



THE PLANNING ACT 2008

THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES

2010

Dogger Bank South Offshore Wind Farm

**Appendix K to the Natural England Deadline 3 Submission**

**Natural England's Response to The Examining Authority's First Written Questions  
(ExQ1) and [PD-016]**

For:

The construction and operation of the Dogger Bank South (East and West) Offshore Wind Farm located approximately 100-122km off the Northeast Coast in the Southern North Sea.

Planning Inspectorate Reference EN010125

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19<sup>th</sup> March 2025

## **Appendix K - Natural England's Response and Comments to the Examining Authority's first set of Written Questions**

This document sets out Natural England's responses to the Examining Authority's first set of Written Questions (ExQ1), published on 28<sup>th</sup> February 2025 [PD-014]. We note that revised questions on Offshore Ornithology were published in the Examiner's Rule 17 letter on 3<sup>rd</sup> March 2025 [PD-016]. We have therefore provided responses to all questions issued in [PD-014], with the exception of Offshore Ornithology, in Table 1. Our responses to the Offshore Ornithology questions issued in [PD-016] are provided in Table 2. We have also included Annex A at the end of this response, for detailed responses incompatible with the table format. These answers have been signposted to from Table 2 as needed. Natural England has included responses on those questions directed to NE by the ExA and/or that pertain to our remit.

ExQ1	Question to:	Question	NE Response
<b>Benthic and intertidal ecology and relevant Habitats Regulations Assessment (HRA) aspects</b>			
BE.1.1	The Applicants and Natural England (NE)	<p><b>Securing commitment to bundle export cables</b></p> <ol style="list-style-type: none"> <li>1. NE's Risk and Issue log [REP2-069] states that it welcomes the Applicants' commitments to bundling the export cables for each project as mitigation as it would halve the number of trenches needed for each array. The ExA notes the reference to cable bundling in the Cable Statement [REP2-039] and</li> <li>2. commitment C188 regarding cable bundling in the Commitments Register [REP2-025] but could the Applicants advise how this commitment is secured directly in the draft DCO itself as per NE's advice [REP2-069]?</li> <li>3. Is NE satisfied with the wording of commitment C188 in the Commitments Register [REP2-025]?</li> </ol>	<p>2) Natural England is satisfied with the wording of commitment C188 in the updated Commitments Register [REP2-025] regarding cable bundling.</p> <p>We note that the Applicant has indicated in [REP2-025] that this commitment is secured in the DCO via conditions DML 1 &amp; 2 - Condition 15, DML 3 &amp; 4 - Condition 13, DML 5 - Condition 11, however it is not explicitly referred to in these conditions. As this is a key mitigation measure to reducing down the impacts along the Export Cable Corridor (ECC), Natural England would welcome it being secured on within the DCO/dML</p>
BE.1.5	NE	<p><b>Dogger Bank SAC – use of as built habitat loss</b></p> <p>You stated [RR-039, C34] that the Applicants had calculated an as built estimate of habitat loss for consented projects within the Dogger Bank SAC, that you disagree with this approach and advise that consented parameters should be used to inform habitat loss estimates for assessment within Dogger Bank SAC. The Applicants responded [AS-048, page 101] that whilst as-built numbers have been included in the RIAA Part 2 [AS-051] for reference, the 11.71km<sup>2</sup> footprint quoted in paragraph 19 (section 6.4.1.1.3) [AS-051] is the consented footprint and this was used in the in-combination assessment presented in paragraph 114 (section 6.4.2.5.2), not the constructed footprint. Can you confirm whether the Applicants' response addresses your concern? If not, why not?</p>	<p>Natural England confirms that the Applicant's response as set out in [AS-048, page 101] addresses our concern. This has been clarified in our Risk and Issues (R&amp;I) Log [REP2-069], Point C20.</p>
BE.1.6	NE, The Wildlife Trusts	<p><b>Compensation for Adverse Effects on Integrity (AEoI) of the Dogger Bank SAC</b></p>	<p>Natural England confirms that we agree with the Applicant's statement on page 4 of their Deadline 2</p>

ExQ1	Question to:	Question	NE Response
	and the Lincolnshire Wildlife Trust	<p>At Deadline 2, the Applicants confirmed that the principal compensation proposed in the Project Level Dogger Bank Compensation Plan revision 2 [REP2-012] would be the designation of a new protected site or extension of an existing site to offset predicted impacts on the Dogger Bank SAC sandbank feature, which would be delivered strategically, via Defra, through contribution to the Marine Recovery Fund (MRF).</p> <p>Do you agree with the Applicants' statement in their Deadline 2 cover letter page 4 [AS-158] that, '<i>...the Applicants believe that the compensation measure proposed by the Applicants is accepted by Natural England and the delivery mechanism confirmed by Defra and DESNZ, hence this does not need further debate.</i>'</p> <ol style="list-style-type: none"> <li>1. Do you agree with the Applicants' conclusion in section 2.3.3, paragraph 27 of the Extension of the Dogger Bank SAC for HRA Derogation Compensation rationale and evidence base [APP-062], that an extension of the Dogger Bank SAC to the north would encompass an equivalent (or greater) area of habitat to that lost, that inclusion of greater area of more stable sediments to the north may increase the overall ecological function, and that it would not decrease the overall structure and function of the SAC? If not, explain why not.</li> <li>2. Has your position on whether habitat disturbance effects should contribute to AEoI of the Dogger Bank SAC and the level of compensation required suggested by the Applicants changed or remained the same since further evidence was</li> </ol>	<p>cover letter [AS-158]. However, as set out below, disagreement remains on the scale of impact requiring compensation.</p> <ol style="list-style-type: none"> <li>1) <u>Dogger Bank SAC extension</u> <p>The SNCB's draw the Examiners attention to Defra's advice during the Round 4 plan level discussions and that of COWSC. Due to process and procedural requirements, it was determined that the extension of designated sites can only be delivered as part of benthic strategic compensation and not at the project level.</p> <p>In relation to the proposed extension of the Dogger Bank SAC, this option is being considered as part of the Defra commitment to deliver <u>strategic compensation</u> through the designation of new MPAs and/or extend existing MPAs in Secretary of State waters, to deliver sufficient compensation as detailed in the Written Ministerial Statement. The extension of Dogger Bank SAC is being considered alongside a number of other options to establish the most optimal solution for a number of offshore wind developments that require compensation for impacts to protected benthic features. As this process has not yet concluded we are unable to comment further on the merits of one potential option over other options.</p> </li> <li>2) The SNCBs continue to highlight the requirements of the Plan 4 HRA which were agreed by the Secretary of State and are not</li> </ol>

ExQ1	Question to:	Question	NE Response
		<p>submitted by the Applicants? Explain your answer.</p> <p>3. Does the WMS on the Marine Environment published on 29 January 2025 and the <i>Strategic compensation measures for offshore wind activities: Marine Recovery Fund interim guidance</i> published by the DESNZ on 29 January 2025 change your concerns on compensation proposals for the Dogger Bank SAC? Provide reasons for your answer.</p> <p>4. Comment on the adequacy and conclusions of Appendix 3 to the RIAA - Habitats Regulations Assessment- Project Level Dogger Bank Compensation Plan Revision 2 <a href="#">[REP2-012]</a> submitted by the Applicants at Deadline 2. Provide reasons for your answer.</p>	<p>persuaded by the further Applicant's submissions. Therefore, Natural England's position remains unchanged. Please see Appendix C2.1 of our Deadline 2 submission (section 4 and Table 3) for further detail.</p> <p>3) The SNCB welcome the WMS in support of delivery of strategic benthic compensation and further supports our preference for progressing this measure. We agree with the Applicant that there is little merit in progressing and/or placing reliance upon project specific compensation measures, and that extension or designation of a designated site has the most ecological merit. Please see Section 5 of our Deadline 2 cover letter <a href="#">[REP2-069]</a> and ISH action 6.3 in Annex 2 of our Deadline 1 cover letter <a href="#">[REP1-063]</a> for our advice in relation to the WMS and benthic compensation.</p> <p>4) Natural England agrees that AEoI cannot be ruled out for the Dogger Bank SAC, however we continue to disagree with the scale of predicted impact. Please see our advice in <a href="#">[REP2-065]</a> and Appendix C3 of our Deadline 3 submission for our advice on the updated Dogger Bank Compensation Plan <a href="#">[REP2-012]</a>.</p>
BE.1.7	NE, The Applicants	<p><b>Recovery of Sandbank Habitat Following Habitat Damage <a href="#">[AS-025]</a></b></p> <p>The ExA notes the Applicants' position on Annex I sandbank habitat of the Dogger Bank SAC in their cover letter to their Deadline 2 submissions <a href="#">[AS-158]</a> and their suggestion that the ExA requests NE to provide justification or evidence to support their position that the</p>	<p>1 and 2) Natural England considers that the evidence provided in Appendix C2.1 of our Deadline 2 submission <a href="#">[REP2-065]</a> is sufficient. As mentioned in paragraph 4.3 of <a href="#">[REP2-065]</a>, further evidence will also be available when the Favourable Condition Status for Annex I Sandbanks is published</p>

ExQ1	Question to:	Question	NE Response
		<p>habitats within Dogger Bank SAC do not recover promptly from disturbance from construction activities. The ExA notes that NE has commented on the Review of Evidence on Recovery of Sandbank Habitat following Habitat Damage [AS-025] in its Deadline 2 submission Appendix C2.1 [REP2-065] and has provided a link to an article providing evidence on its position.</p> <ol style="list-style-type: none"> <li>1. Does NE have any further evidence it could cite regarding this issue?</li> <li>2. Does NE's Deadline 2 submission Appendix C2.1 [REP2-065] address the Applicants' concern?</li> <li>3. Can the Applicants' confirm how this is to be resolved by the close of the Examination.</li> </ol>	<p>sometime this year. We are waiting for further confirmation as to when this would be.</p>
BE.1.8	NE	<p><b>Recovery of Sandbank Habitat Following Habitat Damage [AS-025]</b></p> <ol style="list-style-type: none"> <li>1. The ExA notes that you give a reason why your conclusion not to rule out AEol for the Dogger Bank SAC [RR-039], reinforced in section 4 of Appendix C2.1 at Deadline 2 [REP2-065] is different from that of Hornsea Project Three and the North Norfolk Sandbanks and Saturn Reef SAC, or Norfolk Boreas and Norfolk Vanguard Projects and the Haisborough, Hammond and Winterton SAC, as raised by the Applicants [AS-025]. The ExA also notes you state [REP2-065] that the situation is currently at an impasse in regards to this issue between yourselves and the Applicants. Is this your final position? Is there anything else either you or the Applicants could do to move this issue forward by the close of the Examination?</li> <li>2. Given evidence provided by the Applicants [AS-025] does NE consider the construction effects of</li> </ol>	<ol style="list-style-type: none"> <li>1) Natural England confirms that our position on this remains unchanged. As detailed in Appendix C2.1 of our Deadline 2 submission [REP2-065], we believe that to progress this issue evidence from cable installation within Dogger Bank SAC and subsequent recovery would need to be submitted. Until this is provided, we agree with the conclusion of the Plan Level HRA on habitat disturbance/damage from cable installation.</li> </ol> <p>It is therefore unlikely that either party will provide sufficient evidence to persuade the other to change their view on this matter. In order to focus on resolving those matters than can be resolved, we are prepared to 'agree to disagree' on this particular matter.</p> <ol style="list-style-type: none"> <li>2) Natural England highlights that Dogger Bank Sandbank is <u>unique</u> in its formation being stable glacial till. Therefore, is it challenging to demonstrate a small-scale loss and no AEol.</li> </ol>

ExQ1	Question to:	Question	NE Response
		<p>the Proposed Development to meet the temporary and reversible criteria set by NE for consideration of small-scale habitat loss with SACs in relation to AEoI? Explain your response.</p> <p>3. Can you comment on the Applicants' reasoning on page 21 <a href="#">[AS-025]</a> in regards to whether the scale of habitat loss on Dogger Bank SAC would be regarded as inconsequential?</p> <p>4. Can you comment on the reliability and applicability of the evidence of recovery times to disturbance presented in Table A-1<a href="#">[AS-025]</a>?</p>	<p>There is also limited evidence from this designated site to support temporary and reversible conclusions, noting that temporary is considered in the range of 1-2 years. Also given the pre-existing impacts it is challenging for any impact not to be considered a material consideration in in-combination assessments. As raised in [REP2-065], [AS-025] does not consider any potential increased disturbance / impact from in-combination impacts during construction or continued disturbance from the operational phase. Sandy mound sandbanks such as those at Dogger Bank SAC are unique and have limited recovery ability, and whilst there may be shorter recovery rates for specific biotopes known to be present within Dogger Bank SAC, the full recovery of the whole site would be expected to be longer and would delay restoration of the SAC. Please see Table 3 of [REP2-065] for further detail.</p> <p>3) Whilst Natural England acknowledges that fisheries have previously impacted the seabed in Dogger Bank SAC, we do not consider such significance to be directly comparable when assessing whether the scale of impacts from the Proposed Development are inconsequential. We highlight that the impacts of the Dogger Bank South projects are <i>in addition</i> to those pre-existing from industry, and they are also not the only representatives of the OWF industry within the Dogger Bank SAC. Of the previously consented projects within Dogger Bank SAC, Dogger Bank A, B and C together cover an area</p>

ExQ1	Question to:	Question	NE Response
			<p>larger than Greater London<sup>1</sup>. It can be assumed that adding the Sofia, DBS East and West arrays to this would at least double that area. We acknowledge that the direct habitat loss and disturbance area caused by these developments is smaller than the total area the arrays cover, however, there remains a high degree of uncertainty regarding the total area of indirect impact caused by these projects and the likelihood of recovery, noting the reluctance to remove all aspects of infrastructure to allow recovery e.g. cable/scour protection.</p> <p>Whilst it may be possible to convert the loss into small percentage values of the total SAC, the fact remains that these are two, additional and not inconsequential developments within an SAC designated for its benthic habitat which is currently in unfavourable condition. The construction process is predicted to take 5-7 years and cumulative disturbance will continue, though to a lesser degree, throughout the operational phase. Given the long-term duration of activities from the Proposed Developments, and what we consider to be an unclear picture of recovery of the site as a whole, ultimately the habitats disturbance from cable installation and habitat change/loss from the placement of scour and cable protection is moving the site further from achieving the conservation objective aim of favourable condition.</p>

<sup>1</sup> <https://equinor.ft.com/articles/building-worlds-largest-offshore-windfarm-in-uk>



ExQ1	Question to:	Question	NE Response
			4) Natural England has provided comments on the reliability and applicability of the evidence of recovery times presented in Table A-1 of [AS-025] in Table 3 of Appendix C2.1 of our Deadline 2 submission [REP2-065].
BE.1.16	The Applicants, NE	<b>HRA conclusions for the Flamborough Head SAC</b> <ol style="list-style-type: none"> <li>1. The ExA is aware of the disagreement between the Applicants and NE regarding the conclusions of the RIAA for the Flamborough Head SAC in relation to Annex I habitat, the Applicants' response to this issue [PDA-013] and NE's comments on this at Deadline 2 [REP2-065] section 5. How are the Applicants planning to resolve this issue by the close of the Examination?</li> <li>2. If the SoS was to agree with NE in the final HRA and conclude an AEoI due to damage to qualifying habitat features in the Flamborough Head SAC, what compensation could be secured?</li> </ol>	As noted in Appendix C2.1 of our Deadline 2 submission [REP2-065], we consider that further information is needed to robustly evidence the conclusions presented for Flamborough Head SAC. However, we consider this issue to be easily resolvable and understand that the Applicant will be providing the relevant information at Deadline 3. Once we have reviewed this information, we will be able to provide further advice on the scale and significance of the impacts.
<b>Ecology and nature conservation</b>			
ENC.1.4	NE	<b>Bentley Moor Wood Ancient Woodland - air quality effects from horizontal directional drilling compounds</b> Your Deadline 1 submission [REP1-066] regarding air quality impacts from non-road mobile machinery or 1. on Bentley Moor Wood ancient woodland is noted. However, could you confirm whether you are aware that trenchless crossing compounds (which are not shown on the Works Plans (onshore) [REP2-005]) would be situated within 200m of Bentley Moor Wood? If so, are you satisfied that the proposed air quality mitigation measures would be adequate, or if not, what are your concerns and how could they be resolved?	Natural England notes the point on the proximity of the trenchless crossing compounds to Bentley Moor Ancient Woodland. We continue to defer to our <a href="#">Standard Advice</a> in relation to Ancient Woodland sites. However, the Applicant has confirmed in their Response to Natural England's Relevant Representations that the embedded mitigation measures outlined in Chapter 26 Air Quality [APP-208] (Table 26-3) would also apply to Ancient Woodland Sites. Considering this, along with the temporary and short duration of the work, Natural England advise that the impacts to Ancient Woodland have been adequately addressed.

ExQ1	Question to:	Question	NE Response
<b>Fish and shellfish ecology</b>			
FSE.1.1	NE	<p><b>Worst-case location for the assessment of underwater noise impacts on herring</b></p> <p>Action point 34 from ISH2 <a href="#">[EV5-003]</a> stated:  <i>'Natural England <a href="#">[RR-039]</a> stated that the assessment of underwater noise impacts on herring does not use the worst-case location. Provide a response to the suggestion made by the ExA during ISH2 on whether a reassessment based on the most south-westerly point of the proposed DBS West array could result in greater overlap with the 'high' and 'very high' herring spawning potential habitat and whether this could result in a greater impact outcome? If so, would a reassessment be undertaken and submitted?'</i></p> <p>Can you comment on the Applicants' response to this question <a href="#">[REP1-051]</a>?</p>	<p>Please refer to Appendix E3 (Section 1.2) of Natural England's Deadline 3 submission for our detailed response.</p>
<b>Habitats Regulations Assessment (HRA) general (HRA aspects specific to a topic are covered in that topic area, for example Offshore Ornithology)</b>			
HRA.1.3	NE	<p><b>Prey items for other species of conservation value</b></p> <ol style="list-style-type: none"> <li>1. Provide a response to the Applicants' response to ISH2 Action point 22 <a href="#">[AS-155]</a> regarding allocation of a 'low' value for habitats or species that provide prey items for other species of greater conservation value.</li> <li>2. Given the number of other OWFs for which the Applicants' state <a href="#">[AS-155]</a> this approach has been deemed acceptable by the SoS in the past, justify why you believe this approach is not acceptable for the Proposed Development.</li> </ol>	<p>1 and 2) Natural England maintains our advice as outlined in our Relevant Representations <a href="#">[RR-039, C20]</a>. As mentioned previously, it should be recognised that some areas within the red line boundary remain more important than others.</p> <p>We note that the Applicant has referenced the Norfolk Projects <a href="#">[AS-155]</a>, and we wish to highlight that the arrays for these Projects are located outwith the Haisborough Hammond and Winterton (HHW) SAC. Further, whilst the location of the export cable corridor for the projects is within the SAC, and there is breeding season connectivity between foraging kittiwake from the FFC SPA, the Norfolk projects are</p>

ExQ1	Question to:	Question	NE Response
			<p>considerably more distant than the Dogger Bank South arrays, being approximately twice as far away (DBS 103 km, Norfolk Boreas 216 km). Therefore, the wider ecosystem functionality of HHW SAC, whilst appreciable, is lower than that of the Dogger Bank SAC in the context of prey availability.</p> <p>By contrast, we highlight that as well as being within the Southern North Sea SAC (as are the Norfolk Projects), Dogger Bank South is the only Round 4 project with array areas located wholly within an SAC designated for its benthic habitat. We draw the Examiners attention to the conservation advice package for Dogger Bank SAC, which sets out the importance of the sandbank feature and its ecological functionality, including its importance as a foraging area. The Ornithology survey results from the Dogger Bank windfarms also demonstrate that the number and abundance of seabird species is significant in this area of Dogger Bank SAC, and particularly in the Dogger Bank South array areas, indicating that it is a preferential area for foraging. We highlight that the emerging impact assessment indicates the Dogger Bank South projects will be the most impactful on the FFC SPA to date. This is further evidenced by tracking data showing clear connectivity with birds foraging from FFC SPA and the Dogger Bank South array areas (Figure 2, Annex A). The importance of this area as supporting habitat for prey species is also supported by the SAC previously being heavily fished, and the Applicant's assessment of</p>

ExQ1	Question to:	Question	NE Response
			<p>sandeel spawning habitat suitability which shows that the entirety of the DBS West array has high habitat potential for sandeel, whilst the DBS East array has medium potential (Figure 10-5; [APP-092]).</p> <p>We therefore do not believe that this area is comparable to that of the Norfolk projects. The importance of the Dogger Bank South area can be seen to be greater than that of the Norfolk projects development area, and the significance of impacts to prey availability will therefore also be greater.</p>
HRA.1.7	NE	<p><b>Designated nature conservation sites with features for which outstanding concerns remain</b></p> <p>1. The ExA notes Table 5.1 and Table 5.2 in your RR <a href="#">[RR-039]</a> helpfully list designated nature conservation sites and national sites with features for which outstanding concerns remain. The ExA would find it very helpful if you could update these tables stating if you no longer have a concern with the feature of a site with a brief explanation as to why. Conversely, if concerns remain for a feature, a brief explanation of the reasons would be helpful. Can these be submitted into the Examination at Deadline 3, Deadline 5 and again with your final position at the close of the Examination? If there has been a change to the level of your concern between deadlines, the ExA would find it helpful if you could resubmit these tables at the next deadline along with an explanation.</p>	<p>1) Please see Annex 2 of Natural England's Deadline 3 Cover Letter for updated versions of Table 5.1 and 5.2. We will provide these where relevant at subsequent deadlines as requested.</p> <p>2) Natural England can confirm that this is correct.</p>

ExQ1	Question to:	Question	NE Response
		2. Can you confirm that you are satisfied that there would be no AEoI from the Proposed Development for all designated nature conservations sites not listed in Table 5.1 <a href="#">[RR-039]</a> ?	
<b>Agri-environmental stewardship schemes</b>			
LUA.1.14	NE	<b>Agri-environment stewardship schemes policy</b> Can you comment on the implications of the Proposed Development for agri-environment stewardship schemes and delivery of the Government's 25-year Environment Plan and other related strategies?	<p>Operational agri-environment schemes are available to view on <a href="#">Magic Map</a>. Natural England do not typically advise on specific scheme impacts through Planning, however, we advise that the Landowner would need to inform the Rural Protections Agency (RPA) on the change of land use, either temporary or permanent.</p> <p>If this has not answered the question adequately, we request that clarification is provided on the specific information required.</p>
<b>Marine and coastal processes</b>			
MCP.1.2	NE	<b>Baseline characterisation - sediment transport pathways</b> In your RR <a href="#">[RR-039]</a> , you raised concerns that only limited information is currently available on sediment transport pathways for the majority of the export cable corridor and array area and that additional information would aid the understanding of the baseline characterisation and assessment of potential changes to sediment transport pathways arising from the proposed built structures. The Applicants responded to your RR <a href="#">[AS-048]</a> , reference RR-039: B19] and, in addition, confirmed at ISH2 <a href="#">[EV5-008]</a> that they have acquired site-specific high-resolution data and consider that these would be more appropriate than regional models to identify mobile sediment features. Are you content with the Applicants' explanation in relation to the baseline	<p>In Figure 8-5 [APP-081] the Applicants have provided a map identifying the extent of available data on sediment transport pathways, which covers the westernmost first c. 35km of the export cable corridor (ECC), with no data available on sediment transport pathways for the remainder of the ECC or the Array Areas.</p> <p><u>Export Cable Corridor</u>            The Applicant has explained in [AS-048] and [EV5-008], that they have provided high-resolution bathymetry data which identify mobile sedimentary features along the ECC (e.g. Figures 8-6a-d). Section 8.5.8 in [APP-080] primarily discusses seabed mobility along the ECC, focussing on bedform asymmetry captured (as a snapshot) in the</p>

ExQ1	Question to:	Question	NE Response
		characterisation of sediment transport pathways and that a sufficient assessment has been undertaken and provided in this regard? If not, why not?	<p>2022 project-specific Fugro bathymetry surveys. It is stated that 'Bedform migration speed' can be determined by comparing bathymetric datasets collected over the same feature at different times. However, it also states that whilst other bathymetric datasets are available for the first 35km from landfall, 'there are no other datasets of this resolution in areas of seabed bedforms' further offshore that can be used to quantify bedform migration speeds.</p> <p>Therefore, Natural England advises that the bedform/sandwave crest mapping assessment used to determine bedform migration rates (and directions) along the ECC should be provided to help inform understanding of the geomorphological processes operating along the ECC. For the ECC, inferences of sediment transport directions made from the bedform/sandwave crest mapping assessment, coupled with flow measurements/predictions are likely sufficient to address evidence gaps.</p> <p><u>Array Areas and Inter-Platform Cable Corridor</u>  In [APP-080] it is stated that for the DBS Array Areas, "<i>the dominant sediment transport pathways are...expected to be towards the north-west</i>". We advise that this needs to be supported with evidence. It is important to understand the relative importance of tides and waves within/around the arrays and the SAC, to help determine sediment transport pathways and potential impacts to them due to the proposed development. We also note that similar studies carried out for Dogger Bank</p>

ExQ1	Question to:	Question	NE Response
			Teesside A & B (Forewind, 2014) concluded that the main effect of the array foundations would be on waves since tidal current velocities (across Tranche A and B) are low and not a driver for sediment transport. Conversely, in Section 8.5.7 of [APP-080] it is stated that tidal currents are the dominant driver of bedload transport across the DBS Array Areas and Inter-Platform Cable Corridor. Therefore, we advise that further evidence should be provided to support the EIA assumptions, or the prevailing sediment movement and resulting sediment transport pathways should be adequately assessed.
MCP.1.6	The Applicants, MMO and NE	<p><b>Water quality information – array area</b>  <b>Applicants:</b> ES Chapter 8 [APP-080, paragraph 107] states that, ‘<i>site specific water quality information is not available for the Array Areas</i>’, and reference is made to the 2010 Quality Status Report with the location of the site in the Region II ‘Greater North Sea’. Can you explain why you consider the document, which was prepared 15 years ago, to remain relevant? Should further surveys be undertaken for the array area to understand and assess site specific water quality? Can you also signpost or provide a plan showing the Order Limits in relation to the Region II boundaries?</p> <p><b>MMO and NE:</b> Do you accept the information provided in relation to water quality or do you consider that additional surveys should be undertaken to assess water quality within the array areas? Please explain your view.</p>	Natural England advises that water quality parameters are usually outside the scope of our remit. However, we are concerned with project-related changes to suspended sediment concentrations (SSCs) and the creation of sediment plumes that may affect ecological receptors through settling, smothering, increased turbidity, and mobilisation of contaminants. Some of these same factors may also affect Water Framework Directive (WFD) water body status and water quality. As a general benchmark, Natural England’s best practice advice is that care should be taken when considering datasets which are older than five years. Given the importance of the receptor at Dogger Bank SAC, and the cluster of OWFs planned or being built, we advise that the Applicant should demonstrate why they have confidence in these old data, and the conclusions drawn from them.
MCP.1.10	The Applicants and NE	<p><b>Flamborough Front monitoring</b>  <b>Applicants:</b> Your response to NE’s RR [AS-048] is noted, however:</p>	The submission of Change Request 1 has not altered Natural England’s view regarding the requirement for a monitoring programme. We also

ExQ1	Question to:	Question	NE Response
		<ol style="list-style-type: none"> <li>1. Can you justify why monitoring of potential changes to the stratification, currents and primary productivity of the Flamborough Front would not be required?</li> <li>2. Why do you consider there would be a disadvantage to using remote sensing techniques?</li> <li>3. Can you explain how the Proposed Development would differ from Hornsea 4 OWF, where a detailed monitoring programme was agreed between the Applicant, MMO and NE?</li> <li>4. How do you seek to address the concerns raised by NE if monitoring was not agreed?</li> </ol> <p><b>NE:</b> Has the submission of Change Request 1 altered your position in relation to a requirement for a monitoring programme? If so, how? In addition, do you agree with the Applicants' assessment that the Proposed Development would only result in localised changes, while the Front is considered to be of regional importance and would therefore not be affected?</p>	<p>do not agree that it can be concluded that the development will only result in localised changes. As raised in our Relevant Representations [RR-039], the Flamborough Front is of high ecological importance and emerging evidence suggests that large OWF clusters, such as those in the Dogger Bank and Hornsea Zones, may affect the stability and strength of the Front, with knock-on effects for primary production and the wider marine ecosystem. It is, therefore, important to establish a monitoring programme to record any changes to stratification and primary productivity, through pre-construction and post-construction monitoring over the lifetime of the project. This is line with the advice provided by Natural England/MMO/Cefas to Hornsea Four. We would also encourage the Applicants to collaborate with one of the ongoing research programmes also aimed at addressing these evidence gaps. Please also see Appendix J of our Deadline 3 submission for our advice on the IPMP.</p>
<b>Marine Conservation Zone Assessment</b>			
MCZ.1.1	The MMO and NE	Do you agree with the Applicants' conclusion to the Phase 1 MCZ Assessment [APP-240]? If not, explain why. A cross reference to a point in a WR or Issues Log would be acceptable.	Natural England does not agree with the Applicant's conclusion to the Phase 1 MCZ Assessment [APP-240] that the conservation objectives of Holderness Inshore and Offshore MCZs will not be hindered. Please see Natural England's R&I log refs B34 - B41.
MCZ.1.2	The MMO and NE	Are you satisfied that the Applicants' proposed mitigation reduces the risk of activities associated with the Proposed Development to a level that has no significant risk of hindering the conservation objectives of the Holderness Inshore and Holderness Offshore MCZs? If so, are you satisfied with the way this is secured in the	<p>Natural England is satisfied that there are no significant risks that would hinder the conservation objectives of the Holderness Offshore MCZ</p> <p>For Holderness Inshore MCZ, we are satisfied that mitigation to avoid direct impacts (i.e. no jack up</p>



ExQ1	Question to:	Question	NE Response
		draft DCO? If not, can you explain how you consider the draft DCO should be amended?	<p>vessels or anchoring within the MCZ) have been appropriately secured within the draft DCO.</p> <p>However, we advise that the conservation objectives could be hindered due to the current dML condition allowing 10% of the export cable to be protected from 350m seaward of MLWS to the 10m depth contour. Further, we highlight that the updated CBRA assessment [REP2-040] indicates that more of the export cable route is expected to be difficult to achieve target burial depth in than previously predicted, although the export cables now also to be bundled. We advise that the Applicant should provide updated information on the areas this would fall within in the 10m depth contour, and the implications for Holderness Inshore MCZs.</p>
<b>Marine mammals and relevant Habitats Regulations Assessment (HRA) aspects</b>			
MM.1.12	The Applicants and NE	<p><b>HRA conclusions for the Southern North Sea SAC, Humber Estuary SAC and Berwickshire &amp; North Northumberland Coast SAC</b></p> <p>1. The ExA notes there is currently disagreement between the Applicants and NE over conclusions of the RIAA for the Southern North Sea SAC in relation to harbour porpoise and the Humber Estuary SAC and Berwickshire and North Northumberland Coast SAC in relation to grey seal. The ExA also notes NE's advice in its Deadline 2 submission on marine mammals [REP2-067] that noise reduction committed to should be sufficient to demonstrate that the Applicants have contributed to reducing the disturbed area of the Southern North Sea SAC. How are the Applicants intending to resolve this</p>	<p>Natural England have outstanding concerns regarding the Project's lack of commitment to additional noise mitigation (see Appendix F3), without which it will not be possible to rule out adverse effects on SNS SAC. The Applicant should provide an updated in-combination assessment based on a commitment to utilise additional noise mitigation to demonstrate that they have contributed to reducing the disturbed area of the SNS SAC. This may be sufficient to alleviate AEol on SNS SAC and negate any requirement for compensation, however we cannot confirm this without an updated assessment being provided.</p> <p>Natural England also advise that further evidence is needed to support the Applicant's conclusions</p>

ExQ1	Question to:	Question	NE Response
		<p>disagreement with NE by the close of the Examination?</p> <p>2. If the matter was to remain outstanding at the close of the Examination and if the SoS was to agree with NE and decide AEoI for the above features of these sites, what compensation could be secured?</p>	<p>regarding seals the Humber Estuary SAC and Berwickshire and North Northumberland Coast SAC (see Appendix L). Once this information has been provided for review, we will be able to provide further advice on the scale and significance of the impacts.</p>

**Table 2: Revised ornithology questions published in Rule 17 letter dated 3<sup>rd</sup> March 2025 [PD-016]**

ExQ1	Question to:	Question	NE Response
Offshore and intertidal ornithology and relevant Habitats Regulations Assessment (HRA) aspects			
OR.1.1	Natural England (NE)	<p><b>Impact on the razorbill feature of the Flamborough and Filey Coast (FFC) Special Protection Area (SPA)</b></p> <ol style="list-style-type: none"> <li>1. What is your position in relation to the Applicants' conclusion of the razorbill assessment provided in the Report to Inform the Appropriate Assessment (RIAA) Part 4 of 4 [AS-085] for construction and operational displacement mortality impacts from the project alone, and in combination, and the Applicants' provision of a derogation case on a 'without prejudice' basis?</li> <li>2. Do you agree with the Applicants' that when the Population Viability Analysis (PVA) is applied to the project alone and in combination, razorbill displacement would not represent an Adverse Effect on Integrity (AEol) of the FFC SPA? If not, why not?</li> </ol>	<p>1) Natural England advised on Hornsea Four that an adverse effect on integrity (AEol) could not be ruled out for razorbill at FFC SPA in-combination with other plans and projects, and subsequent Round 4/Extensions round projects have added to that in-combination total. As DBS will be making a significant contribution to that total, as a minimum Natural England's advice is likely to be that an AEol in-combination cannot be ruled out.</p> <p>With respect to Project alone impacts, whilst significant progress has been made with the ornithology assessment, some outstanding issues remain. We therefore will not be in a position to advise on the project alone until the issues set out below are rectified.</p> <p>Please see our Deadline 2 Risk &amp; Issues (R&amp;I) Log [AS-161] and Appendix G2 [AS-159] for Natural England's advice on outstanding issues relating to razorbill at FFC SPA. The R&amp;I reference numbers are as follows:</p> <ul style="list-style-type: none"> <li>• PVA for the project alone: G32</li> <li>• Displacement and mortality: G43</li> <li>• Presentation of PVA inputs and outputs: G57</li> <li>• In-combination totals: G59</li> <li>• Concerns relating to the results of the PVAs undertaken: G60</li> </ul>

ExQ1	Question to:	Question	NE Response
			<p>2) As per R&amp;I ref G32, we understand that a PVA for impacts of the Projects alone on razorbill at FFC SPA has not been provided. However, if the Applicant can signpost us to this if it has, in fact, been included we will review and provide further comment.</p> <p>We cannot currently agree with the Applicant's interpretation of the PVA undertaken for in-combination impacts on FFC SPA razorbill due to the concerns highlighted in our response to Question 1 above.</p>
OR.1.3	NE and the Royal Society for the Protection of Birds (RSPB)	<p><b>Displacement, mortality and apportionment values for razorbill and guillemot on the FFC SPA</b></p> <p>For the assessment in the Guillemot [and Razorbill] Compensation Plan <a href="#">[AS-089]</a> relating to the razorbill and guillemot features of the FFC SPA, which values of displacement, mortality and apportionment presented in the RIAA <a href="#">[AS-085]</a>, should the ExA rely on for its recommendation and ultimately the Secretary of State (SoS) rely on were they to decide AEoI for razorbill and guillemot on the FFC SPA? Justify your response with evidence.</p>	Please see response in Annex A.
OR.1.4	NE	<p><b>Displacement, mortality and apportionment values for auks</b></p> <p>Can you comment on whether applying rates greater than 50% displacement and 1% mortality to the auks at risk is justified in combination with the estimation of seasonal abundance and apportioning, as has been queried by the Applicants <a href="#">[AS-158]</a>?</p>	Please see response in Annex A.
OR.1.5	NE and the RSPB	<p><b>Seasonal abundance, apportioning and displacement risk for guillemot</b></p> <p>Can you respond to the Applicants' statement in the RIAA <a href="#">[AS-085]</a>, paragraph 236] that based on NE's</p>	Please see response in Annex A

ExQ1	Question to:	Question	NE Response
		<p>guidance to estimate seasonal abundance and apportioning for guillemot?</p> <p><i>'...over 73% of the FFC SPA guillemot population is apparently present on all UK wind farms through the course of the year and at risk of displacement, despite the fact that offshore wind farms actually make up approximately 6% of the area within 300km of the FFC SPA.... It is not difficult to envisage that, with the addition of a small number of wind farms the current assessment methods could predict more birds are at risk of displacement than are present in the population.'</i></p>	
OR.1.6	NE and the RSPB	<p><b>Seasonal abundance, apportioning and displacement risk for razorbill</b></p> <p>Can you respond to the Applicants' comment in the RIAA [<a href="#">AS-085</a>, paragraph 314] that based on NE's guidance to estimate seasonal abundance and apportioning for Razorbill?</p> <p><i>'...suggests that 40% of the FFC SPA razorbill population is apparently present on UK wind farms through the course of the year and at risk of displacement. This highlights the precautionary basis of the methods used to estimate seasonal abundance and apportioning since offshore wind farms make up approximately 6% of the area within 300km of the FFC SPA... Indeed, it is not difficult to envisage that, with the addition of a small number of wind farms the current assessment methods could predict more birds are at risk of displacement than are present in the population.'</i></p>	Please see response in Annex A.
OR.1.9	The Applicants, NE and the RSPB	<p><b>PVAs</b></p> <p>1. Are NE and the RSPB satisfied with the PVAs undertaken for kittiwake from the FFC SPA and</p>	1. Natural England are not currently satisfied with the PVAs undertaken for kittiwake at FFC SPA because:

ExQ1	Question to:	Question	NE Response
		<p>presented by the Applicants in the RIAA [AS-085]? Can you explain your response?</p> <p>2. Can the Applicants respond to NE's advice [AS-159] that you should:</p> <p>a) Check the results of all PVA scenarios run for the assessment?</p> <p>b) Use the most recent population estimate for kittiwake at the FFC SPA as the starting population for PVAs run for this population?</p> <p>c) Clearly present the inputs and outputs for all PVA scenarios so that the specification and parameterisation of the models can be fully understood and assessed, including the log files for all PVA scenarios undertaken?</p> <p>d) Consider realistic assessments of current and future seabird population trends, considering all relevant evidence, when assessing the significance of the predicted impacts of the projects, such as the approach taken by Sheringham and Dudgeon Extension Projects Offshore Wind Farm (OWF) Development Consent Order (DCO) application in considering a range of potential future growth rates?</p>	<p>i. We do not agree with the in-combination totals presented (see G58 of our R&amp;I)</p> <p>ii. The incorrect starting population appears to have been used (see G36).</p> <p>iii. The inputs and outputs of the PVAs have not been provided for review (see G57)</p> <p>iv. We have concerns relating to the results of the PVAs undertaken (see G60).</p>
OR.1.12	NE and the RSPB	<p><b>Kittiwake and auk compensation quantum</b></p> <p>The Examining Authority (ExA) notes that Appendix H1 to NE's Deadline 1 Submission, NE's Advice on Seabird Compensation Calculations [REP1-065], maintains its advice that the Hornsea 3 Stage 2 method should be used for all compensatory measures where it is necessary to calculate the requirement in terms of the number of breeding pairs as it is considered the most ecologically realistic.</p> <p>1. Can you provide a response to the Applicants' statement [REP1-049] and [AS-158] that the</p>	<p>1) Please see Section 3.2 of Appendix H2 [AS-160] from our Deadline 2 additional submission for an independent report on compensation calculation methods from the British Trust for Ornithology (BTO) which is expected to be available soon. The report will critically review the available methods and determine the most appropriate, or identify an alternative method, principally focussing on kittiwake. It is hoped that the report will include tools to allow developers to use the preferred method in a replicable and transparent</p>

ExQ1	Question to:	Question	NE Response
		<p>Hornsea Three Stage 2 method recommended by NE to be used to calculate the scale of kittiwake and auk compensation required is unsuitable as:</p> <ul style="list-style-type: none"> <li>i) the method is not freely available in full such that it can be readily replicated;</li> <li>ii) it is unnecessarily complicated and extremely difficult to interpret; and</li> <li>iii) results in double-counting of the effects of mortality and thus an overestimation of compensation quantum?</li> </ul> <p>2. Can you provide a response to the Applicants' concern in their Deadline 2 cover letter <a href="#">[AS-158]</a> that the Hornsea 3 stage 2 method was developed for kittiwake, a species for which there is demographic information available which is not available for auks.</p>	<p>way. Should the final report become available between Examination deadlines, we will share it with the Applicant directly.</p> <p>2) Natural England currently consider the Hornsea 3 Part 2 method to be the most ecologically complete for compensatory measures where it is necessary to calculate the number of breeding pairs required to compensate for a specified mortality impact. However, we acknowledge that this method can produce unrealistic and disproportionate requirements for scaling compensatory measures when applied to auk species. This is due to lower levels of natal dispersal, older recruitment ages, and lower productivity. Furthermore, it is not clear that some of the demographic information is well evidenced, which can introduce significant uncertainty into any calculations reliant on those data. Natural England therefore consider that given the current absence of a robust alternative option for these species, it is appropriate for the Hornsea 4 method to be used, provided that this is based on the 95% upper confidence limit impact values and an appropriate compensation ratio is applied to address the uncertainty of success.</p>
OR.1.14	The Applicants	<p><b>Kittiwake and auk compensation quantum</b></p> <p>The ExA notes comments from NE in its Deadline 1 submission Appendix H1 <a href="#">[REP1-065]</a> regarding the recommended use of the Hornsea 3 and 4 methods and the use of the 95% upper confidence limit predicted impact value as opposed to the central impact value. Can the Applicant submit a list into the Examination of OWFs for</p>	<p>Whilst this question is not directed to Natural England, we refer the Examiner's to our response to OR.1.18.(2) which may be of relevance.</p>

ExQ1	Question to:	Question	NE Response
		which kittiwake or auk compensation has been required, setting out the justification for the final compensation calculation method used which was accepted by the SoS, including whether the compensatory measures were scaled against the 95% upper confidence limit predicted impact value or the central impact value.	
OR.1.15	The Applicants, NE and the RSPB	<p><b>Kittiwake and auk compensation quantum</b></p> <ol style="list-style-type: none"> <li>1. Can the Applicants provide compensation quanta at ratios of 1:1, 1:2 and 1:3 for kittiwake, guillemot and razorbill according to both the Hornsea 3 part 2 and Hornsea 4 approaches, as advised by NE <a href="#">[AS-160]</a> and in its Risk and Issue Log <a href="#">[AS-161]</a>, point H6]? This is required so that the SoS has the complete information in order to make a decision on the compensation quanta required if they were to decide AEoI.</li> <li>2. Which compensation ratio do NE and the RSPB believe should be applied for each of these species?</li> </ol>	<p>2) The application of a compensation ratio should be set on a case-by-case basis considering the level of impact, the feasibility of the measure, and its potential effectiveness, to address any uncertainties regarding its success. We highlight that the ratio should be applied to scale the design and implementation of a measure, for example by delivering at multiple distinct sites, each capable of addressing the impact alone. We further note 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, with appropriate associated monitoring plans, may be a surer way to achieve success.</p> <p>Given that specific details of location, number of nesting spaces, and design have not yet been provided by the Projects, Natural England cannot advise on an appropriate ratio to apply to the compensation quantum for kittiwakes at this time. However, we note that we are unlikely to advise that a ratio of 1:1 is appropriate, and welcome the Applicant's stated commitment to a ratio greater than this.</p> <p>Likewise, we are currently awaiting an updated guillemot and razorbill compensation plan to provide</p>



ExQ1	Question to:	Question	NE Response
			further information on the proposed compensation measures and reflect updated impact values from the Projects. We therefore cannot advise on an appropriate ratio to apply to guillemot and razorbill compensation quanta at this time. However, we note that we are unlikely to advise that a ratio of 1:1 is appropriate, and that greater uncertainty exists regarding the likely success of auk compensation measures than for kittiwake.
OR.1.16	NE	<b>Hornsea 3 Stage 2 methodology spreadsheet</b> Does NE have access to the Hornsea 3 Stage 2 methodology spreadsheet? If so, could this be shared with the Applicants so the exact methodology can be replicated? If the spreadsheet cannot be shared, can NE provide an alternative way for the Applicants to ensure the methodology they have used correctly follows the Hornsea 3 Stage 2 methodology?	Please see our response to OR.1.12.
OR.1.18	NE and the RSPB	<b>Kittiwake compensation quantum</b> 1. Can you provide comment on the Applicants' apportioned impact as presented in the RIAA [ <a href="#">AS-085</a> ] and Project-level Kittiwake Compensation Plan [ <a href="#">REP2-010</a> ]? 2. Could NE elaborate on the evidence for the case of using the upper 95% upper confidence limit vs the mean, and 100% vs 53% adult apportionment?	1) 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.  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. Please also see our response to Question 2.  2) Please see Annex A.

ExQ1	Question to:	Question	NE Response
OR.1.20	NE	<p><b>Applicants' kittiwake compensation proposals</b></p> <p>Do you agree with the Applicants' statement in their Deadline 2 cover letter on page 5 [AS-158]: <i>'For Kittiwakes at the FFC SPA the principal compensation proposed by the Applicants in the Project-Level Kittiwake Compensation Plan [REP2-010], is the delivery of Artificial Nesting Structure(s) (ANS). This aligns with the primary measure identified by the Kittiwake Strategic Compensation Plan [APP-053] and with Department for Energy Security and Net Zero (DESNZ) guidance (DESNZ, 2025) which confirmed the inclusion of offshore ANS within the Library of Strategic Compensation Measures and the eligibility of Round 4 offshore wind projects to deliver this measure. Guidance also states that projects wishing to rely on this measure ahead of the Marine Recovery Fund (MRF) being operational need to deliver offshore ANS on a project led or collaborative basis, and that where possible developers should construct fewer and larger offshore ANS placed in optimal sites. As such the Applicants' believe that the compensation measure proposed is accepted by Natural England as a member of the kittiwake steering group. The delivery mechanism is confirmed by Department of Environment, Food and Rural Affairs (Defra) and DESNZ, hence this does not need further debate'.</i> If not, explain why not.</p>	<p>Natural England confirm that we agree with the Applicant's statement in AS-158.</p>
OR.1.25	NE, The Wildlife Trusts and the RSPB	<p><b>Kittiwake compensation proposals - offshore ANS</b></p> <p>Section 6.3 of the Applicants' Project-Level Kittiwake Compensation Plan [REP2-010] states that three candidate offshore ANS sites have been selected for progress to site investigation surveys to confirm suitability and that the Applicants are seeking to undertake geophysical surveys for the three candidate sites in April and May 2025, and geotechnical surveys</p>	<p>Natural England do not have any specific concerns with the outlined approach. We have provided further comment regarding the offshore ANS site selection in Appendix H2 of our Deadline 2 submission [AS-160] and Appendix H3 of our Deadline 3 submission.</p>

ExQ1	Question to:	Question	NE Response
		later in 2025. The Applicants state that the outputs of these surveys would enable the selection of a project led offshore ANS site by the close of the Examination period. The Applicants go on to state that they anticipate that in Q2 2025, a Marine Licence application would be submitted to the Marine Management Organisation (MMO) and a Seabed Lease application to The Crown Estate would be submitted with ongoing consultation with fisheries organisations and other key stakeholders in the interim and that stakeholder engagement would continue throughout the site selection process. Do NE, The Wildlife Trusts or the RSPB have any concerns with this suggested approach?	
OR.1.26	NE, RSPB and The Wildlife Trusts	<p><b>Case for reduction in kittiwake breeding seasons for ANS installation</b></p> <p>Do you have any comments on the Applicants' proposal to reduce the number of breeding seasons ahead of operation of the proposed offshore ANS from three to two seasons, as proposed in the Case for Reduction in Kittiwake Breeding Seasons for ANS Installation <a href="#">[REP2-060]</a> and the Project-Level Kittiwake Compensation Plan <a href="#">[REP2-010]</a>? Please signpost or add further evidence to support your position.</p>	Please see Appendix 3 of Natural England's Deadline 3 submission for our comments on the evidence presented by the Applicant in support of the proposed reduction in the number of breeding seasons and <a href="#">[REP2-060]</a> .
OR.1.28	The Applicants, NE and the RSPB	<p><b>Dealing with any accrued compensation deficit</b></p> <p>Section 6.3.6, paragraph 205 of the Project-Level Kittiwake Compensation Plan <a href="#">[REP2-010]</a> refers to the concept of '<i>compensation deficit accrued</i>' should there be a delay to the delivery of the offshore ANS for kittiwakes. The Applicants suggest that this would be so small that it would be paid off over the lifespan of the Proposed Development, or that the scale of compensation could be increased, or alternative measures could be relied on to offset any deficit accumulated during the early years of operation.</p>	3) Please see Appendix 3 of Natural England's Deadline 3 submission for our comments on the reduction in the number of breeding seasons and <a href="#">[REP2-060]</a> .

ExQ1	Question to:	Question	NE Response
		<ol style="list-style-type: none"> <li>1. Can the Applicants provide an update to refine their position on this and provide quantitative evidence to support their confidence for a worst-case delay between the commencement of operation of the Proposed Development and the availability of compensation measures?</li> <li>2. Does the confidence equally apply to the scenario for the development of two offshore array sites simultaneously rather just one or the other, for one or two offshore ANSs, and if only two or three breeding seasons were stipulated in any Requirement to provide compensation ahead of operation, rather than four? If so, demonstrate why.</li> <li>3. Do NE and the RSPB wish to provide anything further in relation to the timing of the implementation of compensation or the compensation deficit accrued?</li> </ol>	
OR.1.29	NE, RSPB and The Wildlife Trusts	<p><b>Suitability of predator eradication or reduction on the Isles of Scilly as strategic compensation for auks</b></p> <p>Can you comment on the Applicants' auk compensation proposals in general and particularly the suitability of predator eradication or reduction on the Isles of Scilly as a strategic compensation scheme as proposed by the Applicants in their Guillemot [and Razorbill] Compensation Plan <a href="#">[AS-089]</a> and the latest update provided in the Applicants' Cover Letter at Deadline 2 <a href="#">[AS-158]</a>, taking into consideration The Wildlife Trusts' comments in its submission <a href="#">[REP1-088]</a>, section 2.4].</p>	As noted in Appendix H2 of our Deadline 2 submission <a href="#">[AS-160]</a> , we welcome that the Applicant has continued to engage with identifying opportunities to support and progress an eradication measure at the Isles of Scilly, acknowledging The Wildlife Trust's position that their preference is for the measure to be delivered strategically. Natural England also confirm that the statement from OWIC provided in the Applicant's written summary of the ISH <a href="#">[REP1-049]</a> reflects our understanding of the current status of the measure.
OR.1.31	The Applicants, NE, RSPB and	<p><b>Connectivity between the proposed sites and the FFC SPA and the National Site Network</b></p> <p>Whilst welcoming the Applicants' assessment of connectivity with the National Site Network that was</p>	2) Please see our response to OR.1.15. However, we highlight that the critical questions with respect to Worms Head and Middle Mouse are i) whether rats are actually present and ii) if they

ExQ1	Question to:	Question	NE Response
	the Wildlife Trusts	<p>included in the Guillemot and Razorbill Compensation Plan [AS-089], NE states [AS-160] that, whilst there is a pathway from the potential sites of Worms Head and Middle Mouse for birds to recruit and contribute to the National Site Network, it is likely to be limited, and this uncertainty should be reflected in the level of compensation provision.</p> <ol style="list-style-type: none"> <li>1. Can the Applicants, RSPB and the Wildlife Trusts suggest a suitable factor to be applied to the compensation quanta to account for this level of uncertainty?</li> <li>2. Can NE advise a factor to be applied to the compensation quanta to account for this level of uncertainty?</li> </ol>	<p>are, whether they are having a meaningful impact on the seabird populations in question.</p>
OR.1.32	The Applicants, NE and the RSPB	<p><b>Adaptive management measures</b></p> <p>If adaptive management measures beyond predator eradication became required to compensate for impacts on auks, section 5.4 of the Guillemot (and Razorbill) Compensation Plan [AS-089] considers artificial nesting sites, and bycatch reduction, which would rely on the Applicants successfully achieving the process set out in paragraph 204 [AS-089] to engage sufficient skippers to implement adequate compensation. What would be an adequate number of skippers? Is there any evidence that either approach would be achievable in practice?</p>	<p>Natural England considers that there is currently insufficient evidence on the efficacy of bycatch reduction techniques to determine the number of vessels that would be required. We agree with the Applicant's statement in paragraph 191 of [AS-089] that the measure being implemented is reliant on further evidence becoming available.</p> <p>Natural England would also like to bring to the Examiner's and Applicant's attention that a Non-Material Change application is currently being consulted upon for Hornsea Four, with respect to bycatch reduction. We consider that our response to this consultation will also be relevant to Dogger Bank South and this question. The consultation is due to close on 24<sup>th</sup> March, after which responses should be publicly available, however the application document can be viewed on the Planning Inspectorate's website here: <a href="#">here</a>.</p>

ExQ1	Question to:	Question	NE Response
OR.1.37	The Applicants, NE, the MMO and the RSPB	<p><b>NPS EN-3 in relation to offshore ornithology</b></p> <p>Looking at the evidence in front of the Examination at this time, what is your position in respect of the following tests in NPS EN-3 (which the ExA must consider in its recommendation to the SoS)?</p> <ul style="list-style-type: none"> <li>a) <i>'The Secretary of State may consider that monitoring of any impact is appropriate owing to the complex nature of offshore wind development, and the difficulty in establishing the evidence base for marine environmental recovery'.</i> NPS EN-3 paragraph 2.8.296.</li> <li>b) <i>'The Secretary of State must be satisfied that displacement assessments have been conducted to a satisfactory standard having had regard to the advice from the relevant statutory advisor'.</i> NPS EN-3 paragraph 2.8.315.</li> <li>c) <i>'The conservation status of seabirds is of relevance and the Secretary of State should take into account the views of the relevant statutory advisors and be satisfied that cumulative and in-combination impacts on seabird species have been considered'.</i> NPS EN-3 paragraph 2.8.316.</li> </ul>	<ul style="list-style-type: none"> <li>a) Natural England's comments on The Applicant's In-Principle Monitoring Plan [REP2-044] are provided in Appendix J of our Deadline 3 submission.</li> <li>b) Whilst significant progress has been made with the ornithology impact assessment, please see Appendix G2 of our Deadline 2 submission [AS-159] for our outstanding concerns with the displacement assessments.</li> <li>c) Whilst significant progress has been made with the ornithology impact assessment, please see Appendix G2 of our Deadline 2 submission [AS-159] for our outstanding concerns with the in-combination and cumulative assessments.</li> </ul>
OR.1.39	NE	<p><b>Revised ES Chapter 12 Offshore Ornithology – connectivity</b></p> <p>Revised ES Chapter 12 <a href="#">[AS-057]</a> indicates that one of the key embedded mitigation measures for offshore ornithology was site selection, with arrays being located at least 100km from the nearest nesting colonies at Flamborough Head and the Filey Coast and, as such, connectivity for most species would be relatively low.</p> <ul style="list-style-type: none"> <li>1. Do you agree that connectivity for most species would be relatively low? If not, explain why not.</li> </ul>	<ul style="list-style-type: none"> <li>1) Please see response in Annex A.</li> <li>2) Natural England agree that site selection can be an effective embedded mitigation measure for potential EIA offshore ornithological impacts. However, we do not consider that the location of the Dogger Bank South arrays, within a key foraging area in the Dogger Bank SAC, will have meaningfully reduced impacts to FFC SPA features, as evidenced by the high numbers of birds recorded in the Applicant's baseline surveys. We also highlight that Natural England</li> </ul>

ExQ1	Question to:	Question	NE Response
		2. Do you agree the site selection is an effective embedded mitigation measure for potential EIA offshore ornithological impacts?	has requested further consideration be given to hotspot modelling to identify particularly high impact areas within the site to inform array reductions, which has not been provided. It is important to acknowledge, however, that impact avoidance/reduction measures are only possible within the confines of the original Crown Estate seabed lease areas. We advise that this would be the most effective place for this mitigation to be embedded.
OR.1.40	NE and the RSPB	<b>Consideration of Highly Pathogenic Avian Influenza (HPAI) in the assessment of effects on marine bird species</b> The Applicants have added a section to consider how HPAI has been considered in the assessment of effects on marine bird species into Chapter 12 of the ES [ <a href="#">AS-057</a> , section 12.5.2]. Has this adequately addressed your concerns on this issue? If not, what is outstanding and what could the Applicants do to address your remaining concerns?	Natural England considers that sufficient information has been included with respect to HPAI, however we disagree with the Applicant's characterisation of HPAI impacts. We do not consider any further action is required by the Applicant to address this, but have detailed our concerns for consideration by the Examining Authority. See G49 of our R&I log [AS-161], Appendix G2 [AS-159] of our Deadline 2 submission and response to part 3 of OR.1.41 for further detail.
OR.1.41	The Applicants, NE and the RSPB	<b>Seabirds of conservation concern</b> 1. Does the latest status assessment of breeding seabird species in the UK (the 2021 Birds of Conservation Concern 5 review and the update to the second International Union for Nature Red List review of extinction risk, published in British Birds, 2 September 2024, Stanbury <i>et al</i> ) affect the marine ornithology assessment and results? 2. Are there implications for the HRA? If so, does the paper need to be made available to the ExA? 3. Do you have any comments on the paper's examination of HPAI to date that might be relevant to the Proposed Development?	See response in Annex A.



ExQ1	Question to:	Question	NE Response
OR.1.45	NE	<b>Decommissioning displacement impacts</b> Your RR <a href="#">[RR-039]</a> advised that an assessment of seabird displacement impacts during decommissioning would be necessary. The Applicants have said <a href="#">[PDB-006]</a> that the decommissioning assessment was assumed to be equivalent to construction, in line with best practice. Your latest Risk and Issue Log <a href="#">[AS-161]</a> advises it would be beneficial for decommissioning impacts to be explicitly quantified in the assessment as for construction impacts. Can you give examples of other OWF DCO applications for which this has been requested and for which the Applicants have provided this information?	Whilst Natural England advise that it would be beneficial for decommissioning impacts to be quantified in the assessment, we acknowledge that it would not materially impact the assessment conclusions, which is why we have categorised it as 'yellow' in our R&I log (G8). We do, however, highlight that as these figures are not included in operational annual impact assessment figures or PVAs for the project, that this is a source of under-precaution in the assessment.
OR.1.50	NE, RSPB and The Wildlife Trusts	<b>Collision risk modelling and associated parameters in the draft DCO</b> Following on from written question OR.1.49, do you believe the rotor wind swept area should be included as a parameter in the draft DCO as per other made orders for other offshore windfarms such as Sheringham and Dudgeon and Awel y Môr?	Natural England agree that the maximum rotor swept area should be secured in the DCO, as has been done on other projects. We highlight that changes to the rotor swept area would affect collision impacts for kittiwake from FFC SPA, which is a key concern for this project.
OR.1.52	The Applicants, NE and the RSPB	<b>New research findings</b> At least two scientific research papers that may be relevant to the offshore ornithology assessment have been published since the submission of the application - do either of these or any other recent research have any implications for the assessments reported by the Applicant for the EIA and HRA? (1: Davies, JG <i>et al</i> , Influence of wind on kittiwake <i>Rissa tridactyla</i> flight and offshore wind turbine collision risk. Marine Biology <b>171</b> , 191 (2024). 2: Pollock, CJ <i>et al</i> , Avoidance and attraction responses of kittiwakes to three offshore wind farms in the North Sea. Marine Biology <b>171</b> , 217 (2024).)	See response in Annex A.
OR.1.53	NE	<b>Greater Wash SPA – qualifying features</b>	Natural England can confirm that little gull and little tern were included in Table 5.1 in error. Please see



ExQ1	Question to:	Question	NE Response
		Along with red-throated diver, paragraph 5.2 and Table 5.1 of your RR <a href="#">[RR-039]</a> identifies common scoter, little gull and little tern from the Greater Wash SPA as features for which outstanding concerns remain. Can you confirm your concerns in relation to these?	Annex 2 of our Deadline 3 Cover Letter for updated tables. Regarding common scoter, whilst an LSE cannot be ruled out, the risk of adverse effects is low, and is likely to be addressed by mitigation measures for RTD relating to construction, operations and maintenance vessel movements.

## Annex A – Natural England’s detailed responses to Examiner’s Questions

### OR.1.3 Displacement, mortality and apportionment values for razorbill and guillemot on the FFC SPA

**1.3: For the assessment in the Guillemot [and Razorbill] Compensation Plan [\[AS-089\]](#) relating to the razorbill and guillemot features of the FFC SPA, which values of displacement, mortality and apportionment presented in the RIAA [\[AS-085\]](#), should the ExA rely on for its recommendation and ultimately the Secretary of State (SoS) rely on were they to decide AEol for razorbill and guillemot on the FFC SPA? Justify your response with evidence**

Please note – our advice with respect to seasonal abundance and apportioning has been provided in the response to OR.1.4 below.

Appropriate displacement rates (proportion of birds likely to be displaced by the presence of an offshore wind farm)

Evidence on displacement rates for guillemot and razorbill is sparse and varied. It appears likely that displacement rates vary not only with species, but also depending on the season, locations and layouts of wind farms and distributions of prey (Dierschke et al 2016, Lamb et al 2024). Natural England therefore do not support the use of a single displacement rate for assessing impacts on these species and instead recommend considering a range of displacement rates between 30 and 70%.

We note that the Applicant has cited Trinder et al (2024) as evidence of low levels of displacement of auks. Natural England do not agree that the Trinder et al (2024) paper provides sufficient evidence that auks are not displaced by offshore windfarms, as this study focuses on the behaviour of birds within an array area (i.e. on the proportion of birds that are not displaced) and does not attempt to quantify a displacement rate for auks with respect to the array and buffer. Further, Natural England note that a recently published review of the evidence on the impacts of displacement on seabirds reviewed 16 studies on auk species and found that, overall, these species were displaced by between 55 to 80% (Lamb et al., 2024). Another recently published study (Peschko et al., 2024) found that guillemot densities within wind farms and a 1km buffer were reduced by 91%. As such, we do not consider that the use of a 50% displacement rate is sufficiently precautionary, or that Natural England’s upper limit of 70% is over-precautionary, when assessing displacement impacts for guillemot and razorbill.

While Natural England advise that a range of displacement rates be presented, which we then review in conjunction with mortality rates to identify where the impacts are most likely to fall, we generally advise that for the purposes of scaling compensation, the upper limit of this range

(70%) is likely to be most appropriate for assessing impacts on guillemot and razorbill and determining AEol.

#### Appropriate mortality rates (proportion of displaced birds likely to die as a result of having been displaced)

There are currently no definitive mortality rates for seabirds, as empirical data on survival of displaced birds (Searle et al 2018, SNCBs 2022) and impacts on seabird colony sizes is lacking. This is partly due to current levels of monitoring being insufficient to attribute clear drivers to seabird population trends (Searle et al 2018, O'Hanlon et al 2024), as well as the relatively recent nature of the majority of offshore windfarm developments. However, it is generally acknowledged that displacement may reduce survival and reproductive success, due to increased energy expenditure and/or reduced energy intake resulting from having to relocate to other foraging areas that may be less suitable, or have increased levels of competition (SNCBs 2022, Searle et al 2014, Searle et al 2018, Peschko et al 2024). In addition, species that are more specialised in their habitat requirements are more likely to be negatively affected by displacement; guillemot and razorbill are considered relatively highly specialised in this respect (Bradbury et al 2014, SNCBs 2022). The negative impacts of displacement on individuals are also likely to be greater when the quality of the habitat being lost is higher, so it is important that site-specific characteristics are also taken into account.

To account for the variability and uncertainties in sensitivity to displacement, Natural England do not support the use of a single mortality rate for assessing impacts on these species and instead recommend considering a range of mortality rates between 1 and 10%. Whilst we acknowledge that this range encompasses an extreme worst-case scenario of a 10% mortality rate, this should not be interpreted as Natural England suggesting that a mortality rate of 10% represents the most likely scenario. However, we consider that this could represent a worst-case scenario in extreme cases where, for example, the excluded birds have not been able to access a critical resource that is only available within the developed area. We further note that the mortality-led approach does not take into account the potential effects of displacement on the reproductive success of displaced individuals, which is a potential source of under-precaution in the assessment process.

#### Natural England's advised approach

As detailed above, Natural England advise that displacement impacts are provided for a range of displacement and mortality rates, these being 30-70% and 1-10% respectively. To be clear, Natural England does not propose that these rates are used in isolation for decision-making. Nevertheless, the results presented to date indicate that the impact levels within the SNCB

advised range could result in adverse effects. Therefore, it is necessary to investigate at what points in the displacement matrix impact levels of concern start to arise.

#### **OR.1.4: Displacement, mortality and apportionment values for auks**

**Can you comment on whether applying rates greater than 50% displacement and 1% mortality to the auks at risk is justified in combination with the estimation of seasonal abundance and apportioning, as has been queried by the Applicants [\[AS-158\]](#)?**

Please see our response to OR.1.3 above with respect to displacement and mortality rates.

The Applicant suggests that it is unrealistic to adopt a precautionary approach to each aspect of an assessment, as the accumulation of precaution can lead to an over-inflated impact for the project level assessment. Natural England highlights the assessment process currently relies on limited empirical evidence that hinders our understanding of potential impacts of offshore wind farm developments. Inevitably this introduces complications and layers of precaution: however, we consider it reflects the reality of the current 'state of play' regarding evidence. It is critical that sources of variation and uncertainty are considered throughout the assessment process, and that these are appropriately presented throughout e.g. through the use of confidence intervals. This is to ensure that false levels of confidence are not assigned to predicted impacts. Understanding how this variability, and sources of uncertainty, may influence the outcomes of an assessment is important for determining how much confidence can be placed in a predicted outcome and whether significant effects, or adverse effects on integrity (AEoI) of a designated feature, can be ruled out beyond scientific doubt.

The advice provided by Natural England on the seasonal abundance and apportioning of impacts on guillemot and razorbill from offshore wind farm projects to SPAs takes into account the following areas of uncertainty:

a) The abundances of guillemot and razorbill recorded in the project areas during baseline surveys

These are generally based on two years of monthly survey data, which is considered the minimum requirement for assessment purposes (SNCBs 2022). The numbers of birds present in an area are likely to vary between seasons and between years, and the surveys undertaken are temporally and spatially restricted, only providing a 'snapshot' of the baseline environment. Numbers of birds in the area at any one time may, therefore, exceed those recorded by baseline surveys, as surveys are unlikely to capture the true variation in bird abundance in the area. Surveys also are generally only undertaken at certain times of the day and in certain weather conditions, and may

therefore not represent use of the area at all times. Furthermore, baseline surveys only cover a small proportion of the total area, from which density and abundance values are estimated. The mean values of these estimates are used to calculate displacement impact values, which may under-represent the actual numbers of birds present – the true abundance value could (with 95% certainty) lie anywhere within the estimate's 95% confidence intervals. This is therefore a potential source of under-precaution in the assessment.

The use of seasonal mean peak abundances is recommended by the SNCBs (SNCBs 2022) to account for some of this potential under-representation of actual numbers within the baseline characterisation process. It should also be noted that the definition of these seasons may lead to under or overestimation of displacement impacts if they do not adequately characterise periods relating to different behaviours and levels of vulnerability.

b) The proportion of birds that are likely to be breeding adults

Ideally, age of birds would be determined during the baseline survey process, however the age of guillemot and razorbill is difficult to determine from survey data. In the absence of empirical data on the age classes of the birds present in the project area, Natural England advise that all 'adult-type' birds (i.e. birds that cannot be distinguished from adults, and hence might be adults) are apportioned as adults. Natural England do not accept the use of a theoretical generalised stable age structure to apportion impacts to adults from SPA colonies, as we do not consider that it is likely to be representative of the actual proportions of adults present within specific areas. We note, for example that ringing data shows immature guillemot and razorbill are more likely to be distributed further away from breeding colonies, being unconstrained by the location of a nesting site (Wernham et al 2002).

c) Potential connectivity between the SPA and the project area during the breeding season

A critical metric is the numbers of birds recorded in the project area that are likely to be breeding birds from that SPA, at a time when these birds are constrained in their movements by the location of their nest site. There are different methods for estimating levels of connectivity, the most reliable of which is tracking data from birds fitted with tags at the breeding colony. However, no such data is currently available for guillemot and razorbill breeding at FFC SPA. In the absence of such empirical data, likely distributions are estimated based on the standard mean maximum foraging ranges

plus 1SD: 153.7km for guillemot, 164.6km for razorbill (Woodward et al 2019, Woodward et al 2024). Projects beyond these distances are assumed likely to be beyond foraging range for birds breeding at FFC SPA, while projects within these distances are likely to have greater connectivity with the SPA and thus higher impacts apportioned to the SPA. We highlight that the Dogger Bank South projects are within these foraging ranges for both species, at 103 and 125km from FFC SPA.

d) Potential connectivity between the SPA and the project area during the 'extended chick-rearing and moult' season for guillemots and 'post-breeding migration' season for razorbills

For several offshore wind farm projects, Natural England have advised that apportioning during this period should not assume that guillemot and razorbill are evenly distributed throughout the North Sea (as the BDMPS method assumes), due to high abundances of birds estimated at these projects, the proximity of these projects to FFC SPA, and the likelihood of large proportions of birds being breeding birds from FFC SPA. This advice is based on a thorough review of the ecological evidence, summarised below. Please see Appendix G of our Relevant Representations [RR-039] for more detail.

During these periods, both guillemot and razorbill undergo a complete moult that renders adults flightless for four to six weeks, at a time when successful breeding males are also still taking care of dependent, flightless chicks (St John Glew et al 2018c, Dunn et al 2019, Merkel et al 2020, Merkel et al 2021, Christie 2020, Buckingham et al 2022, Ellis & Gabrielsen 2002). While no longer constrained by central place foraging and thus able to exploit foraging areas beyond foraging range of the SPA, birds at this time have reduced mobility and greater energetic demands due to moult and parental care, and therefore may be particularly reliant on specific foraging areas and particularly vulnerable to offshore wind farm impacts (Furness 2015, Merkel et al 2021 St John Glew et al 2018, Dunn et al 2019, Christie 2020, Merkel et al 2021 Buckingham et al 2022). The available evidence from tracking studies of Scottish-breeding guillemot indicates that, during this period, these birds are unlikely to use the Dogger Bank area (Buckingham et al 2022). The evidence therefore suggests that the majority of Guillemot using this area during this period are from FFC SPA.

Furthermore, nest site attendance patterns by guillemot during the non-breeding season at FFC SPA demonstrate that guillemot breeding at this SPA are unlikely to travel far from the colony during the non-breeding season, with large numbers

attending colonies throughout the non-breeding season (Harris & Wanless 1990, Vaughan 1998, Babcock et al 2015, O'Hara 2025). Razorbill will also attend their colonies outside of the breeding season, and large numbers of razorbill are also often seen at FFC SPA outside of the breeding season (Harris & Wanless 1990, FBO 2020), indicating that many razorbill may not travel far from the colony during this period.

- e) Potential connectivity between the SPA and the project area during the 'non-breeding season' for guillemot and the 'winter' and 'pre-breeding migration' seasons for razorbill.

The standard assessment methodology is based on the BDMPS approach (Furness 2015), which assumes even distribution of all guillemot and razorbill from North Sea colonies throughout the North Sea and Channel during this time. We consider this is likely to be a source of under-precaution in the assessment for projects located near to FFC SPA, given evidence that FFC SPA guillemot and razorbill may not be evenly distributed throughout the North Sea and Channel during this period, but instead may remain closer to their breeding colonies (see d above).

- f) The summing of estimated impacts across seasons to obtain estimates of annual impacts

The SNCBs advise that seasonal displacement impacts, calculated based on seasonal mean peak abundance estimates, should be summed across seasons to obtain annual displacement impacts. While it is acknowledged that this could result in a degree of double counting, this is a precautionary approach that is required in the absence of empirical data on seasonal turnover at sites (SNCBs 2022). It is entirely possible that different individual birds from an SPA use a particular area of sea at different times.

Natural England note that there are other potential sources of under-precaution in the calculation of displacement impacts. For guillemot and razorbill, abundance estimates are based on the project area plus a 2km buffer based on the assumption that birds within 2km of the project may also be displaced. Though there is apparent variability in displacement responses between different studies, recent evidence published by Peschko et al (2024) suggests that guillemot may actually be displaced up to 21 km from offshore wind farms. Peschko et al (2024) also suggests that the cumulative displacement impacts of multiple offshore wind farms may be greater than the sum of the impacts of individual projects. Such cumulative impacts are not accounted for in the current assessment methodology.

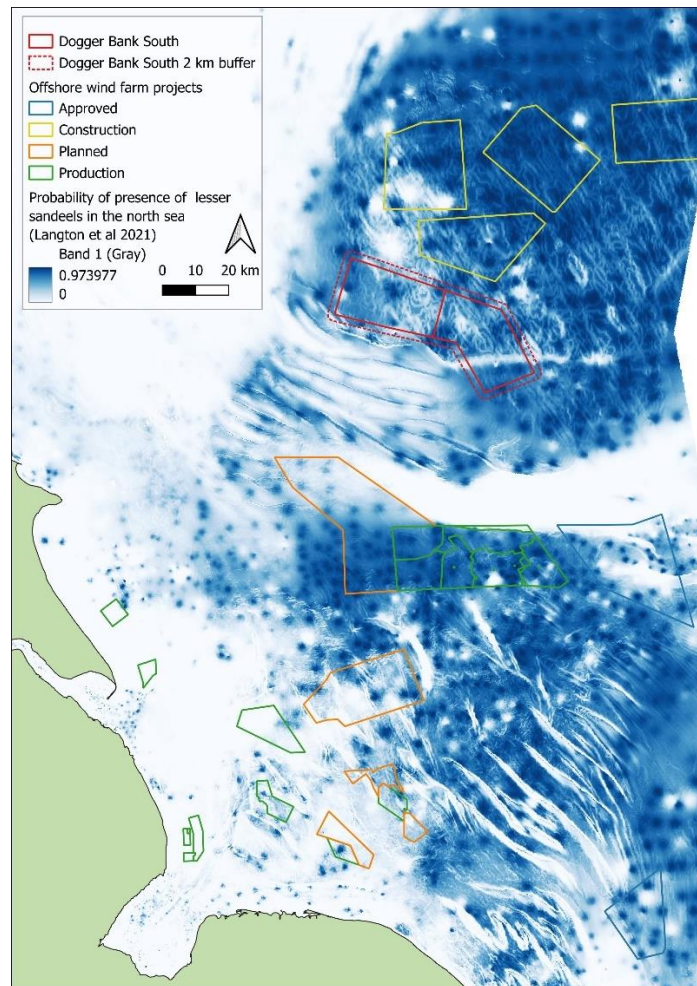
## **OR.1.5 and 1.6 Seasonal abundance, apportioning and displacement risk for guillemot and razorbill**

**Can you respond to the Applicants' statement in the RIAA [AS-085] that based on NE's guidance to estimate seasonal abundance and apportioning for guillemot/razorbill '*...over 73%/40% of the FFC SPA guillemot/razorbill population is apparently present on all UK wind farms through the course of the year and at risk of displacement, despite the fact that offshore wind farms actually make up approximately 6% of the area within 300km of the FFC SPA.*'**

Natural England note that the vast majority of all FFC SPA guillemot (76%) and razorbill (73%) predicted to be at risk of displacement from offshore wind farms in the North Sea are at risk from wind farms in the Hornsea and Dogger Bank Zones, according to the figures presented by the Applicant in 6.1, Table 9-28 [APP-048]. We acknowledge that offshore wind arrays only make up a small percentage of the area of sea available, however, it should also be recognised that guillemot and razorbill densities are unlikely to be distributed evenly throughout the North Sea. The distribution of birds will be affected by both the location of the FFC SPA colony, particularly during the breeding season and the 'chick-rearing and moult'/'post-breeding' seasons (as evidenced in the Hornsea Four Examination), and the location of key foraging areas.

Seabirds nesting at FFC SPA are likely to be more at risk from projects within the foraging range of the SPA. Furthermore, seabirds are likely to congregate in areas where foraging opportunities are higher, such as shallow sea areas where sandeel are present. We highlight that in addition to being close to FFC SPA, Dogger Bank and the surrounding areas, including areas close to and within the Hornsea Zone, are important areas in the North Sea for sandeel (Dunn 2021, Langton 2021). This is shown clearly in Figure 1 below, and in the areas of high potential spawning habitat in Figure 2 of APP-050. It is therefore not unreasonable to expect that larger numbers of guillemot and razorbill from FFC SPA may use these areas than may be explained by assuming an equal distribution of birds throughout the North Sea. Higher impacts apportioned to FFC SPA are therefore the result of a combination of high abundances of birds recorded in the project areas and the proximity of the projects to FFC SPA.





**Figure 1:** Map showing predicted probability of occurrence of sandeel within known sandeel fishing grounds (adapted from Langton et al 2021) along with locations of offshore wind farms currently operational and in development. (OWF data sourced from the EMODnet, Human Activities, Energy, Wind Farms database ([EMODnet Human Activities](https://emodnet.humanactivities.eu/)))

### OR.1.18. Kittiwake compensation quantum

**2) Could NE elaborate on the evidence for the case of using the upper 95% upper confidence limit vs the mean, and 100% vs 53% adult apportionment?**

#### Confidence Intervals

Confidence intervals are used to show the range we can be 95% confident the true impact value falls within (for a 95% confidence interval). As the true value could fall anywhere within this range, confidence intervals show the level of uncertainty associated with an estimate (i.e. the larger the interval is, the more uncertain the true value is and vice versa). If the confidence interval range is not presented, it is not possible to determine the level of certainty that can be placed in the impact values presented, and therefore for SNCBs and decision makers to understand how much weight should be placed on them.

As noted, Natural England generally advises that seabird compensatory measures are scaled against the 95% upper confidence limit (UCL) predicted impact value, rather than the central impact value. We see this as necessary to ensure that, given the uncertainty regarding OWF impacts, the decision-maker can still have confidence that the compensatory measures can provide sufficient benefit should the impacts exceed those of the central prediction.

We recognise that using the 95% UCL impact value can, in combination with use of greater ratios, result in large compensation quanta for some species, and that therefore a pragmatic interpretation of these calculations may be needed. For example, where a compensation case for a project with a substantial quantum is well detailed and has good prospects of success, a case could be made that where the Hornsea 3 part 2 approach is adopted, it is unnecessary to then adopt both the 95% UCL impact value and a ratio higher than 2:1 to adequately account for uncertainty.

It is also important to distinguish between the compensation quantum, which informs the scaling and design of the measure to be implemented, and the target or objective for the compensation to achieve, which Habitats Regulations Assessments have generally (though not always) set with respect to the central impact value.

#### Adult apportioning

Natural England disagree with the Applicant's approach to apportioning adults, which is based on a theoretical generalised stable age structure, as we consider it unlikely that this approach, generalised across multiple years and sea areas, will be representative of the actual proportions of adults present within specific areas at different times of year. This constitutes a significant source of uncertainty which could lead to over, or more importantly, underestimation of impacts.

Natural England advise that where site-specific ageing data for species that can be clearly aged as adults or sub-adults is available, from either relevant digital aerial survey (DAS) or boat-based surveys, these can be used to estimate adult apportioning rates. We acknowledge that for many species, including kittiwake, some immature age classes cannot reliably be distinguished, even if high quality survey data exists. In the absence of site-specific evidence on the likely proportions of immature age classes present, Natural England recommend that the precautionary approach is to assume that all 'adult type' birds (i.e. birds that cannot be distinguished from adults, and hence, might be adults) are apportioned as adults.

Further, Natural England notes that the Applicant states they have undertaken a review of the DAS baseline survey data collected during the kittiwake breeding season and found that over 95% of the birds for which age could be estimated were categorised as adults (paragraph 88,

REP 2-010). However, the Applicant has not submitted any survey-derived age data with their baseline characterisation, nor have they presented the results of this review. We recommend that, if good quality site-specific ageing data from the baseline surveys is available, then the Applicant should present this data for review. We recommend that the proportions of adults present should be clearly presented and be season-specific, to account for seasonal variation in the use of the site. Tables illustrating the proportions of key species surveyed that were aged by month and the associated proportions that were adults should also be provided. This should consider the same DAS data used to derive the proportions of birds at collision height used in sCRM.

### **OR.1.39 Revised ES Chapter 12 Offshore Ornithology – connectivity**

#### **1) Do you agree that connectivity for most species would be relatively low? If not, explain why not.**

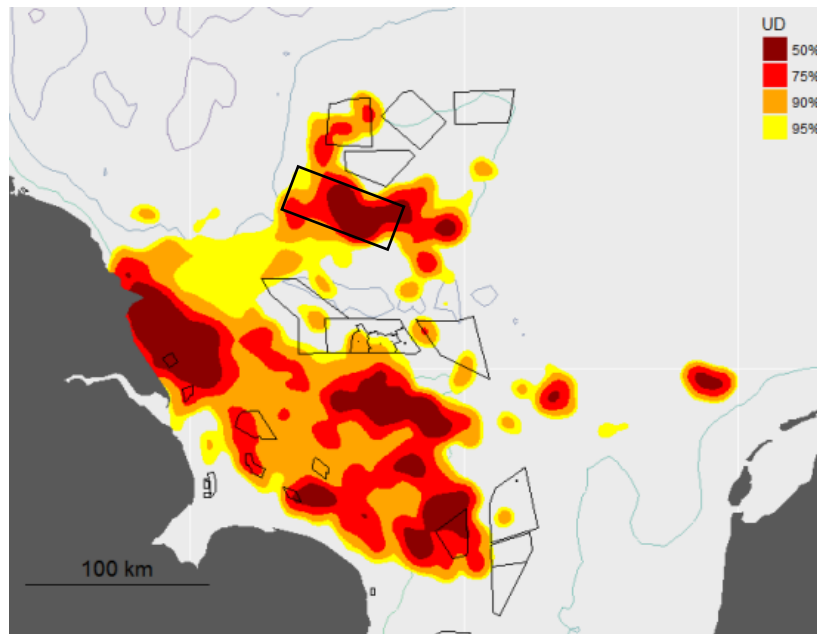
The Projects are located 103km (DBS W) and 125 km (DBS E) from FFC SPA at their nearest points.

#### Connectivity during the core breeding season

Potential connectivity between the Projects and birds breeding at the FFC SPA during the breeding season can be determined either by site-specific data, such as tracking data from birds fitted with tags at the breeding colony, or in the absence of such data, by applying standard mean maximum foraging ranges. In the case of guillemot and razorbill, there is no tracking data available for FFC SPA birds. However, the standard mean maximum foraging ranges (plus 1SD) are 153.7km for guillemot and 164.6km for razorbill (Woodward et al 2019, Woodward et al 2024), which places the Projects well within foraging range for both species. Natural England do not, therefore, consider that connectivity between the Projects and the FFC SPA can be considered as low for these species, and our apportioning advice reflects this (see response to OR.1.4).

In the case of kittiwake, the standard mean maximum foraging range (plus 1SD) is 300.6km. Both Projects are therefore well within foraging range of birds breeding at FFC SPA. In addition, tracking data is also available for kittiwake breeding at FFC SPA which clearly shows that, not only is there connectivity, but that the Project areas appear to be an important foraging location for these birds. Tracking data from 2017 shows that the 50% core utilisation distribution of tracked kittiwake from FFC SPA overlaps with the Project areas (Figure 2). The 50% core utilisation distribution represents an area where, at any given time, it is expected to find 50% of a given population. We consider that the high densities of kittiwake recorded in

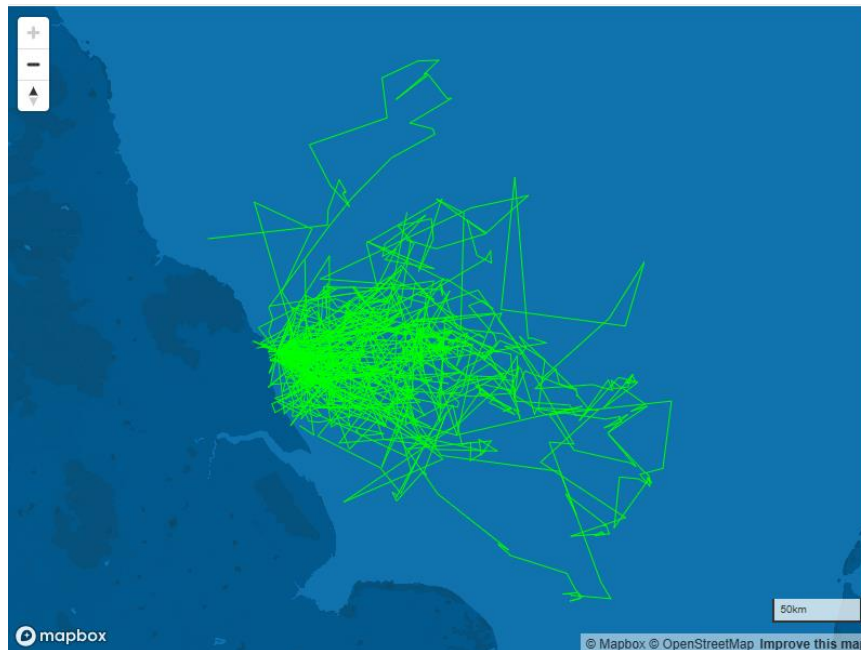
the Applicant's baseline surveys during the breeding season, combined with the relative proximity of the Projects to the SPA and the evidence provided by the tracking data, strongly supports our position that kittiwake using the Project areas are likely to be birds breeding at FFC SPA, and our apportioning advice reflects this.



**Figure 2:** Utilisation distributions of kittiwakes breeding at the Flamborough and Filey Coast SPA, tracked during the 2017 breeding season, based on 168 trips from 18 birds and showing 50, 75, 90 and 95% utilisation distributions. Taken from Wischniewski et al (2017). N.B. The black rectangle has been added by NE and shows the approximate location of the DBS East and West arrays. The other polygons show the existing Dogger Bank OWF arrays (North), the Hornsea Zone OWF (middle) and Norfolk Projects (South).

For gannet, the standard mean maximum foraging range (plus 1SD) is 509.4km which is within the foraging range of birds breeding at FFC SPA. As with kittiwake, tracking data is available for gannet breeding at FFC SPA which clearly shows use of the Project areas by these birds (Figure 3). Furthermore, tracking data has shown that gannet breeding at different colonies show colony-specific division of foraging areas (Wakefield et al 2013), reducing the likelihood that gannets breeding in Scotland use the same areas as those breeding at FFC SPA. The high densities of gannet recorded in the Applicant's baseline surveys during the breeding season, combined with the relative proximity of the Projects to the SPA and the evidence provided by the tracking data, strongly supports our position that gannet using the Project areas are likely to be birds breeding at FFC SPA, and our apportioning advice reflects this. We also note that there are high densities of gannet recorded in the Project areas during the 'autumn migration period' which may reflect larger numbers of FFC SPA birds using the area than currently apportioned using the BDMPS method. The 'autumn migration' period as currently defined (Furness 2015) includes October and November, and gannet chicks are often

still fledging from the colony in October (Butcher et al 2024). This is, therefore, potentially a source of under-precaution in the assessment for this species.



**Figure 33:** Tracking data collected from gannet breeding at FFC SPA during the 2011 breeding season. Data collected by the RSPB Centre for Conservation Science and downloaded from the Seabird Tracking Database.

### Connectivity outside of the core breeding season

Outside of the core breeding season, seabirds are not constrained as central-place foragers by the location of their nest site, so the distributions of birds breeding at FFC SPA and thus connectivity with the Projects may be quite different. The BDMPS apportioning method (Furness 2015), which is generally applied during these seasons, assumes that birds are evenly distributed throughout the range of their biogeographic population (the North Sea and Channel for guillemot, razorbill and gannet and the North Sea for kittiwake) during these times. The distance between the SPA and the Projects is therefore largely irrelevant when applying this method.

As detailed in our response to OR.1.4 above, Natural England do not consider that guillemot and razorbill are likely to be evenly distributed throughout this area during the ‘extended chick-rearing and moult’ season for guillemots and ‘post-breeding migration’ season for razorbills, and therefore do not advise the application of the BDMPS approach for these species for these seasons. The evidence presented in OR.1.4, combined with the high abundances of both species recorded in the Projects area during these months, supports Natural England’s position that connectivity between FFC SPA and the Projects is likely to be high for these

species at these times and is reflected in our apportioning advice. We further note that the current application of the BDMPS apportioning method for these species during the 'non-breeding' and 'winter' seasons may be a source of potentially significant under-precaution in the assessment as a result.

#### **OR.1.41. Seabirds of conservation concern**

- 1) Does the latest status assessment of breeding seabird species in the UK (the 2021 Birds of Conservation Concern 5 review and the update to the second International Union for Nature Red List review of extinction risk, published in British Birds, 2 September 2024, Stanbury *et al*) affect the marine ornithology assessment and results?**

The results presented in Stanbury *et al* (2024) are assessments of the conservation status of seabird populations in the UK, Channel Islands, and Isle of Man (Birds of Conservation Concern: BoCC) and of the likelihood of extinction of seabird populations in Great Britain (IUCN GB). The results of these assessments do not affect the results of the Applicant's marine ornithology impact assessment, as the latter are based on densities of seabirds recorded in the Project areas during baseline surveys, and the most recent population estimates at SPAs with connectivity to these areas.

- 2) Are there implications for the HRA? If so, does the paper need to be made available to the ExA?**

While the assessments presented in Stanbury *et al* (2024) do not affect the quantitative results of the Applicant's marine ornithology impact assessments, Natural England do consider them to be of relevance when assessing the significance of the Projects' predicted impacts, which inevitably includes a qualitative element. The current conservation status of the majority of the UK's breeding seabird populations is poor (Red or Amber), and a large number are assessed as being 'Endangered' or 'Critically Endangered' at the GB level, including kittiwake (Stanbury *et al* 2024). Stanbury *et al* (2024) highlights ongoing declines in the UK's breeding seabird populations, with several seabird species being added to the BoCC Red List since the 2017 assessment. While kittiwake remained on the BoCC Red List and guillemot, razorbill, and gannet remained on the BoCC Amber List, Stanbury *et al* (2024) highlight that there have been declines in breeding status of kittiwake, guillemot and razorbill since the 2017 assessment – these declines have just not been severe enough to warrant a change in status category.

Furthermore, Stanbury *et al* (2024) also highlights that many seabird populations are predicted to decline further in future, due to the effects of climate change. At the GB scale, modelling

undertaken by Davies et al (2023), the results of which are presented in Stanbury et al (2024), predicted that by 2050, kittiwake will decline by 55%, guillemot by 46.4% and razorbill by 46.3%. The likely impact of climate change on future population trends is something that should be considered when interpreting the results of PVA modelling [R&I, G49].

Stanbury et al (2024) also highlight the international importance of many of our seabird breeding populations: Great Britain, the Isle of Man and the Channel Islands together support over 30% of the North Atlantic population of guillemot and razorbill, as well as an estimated 70% of the European gannet population.

**3) Do you have any comments on the paper's examination of HPAI to date that might be relevant to the Proposed Development?**

The assessments undertaken by Stanbury et al (2024) were done in two stages. The first stage assessed species against the results of the most recent seabird census (Seabirds Count, Burnell et al 2023) which took place between 2015 and 2021 and therefore before the impacts of HPAI. The second stage updated these assessments to reflect HPAI impacts, as known. This second stage was informed by the results of surveys undertaken in 2023 (presented in Tremlett et al 2024), analysis of long-term monitoring data undertaken by Harris et al (2024), mortality data collected during the outbreak, and expert opinion. This represented the best evidence available at the time of the assessment, and Stanbury et al (2024) are clear that there remain considerable uncertainties as regards the scale of the impacts of HPAI, the long-term impacts, and the capacity of populations to recover. It should be noted that the surveys undertaken in 2023, though far more comprehensive than would normally be undertaken in any given year, do not represent a full census: the proportions of populations surveyed are lower than for a full census, and several species (including razorbill and puffin) were not assessed. Of species breeding at FFC SPA, for example, only gannet were surveyed in 2023. The results in Tremlett et al (2024) are therefore not directly comparable with those of the Seabirds Count (Burnell et al 2023).

While the available evidence was sufficient to result in status changes for several species being assessed, this was not the case for kittiwake, guillemot, razorbill or gannet (Stanbury et al 2024). While Tremlett et al (2024) showed a 25% decline in UK gannet populations, a 20% decline in English guillemot populations, and an 18% decline in English kittiwake populations compared to pre-HPAI populations, these declines were not sufficient to result in a change in conservation status, which is assessed against long term population declines as well as a range of other factors (Stanbury et al 2024).

Natural England consider that Stanbury et al (2024) considered HPAI impacts to the best of their ability with the evidence available, in the context of conservation status category

definitions. However, we note that these results should be interpreted with caution, given their limitations as regards shorter-term population declines and regional impacts. We note that the information presented in Tremlett et al (2024) should also be considered in this context. We also highlight the potential for longer term impacts of HPAI on seabird populations, concerns about the resilience of affected populations, and the ongoing need for more evidence on the impacts of HPAI on seabird populations. Natural England therefore consider that the impacts of HPAI and the potential for future population impacts highlights the need for precaution when assessing the significance of impacts of additional pressures such as offshore wind farms.

#### **OR.1.52 New research findings**

**At least two scientific research papers that may be relevant to the offshore ornithology assessment have been published since the submission of the application - do either of these or any other recent research have any implications for the assessments reported by the Applicant for the EIA and HRA? (1: Davies, JG et al, (2024). 2: Pollock, CJ et al, (2024))**

##### Davies et al (2024)

Davies et al (2024) investigated the influence of wind on the flight behaviour of 20 kittiwake tracked in Scotland, and possible implications for offshore wind farm collision risk. They found that, at higher windspeeds, kittiwake spent more time resting, which reduced collision risk. However, at higher windspeeds, those kittiwake that did take flight were also more likely to collide with offshore wind farms. While the net result overall was lower collision risk at higher windspeeds, the uncertainty in these results was high. Furthermore, the authors are clear that they did not investigate the effects of wind on all aspects of collision risk, pointing out that collision risk may be increased if higher wind speeds affect manoeuvrability, that increasing turbine rotation at higher windspeeds may increase collision risk, and that angle-of-approach and wind direction may also have complex effects on collision risk. The authors also note that the tracking data was collected during only a few weeks of the breeding season and may not be applicable to the rest of the breeding season. They also highlight that their results differ from those found by Christensen-Dalsgaard et al (2018), and that the relationship between wind and flight behaviour may vary geographically and with environmental conditions.

Overall, Natural England consider that, while valuable, this study does not currently have specific implications for impact assessment methodology, as the relationship between wind and kittiwake flight behaviour remains uncertain and requires further research if it is to be successfully parameterised. Future research might also help appraise the authors' suggestion



that increasing turbine cut-in speed may be an effective mitigation measure for kittiwake collision impacts.

#### Pollock et al (2024)

Pollock et al (2024) investigated avoidance and attraction to offshore wind farms in 20 kittiwake tracked in Scotland during the 2021 breeding season. As is the case for previous studies (e.g. Dierschke et al 2016), they found inconsistent responses by kittiwake to offshore wind farms, with evidence indicating both attraction and avoidance. The results suggested that kittiwake may be slightly attracted to the area around wind farms, or that aggregations in the areas around wind farms may be due to displacement effects of the wind farm. Kittiwakes also showed some avoidance of individual turbines. The authors note that responses by kittiwake appear to be complex and nuanced, and to vary between individuals, as also evidenced by O'Hanlon et al (2024). They also state "*our results cannot be interpreted in a succinct manner to feed directly into the way current impacts are assessed, due to their behaviours being more nuanced than such assessments allow for*", and recommend that future impact assessment methodologies be updated to incorporate information on the nuanced behavioural responses of seabirds to offshore wind farms.

Natural England note that the results of this study appear to support our position that the evidence is currently insufficient to incorporate displacement assessment for kittiwake into impact assessments. As stated by the authors, we advise that the results cannot be incorporated into current impact assessment methodologies. We agree with the authors that increasing evidence of the complexity of seabird responses to offshore wind farms should be incorporated into future updates to impact assessment methodologies and note that we are actively engaged in forums that will hopefully enable such updates to be made, in time.

#### Other recent research

Natural England note that two recently published papers on the impacts of displacement, Lamb et al (2024) and Peschko et al (2024), provide support for the use of the higher end of Natural England's advised range of displacement rates for auks, and suggest that displacement effects may occur at distances greater than the 2km buffer currently accounted for in displacement assessments. The evidence presented by Peschko et al (2024) also suggests that the cumulative displacement impacts of multiple offshore wind farms may be greater than those of individual projects. *See response to OR.1.4.*

Burnell et al (2023), Harris et al (2024), Stanbury et al (2024) and Tremlett et al (2024) provide evidence of ongoing declines in UK seabird populations, both before and after the impacts of HPAI, while Davies et al (2023) predicts further future declines due to climate change. Burnell

et al (2023) showed that, at a UK level, and before the impacts of HPAI, kittiwake and guillemot breeding populations had declined by 43% and 11%, respectively, since the previous census (1998-2002). *See response to OR.1.41.*

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