024) during which it was stated that "…in terms of ratios they [Natural England] tend to look at ratios in a wider way and form part of an overall strategy – the presence of at least two structures may lower risk and thus ratios, but additional factors such as the locations of the ANS and distance from one another should be taken into account once those details are finalised. In terms of what Natural England have seen, 2:1 or 3:1 would be appropriate for DBS." It is acknowledged that Natural England also stated that a ratio of 3:1 may be appropriate. However, the methods for kittiwake compensation calculation employed by the Applicants align more closely to that of Hornsea 4 which proposed a compensation ratio

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
					of a minimum of 2:1 which is considered to be appropriate. Furthermore, the Applicants maintain that a considerable amount of risk will be offset by the implementation of multiple ANS, as well as a carefully considered and thorough site selection process. Therefore, the compensation ratio of 2:1 is deemed to be suitable.
RR-039: H 9	6.2.1 - 6.3.2, Para 138	The Applicant has referred to "up to two ANS structures…each with a maximum capacity of 2,250 nesting spaces", stating that this would "more than compensate for even the most precautionary collision risk estimates for the Projects [DBS East, DBS West and ODOW]". Natural England highlight that the statements "up to two" and "maximum capacity" suggest that fewer than two offshore ANS, each with fewer than 2,250 nesting spaces, may be considered. Considering the scale of the predicted impacts, the compensation quantum, and compensation ratios that have yet to be factored in, we advise that one offshore ANS will likely be insufficient to compensate for the impacts of the projects. We are also concerned that 4,500 nest spaces may not be sufficient to compensate for the combined impacts of the DBS projects and ODOW given the scale of DBS's impacts.	Natural England advise that the maximum provision should be revisited following any updated assessments.		Please see response to RR-039: H 0.1.5.
RR-039: H 10	6.2.1 – 6.3.3	Natural England acknowledge that the Applicant's preferred delivery approach is via a collaborative agreement. We agree that this could be an appropriate route but note that there remains a lack of clarity on how the ANS would be delivered.	Natural England advise that further detail is needed on how an ANS will be delivered collaboratively.		Please see the response to RR-039: H 0.1.11.
RR-039: H 11	6.2.1- 6.3.3, Para 146	The Applicant have stated that they are "also exploring the delivery of a single offshore ANS on a project-led basis" which "could be relied upon to deliver a proportion of the compensation required with the remainder met by either collaborative or strategic delivery of offshore ANS, or an alternative compensation measure altogether". Natural England recognise the current uncertainty around the implementation of the KSCP, however project-led, collaborative and strategic compensation all being progressed in parallel does create uncertainty in what is being secured and can be expected to be delivered. We highlight that the provision of a single offshore ANS with 2,250 capacity is unlikely to be sufficient to compensate for the predicted impacts of DBS, should delivery of collaborative/strategic measures fall through.	To note.		Should the delivery of collaborative / strategic measures fall away, the Applicants will deliver measures that will sufficiently provide the necessary compensation as calculated for the DBS Projects following the **Offshore Ornithology EIA Update** [document reference 12.5] and **Offshore Ornithology RIAA HRA Update** [document reference 12.6]. Further information regarding the proposed location, design and implementation timescales for project led offshore ANS is provided in the updated **Kittiwake Compensation Plan** [APP-052] and the **Project-Level Kittiwake Artificial Nesting Structure (ANS) Site Selection Report** [document reference 10.19]**.** These documents will be submitted on 29 October 2024 with the Applicants' response to the Examining Authority's Rule 9 and 17 letter dated 22 October 2024 [PD-005].

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RR-039: H 12	6.2.1-6.3.4	The Applicant has provided a shortlist of potential locations for the offshore ANS. We provide the following initial comments based on our remit: • East – we agree that there appears to be no immediate constraints on this location. • D – this location appears to be between the buffer zones for DBS and the Hornsea Zone OWFs. Consideration should be given to a greater degree of collision risk for a colony established here. • West – this location is the closest inshore and could be at risk of competition with birds foraging from FFC SPA. We advise the Applicant to look into any overlap in this area in available kittiwake utilisation distribution maps (e.g. Cleasby et al. 20201, Waggitt et al 20202). • South – we advise the Applicant investigates the potential for landscape impacts on the North Norfolk Coast Area of Outstanding Natural Beauty (AONB)/National Landscape. • F – this area of search (AoS) partially overlaps with the North Norfolk Sandbanks and Saturn Reef (NNSSR) SAC. We consider that were this AoS to be taken forwards, the area within the SAC should be avoided to avoid impacts to designated reef and sandbank feature. We note the Applicant's intention to refine the shortlist during the Examination, however it is indicated that this will be based purely on technical criteria. We advise that further appraisal should also include the ecological and designated sites concerns listed here.	Natural England advise that the comments provided here should be considered in any future refinement of the shortlist.		The Applicants have progressed additional site selection work which considers the presence of ecological and designated sites and features within the boundaries of individual areas of search (AoS). Updates on identifying a suitable location for the placement of offshore ANS are provided in an updated **Kittiwake Compensation Plan** [APP-052] and the **Project-Level Kittiwake Artificial Nesting Structure (ANS) Site Selection Report** [document reference 10.19]**.** These documents will be submitted on 29 October 2024 with the Applicants' response to the Examining Authority's Rule 9 and 17 letter dated 22 October 2024 [PD-005].
RR-039: H 13	6.2.1-6.3.6	The Applicant has stated that they "intend to implement this offshore ANS as soon as possible, but at least three breeding seasons prior to operation of the Projects". Natural England advise that compensation measures for kittiwake should be in place four breeding seasons before the projects are operational. Failure to have compensation measures in place sufficiently before the projects are operational runs the risk of mortality debt being accumulated, especially given the time it may take for an ANS to be colonised. The need for prompt installation is highlighted by the slow rates of colonisation shown by recently installed kittiwake ANS (one breeding pair on five structures constructed in 2023).	Natural England advise that the ANS should be provided at least four breeding seasons before the projects are operational.		Please see the response to RR-039: H 0.1.6.

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RR-039: H 14	6.2.1-6.3.8	Natural England are concerned that attendance may be required at both a strategic Kittiwake Steering Group and a Kittiwake Compensation Steering Group if both project/collaborative-led and strategic led measures are progressed. Noting that compensation may be required for more than one species and designated site, and that this will likely be replicated across Round 4 projects, Natural England request that post-consent steering groups are limited to one per feature and/or site to reduce demands on resource.	To note.		The Applicants acknowledge this comment and are mindful of not overloading SNCBs with Steering Group meetings post-consent. The Applicants will work with Natural England to establish a suitable structure for Steering Groups.
RR-039: H 15	6.2.1-Table 6.7	Natural England note that the Applicant has not considered the potential impacts of habitat loss within NNSSR SAC from the implementation of an offshore ANS.	Natural England advise that potential impacts of ANS implementation within NNSSR SAC should be considered and if this option is to be retained, information to inform an Appropriate Assessment provided.		Please see response to RR-039: H 12.
RR-039: H 16	6.2.1-6.4.2	Natural England advise that the impact numbers for projects included in this section should be updated prior to the end of Examination.	Natural England advise the Applicant updates the predicted impacts of all submitted Offshore Wind Farm applications.		Updates on compensation impact will be provided by the Applicants in mid-November following ornithology HRA updates addressing comments raised in Relevant Representations in the following document: **Offshore Ornithology RIAA HRA Update** [document reference 12.6]. These changes will be reflected in the **Kittiwake Compensation Plan** [APP-052] at the appropriate Deadline following this.
RR-039: H 17	6.2.1-Section 7	The Applicant has stated: "To date, the evidence does not appear to indicate that kittiwake populations in the southern North Sea have been significantly affected" by Highly Pathogenic Avian Influenza (HPAI). Natural England highlight that a full colony count of kittiwake numbers at FFC SPA has not been undertaken since the majority of the recent HPAI outbreaks took place. We further note that Tremlett et al (2024) estimated that English kittiwake populations had decreased by 18% between the results of the Seabirds Count (2015-2021) published in Burnell et al (2023) and the summer of 2023. However, we acknowledge and welcome the Applicant's comment that ongoing monitoring will provide valuable evidence in this respect.	To note.		The Applicants acknowledge this comment and agree that monitoring at FFC SPA is challenging. It is of note however that the colony to the south in Lowestoft has shown very little change in numbers and there were very few observations of apparent HPAI casualties.
RR-039: H 18	6.2.1-Table 9.1	Natural England welcomes the Applicant's use of the Natural England checklist to summarise their compensation proposals.	N/A		The Applicants acknowledge this comment.

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Document Used: [APP-054] 6.2.1.2 Outline Kittiwake Compensation Implementation and Monitoring Plan					
RR-039: H 19	6.2.1.2	At present there is very little detail provided within the Outline Kittiwake Compensation Implementation and Monitoring Plan (KCIMP). Whilst Natural England recognise the current uncertainty around the implementation of strategic kittiwake compensation and whether the KCIMP is therefore needed, we consider that should confirmation be provided by DESNZ, we would expect a populated KCIMP to be submitted into the Examination.	To note.		Please see the response to RR-039: H 0.1.8.
Document Used: [APP-058] 6.2.2 Appendix 2 Guillemot [and Razorbill] Compensation Plan					
RR-039: H 20	6.2.2- 1.1	The Applicant has not considered compensation for impacts on guillemot at the Farne Islands SPA. Natural England have advised in Appendix G that an in-combination assessment for guillemot at the Farne Islands SPA is needed. We further note that we have previously advised that an AEoI could not be ruled out for guillemot at the Farne Islands SPA due to the substantial impacts of the Berwick Bank OWF.	Natural England advise the Applicant to provide an in-combination assessment of impacts on guillemot at the Farne Islands SPA and consider the need for compensation for these impacts.		Updates on the requirement for and scale of compensation for impacts on guillemot at the Farne Islands SPA will be provided by the Applicants in mid-November 2024 following ornithology HRA updates addressing comments raised in Relevant Representations in the following document: **Offshore Ornithology RIAA HRA Update** [document reference 12.6]. If additional compensation quantum is required as a result of the updates, the Applicants are confident that this could be achieved at the locations identified in the **Guillemot [and Razorbill] Compensation Site Shortlist Refinement Report** [document reference 10.20] which will be submitted on 29 October 2024 with the Applicants' response to the Examining Authority's Rule 9 and 17 letter dated 22 October 2024 [PD-005].
RR-039: H 21	6.2.2- 4.4, Para 53	The Applicant has used a count for razorbill at FFC SPA of 55,934 individuals from 2017 as the most recent count. Natural England highlight that the most recent count for razorbill at FFC SPA is the 2022 count of 45,780 individuals, which when corrected according to standard methodology gives 61,345 individuals (Clarkson et al 20223).	Natural England advise that the GRCP is updated as needed.		The Applicants acknowledge this comment. This figure has been updated within the **Guillemot [and Razorbill] Compensation Plan** [APP-056] which will be submitted on 29 October 2024 with the Applicants' response to the Examining Authority's Rule 9 and 17 letter dated 22 October 2024 [PD-005].
RR-039: H 22	6.2.2 –4.5	Section 4.5 presents the Applicant's position on the predicted impacts on guillemot and razorbill. Natural England highlight that several aspects of the ornithology assessment have not been provided in line with SNCB advice. We therefore cannot agree with the predicted impact values, RIAA conclusions and compensation levels presented.	Natural England advise that the GRCP is updated following any reassessments undertaken in response to the advice provided in Appendix G. We advise that compensation metrics should be presented in line with both the		Updates will be provided by the Applicants in the **Guillemot [and Razorbill] Compensation Plan** [APP-056] in mid-November 2024 following ornithology HRA updates addressing comments raised in Relevant Representations in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6].

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			Applicant's preferred method for calculating impacts and SNCB guidance.		
RR-039: H 23	6.2.2-4.5.1.5, 4.5.2.2, Table 4.1	The Applicant has not provided sufficient detail on the methods used to estimate the compensation requirements for guillemot and razorbill, or the rationale behind the choice of methods. Further detail is required before we can comment on the appropriate method to calculate compensation requirements for these two species.	Natural England advise that the Applicant provide further detail on the methods used to calculate compensation requirements for guillemot and razorbill, and on the rationale behind the choice of method.		The Applicants have provided this detail in section 4.5.2.5 of the **Guillemot [and Razorbill] Compensation Plan** [APP-056] and has followed the same approach taken in other DCO applications which has been accepted by the Secretary of State. The national average demographic rates have been used as the potential compensation sites cover a broad geographic range.
RR-039: H 24	6.2.2-Tables 4.4 & 4.5	The Applicant has only provided compensation requirements for guillemot and razorbill using compensation ratios of 1:1 and 2:1, and only for a limited range of mortality and displacement rates. Furthermore, these have been calculated using the results of the assessment using the Applicant's preferred approach and not following SNCB guidance. Natural England note that we cannot advise on an appropriate compensation ratio until further details of the compensation measures are provided, however we note that the predicted requirements already appear substantial and will be challenging to deliver.	Natural England advise that further discussion will be needed on the scale of compensation required once the impact assessments have been updated.		The Applicants acknowledge this comment. Updates on the scale of compensation will be provided by the Applicants in the **Guillemot [and Razorbill] Compensation Plan** [APP-056] in mid-November 2024 following ornithology HRA updates addressing comments raised in Relevant Representations in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6]. Following extensive feasibility studies undertaken since submission (please see response to RR-039 H0.2.1), the Applicants have identified locations suitable for provision of the required compensation and with sufficient capacity to accommodate additional compensation requirement. Information on the compensation potential of the shortlisted sites is provided in the **Guillemot [and Razorbill] Compensation Site Shortlist Refinement Report** [document ref:10.20] which will be submitted on 29 October 2024 with the Applicants' response to the Examining Authority's Rule 9 and 17 letter dated 22 October 2024 [PD-005].
RR-039: H 25	6.2.2- 5.1, Para 86	Natural England agree with the Applicant's assessment that strategic fisheries management is unlikely to be a suitable compensation measure for guillemot and razorbill, and we welcome that predator eradication/control has been progressed as the primary compensation measure for these species, with fishery bycatch as potential adaptive management measures should evidence become available on the effectiveness of the latter.	N/A		The Applicants acknowledge this comment.
RR-039: H 26	6.2.2-5.3.1.2.2, Table 5.2	Natural England welcome that the Applicant has provided a shortlist of sites, but we remain concerned that several locations included have previously been ruled out by other projects (e.g. Hornsea Four). We consider there is a significant risk that all sites on the shortlist will be deemed unsuitable for compensation. Natural England do not consider that the Needles, Isle of Wight or St Bees, England are likely to be suitable sites for this measure, given the likely inaccessibility of sheer cliff auk nesting spaces to	Natural England advise that feasibility assessments for the shortlisted sites are needed as a matter of urgency to enable other sites to be explored should these prove unsuitable.		The Applicants undertook an extensive feasibility surveys campaign over the 2024 breeding season to refine the shortlist provided. These comprised of colony surveys at nine locations where an assessment of the numbers of birds, likelihood or predator presence and the availability of additional nesting habitat was assessed. This was carried out in parallel with landowner consultation regarding both the presence of rats and the appetite for predator eradication schemes. From this the Applicants have

I.D.	Ref	Relevant Representation	Natural England's Recommendations to Resolve Issues	Risk	Applicants' Response
		rats and the mainland locations meaning eradication will not be possible. Informal discussions between Natural Resources Wales and Natural England also indicate that the three Welsh sites may well not be suitable. It is also concerning that the Applicant has yet to confirm the presence of predators or suitable auk nesting habitat for some of the sites listed.			identified locations where predator eradication schemes could be delivered that would provide the number of rat free nesting spaces required for the predicted numbers required for compensation. Further details on site selection are provided in the **Guillemot [and Razorbill] Compensation Site Shortlist Refinement Report** [document reference 10.20] and updated **Guillemot [and Razorbill] Compensation Plan** [APP-056] which will be submitted on 29 October 2024 with the Applicants' response to the Examining Authority's Rule 9 and 17 letter dated 22 October 2024 [PD-005]. Detailed pre-eradication surveys, which include an assessment of the abundance and distribution of rats, will be undertaken during Examination and reported at the appropriate Deadline following this.
RR-039: H 27	6.2.2-Table 5.2	Natural England welcome the Applicant's consideration of Natural England's advice and commitment to investigating options for predator eradication/control in the Isles of Scilly and potentially elsewhere, should none of the sites in their shortlist prove suitable.	Natural England advise that the Applicant should begin investigating feasibility of predator eradication measures in the Isles of Scilly as soon as possible.		The Applicants acknowledge this comment.
RR-039: H 28	6.2.2-5.3.1.4	Natural England are concerned that feasibility studies have not yet been undertaken to determine the scale of compensation that could be achieved at the shortlisted sites. We note the Applicant's preference to identify a single site capable of providing the Project's full compensation requirements, but highlight that there is no guarantee of this being achievable. Further, due to outstanding concerns with the ornithology assessments it is currently not possible to determine the scale of compensation that will be required.	Natural England advise that feasibility assessments for the shortlisted sites are needed as a matter of urgency to enable other sites to be explored should these prove unsuitable.		As stated in RR-039: H 26 feasibility studies, including colony surveys, were undertaken by the Applicants during the 2024 breeding season. From this the Applicants have identified locations where predator eradications schemes could be delivered that would provide the number of rat free nesting spaces required for the predicted numbers required for compensation. Further details on location and potential scale of compensation are provided in the **Guillemot [and Razorbill] Compensation Site Shortlist Refinement Report** [document reference 10.20] and updated **Guillemot [and Razorbill] Compensation Plan** [APP-056] which will be submitted on 29 October 2024 with the Applicants' response to the Examining Authority's Rule 9 and 17 letter dated 22 October 2024 [PD-005]. Updates on the scale of compensation will be provided by the Applicants in mid-November 2024 following ornithology HRA updates addressing comments raised in Relevant Representations in the **Offshore Ornithology RIAA HRA Update** [document reference 12.6]. The sites identified in the **Guillemot [and Razorbill] Compensation Site Shortlist Refinement Report** [document reference 10.20] are considered to have sufficient capacity to accommodate additional compensation requirement.

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RR-039: H 29	6.2.2-5.3.1.5, Table 5.1	Natural England welcome the Applicant's commitment to following the hierarchy outlined in the draft Defra guidance. However, we advise that an assessment of connectivity with the guillemot and razorbill populations of the impacted SPA (and if needed the national site network) will still need to be considered.	Natural England advise that consideration is given to connectivity of the predator eradication/control locations with guillemot and razorbill populations of the impacted SPA when refining the shortlisted sites. Given connectivity is likely to be low at best, an assessment of connectivity with the national site network for these species should also be presented.		The approach being taken by the Applicants is aligned with the hierarchy within the Defra guidance, whereby compensation was considered first within the affected site. However, as was discussed in the ETG meeting on 10th April 2024, there is no opportunity for provision of compensation for guillemot or razorbill within the Flamborough and Filey Coast SPA. Therefore, the Applicants have expanded the compensation site selection to provide measures that benefit the same feature outside the affected site. The Applicants are factoring in connectivity and coherence of NSN, amongst a range of other factors, as part of site consideration.
RR-039: H 30	6.2.2-5.3.1.6	Natural England welcomes the Applicant's commitment to beginning eradication prior to the first turbine being installed. However, eradication may take longer than the two years allocated, and the compensation will not be delivering until the required number of chicks are being produced and have reached age of first breeding (i.e. recruited into the breeding population). We do not consider implementation before impact to be analogous to delivering compensation before impact.	To note.		The Applicants propose to initiate the predator eradication two years prior to installation of the first turbine. While we acknowledge that this does not allow for adults lost from the population to be replaced, it is a practical approach that will enable productivity to increase prior to any impact. Defra (2021) guidance states "*A protected feature should not be impacted before compensation is secured. Ideally, measures should be in place, functioning and contributing to the network before development begins. Defra recognises that in some cases and for certain habitats and species this could take several years and therefore it may not be feasible for the compensatory measures to be complete before the impact takes place. Where this is not possible, it is important that necessary licences are in place, finances are secured, and realistic implementation plans have been agreed with the appropriate bodies to demonstrate that the compensatory measure is secured.*" Therefore, the Applicants consider that the compensation can be adequately secured in line with the Defra guidance. Furthermore, the Applicants note that there is no precedent within OWF consenting, for the implementation of compensation up to six years in advance, which is what is being suggested.
RR-039: H 31	6.2.2-5.3.1.8.1, 5.3.1.8.2	Natural England welcome the further steps being taken by the Applicant to refine the shortlist and that an update will be provided at Deadline 1. However, there remains a significant amount of work to be done before a location or locations can be selected, and we would have expected much of this to have been done prior to the point of application, as has been done on other projects.	To note.		The Applicants have undertaken a significant amount of work with regards to the shortlisted locations (please see response to RR-039: Ho.2.1). Further details on location and scale of potential compensation are provided in the **Guillemot and Razorbill Compensation Site Shortlist Refinement Report** [document reference 10.20] and the updated **Guillemot [and Razorbill] Compensation Plan** [APP-056] which will be submitted on 29

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					October 2024 with the Applicants' response to the Examining Authority's Rule 9 and 17 letter dated 22 October 2024 [PD-005].
RR-039: H 32	6.2.2-5.4.1	Natural England welcome the applicant's commitment to "incorporate provision for suitable nesting locations for guillemot [and razorbill] on the ANS(s) being provided for kittiwake" and to exploring the potential of ANS provision as a compensatory measure for guillemot and razorbill. We agree that this measure has potential as adaptive management should monitoring prove it to be effective. We also note that the three nearshore structures provided by Hornsea Three for kittiwake were not built with consideration or requirements for auks in mind. Monitoring conducted for these structures is therefore unlikely to be applicable to an ANS for auks.	N/A		The Applicants acknowledge this comment. The Applicants consider that in the absence of evidence regarding the use of ANS by auks any information that can be obtained from the Hornsea 3 structures is of value, regardless of the lack of specific design features.
RR-039: H 33	6.2.2-5.4.2	Natural England welcome the Applicant's commitment to implementing bycatch reduction measures as a compensatory measure if "robust evidence demonstrating the effectiveness of techniques to reduce the bycatch of auks became available." We note that such evidence does not currently exist, but should it become available, we agree that this may be a suitable adaptive management measure.	N/A		The Applicants acknowledge this comment.
RR-039: H 34	6.2.2-Para 165	Natural England welcome the Applicant's commitment to explore options for collaborative and strategic implementation where possible.	N/A		The Applicants acknowledge this comment.
Document Used: [APP-057] 6.2.2.1. Outline Guillemot and Razorbill Compensation Implementation and Monitoring Plan					
RR-039: H 35	6.2.2.1	Natural England note that there is very little detail provided within the Outline Guillemot [and Razorbill] Compensation Implementation and Monitoring Plan (GRCIMP). We advise that a detailed GRCIMP should be provided in advance of the Examination closing to allow time for review and consultation.	Natural England advise that a detailed GRCIMP is provided as soon as possible within the Examination process.		Implementation and monitoring of the predator eradication will be location specific therefore the **Outline Guillemot [and Razorbill] Compensation Implementation and Monitoring Plan** [APP-057] will be updated as appropriate during examination when the pre-eradication studies have provided sufficient location specific information. Furthermore, the Applicants are aware of the current development of innovative monitoring methods that may be suitable for inclusion within the monitoring plan should they prove effective. This document will be developed in detail post-consent with oversight from the Guillemot [and Razorbill] Steering Group as secured through Part 3 of Schedule 18 to **the Draft Development Consent Order** [APP-027].

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RR-039: Annex H1	N/A	**Annex H1: Natural England check list for compensatory measure submissions.** Natural England has developed a checklist of those aspects of compensatory measures that need to be described in detail when developers are submitting or updating applications where impacts on MPAs are anticipated. Whilst not exhaustive, it lists key areas where sufficient detail is needed to provide the Secretary of State with appropriate confidence that compensatory measures can be secured. a) What, where, when: clear and detailed statements regarding the location and design of the proposal. b) Why and how: ecological evidence to demonstrate compensation for the impacted site feature is deliverable in the proposed locations. c) For measures on land, demonstrate that on ground construction deliverability is secured and not just the requirement to deliver in the DCO e.g. landowner agreement is in place. For measures at sea, demonstrate that measures have been secured e.g. agreements with other sea or seabed users. d) Policy/legislative mechanism for delivering the compensation (where needed) e) Agreed DCO/DML conditions. f) Clear aims and objectives of the compensation g) Mechanism for further commitments if the original compensation objectives are not met – i.e. adaptive management. h) Clear governance proposals for the post-consent phase – we do not consider simply proposing a steering group is sufficient. i) Ensure development of compensatory measures is open and transparent as a matter of public interest, including how information on the compensation would be publicly available. j) Timescales for implementation especially where compensation is part of a strategic project, including how timescales relate to the ecological impacts from the development. k) Commitments to ongoing monitoring of measure performance against specified success criteria	N/A	N/A	No response required.

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		l) Proposals for ongoing 'sign off' procedure for implementing compensation measures throughout the lifetime of the project, including implementing feedback loops from monitoring. m) Continued annual management of the compensation area including to ensure other factors are not hindering the success of the compensation e.g. changes in habitat, increased disturbance as a result of subsequent plans/projects.			

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