



Written Submission

for the

Royal Society for the Protection of Birds

**Response to Secretary of State's consultation on the Applicant's
response to the Request for Information dated 16 December 2022**

Submitted 9 March 2023

Planning Act 2008 (as amended)

In the matter of:

**Application by Hornsea Project Four Limited for an Order
Granting Development Consent for the Hornsea Project Four Offshore Wind
Farm**

Planning Inspectorate Ref: EN010098

RSPB Registration Identification Ref: 20029909

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1. Introduction

- 1.1. The RSPB's responses to the Applicant's response to the Secretary of State's Request for Information (dated 16 December 2022) are set out in the table below. Where helpful, we have cross-referred to relevant RSPB written submissions to the Examination and included relevant material in Annex B to this document.
- 1.2. In respect of the Applicant's responses on its predator eradication and bycatch reduction proposals, we have split up our response to specific points to make it easier to follow.

RSPB responses to the Applicant's response to the Secretary of State's request for information

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18	<p>In relation to in-combination impacts on the kittiwake, razorbill, guillemot, gannet, and the seabird assemblage features of the Flamborough and Filey Coast SPA, the Applicant is requested to provide updated in-combination assessments for collision and/or displacement effects, using the latest figures from the Sheringham Extension, Dudgeon Extension and Rampion 2 projects; and provide updated PVA models for all the above features and counterfactuals (including CFGR and CFPS) for the SPA population. All models should use Natural England's advised assessment parameters and ranges, and include all consented projects, including those where compensation measures have been agreed.</p>	<p><u>Updated FFC SPA In-combination impact tables (Appendix D)</u></p> <p>The Applicant has undertaken a review and updated (where applicable) the in-combination assessment totals as presented within Appendix D for kittiwake, razorbill, guillemot, gannet, and the seabird assemblage (puffin) features of the Flamborough and Filey Coast SPA. These updated totals include the latest figures from the Sheringham and Dudgeon Extension project's DCO Applications (Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects Report to Inform Appropriate Assessment (RIAA). Equinor, 2022).</p> <p>The Applicant also reviewed the latest numbers for the Rampion 2 project, which remain unchanged since the close of Hornsea Four Examination (REP8-017), as Rampion 2 is not due to submit its DCO Application until later in 2023.</p> <p>Following the same methods of providing impact assessments in consistency with all previous Hornsea Four seabird assessments separate in-combination totals have been provided following both the Applicant's and also Natural England's preferred approach (Appendix D), including Natural England's bespoke approach for the guillemot and razorbill feature of the FFC SPA.</p> <p>The evidence supporting the Applicant's preferred approach to the assessment of the qualifying features of the FFC SPA is detailed within the following submissions</p> <ul style="list-style-type: none"> • G1.47 Auk Displacement and Mortality Evidence Review (REP1-069); 	<p>The RSPB has reviewed the Applicant's January 2023 Response to the Secretary of State's Request for Information dated 16 December 2022 ("the Applicant's January 2023 response") and welcome the Secretary of State's request for updated PVA models including the Counterfactual of Population Size (CFPS). We have reviewed all of the additional information and set out our comments below.</p> <p>At the end of the Hornsea Four examination, the RSPB reached the following conclusions in respect of the predicted adverse effects on integrity (AEOI) of the scheme on the Flamborough and Filey Coast SPA (see RSPB REP8-024 for a fuller explanation). These conclusions have not changed as a result of the additional information.</p> <p>Project alone – RSPB AEOI conclusions</p> <p>For the species where it has been possible to reach a conclusion on adverse effect on the integrity of the FFC SPA from the project alone, the RSPB's conclusions are:</p> <ul style="list-style-type: none"> • Gannet: cannot rule out adverse effect on site integrity due to the impact of combined displacement and collision mortality. • Kittiwake: cannot rule out adverse effect on site integrity due to the impact of collision mortality. • Guillemot: cannot rule out adverse effect on site integrity due to the impact of displacement mortality. • Seabird assemblage: cannot rule out adverse effect on site integrity due to the impact of combined

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		<ul style="list-style-type: none"> • G2.9 Gannet Displacement and Mortality Evidence Review (REP2-045); • G4.7 Ornithological Assessment Sensitivity Report (REP6-026); • G5.7 Indirect Effects of Forage Fish and Ornithology (REP5-085); and • G7.4 Applicants Ornithology Position Paper (REP7-085). <p>For the assessment of the potential impacts of displacement in-combination totals on seabirds, the Applicant has also included displacement matrices within Appendix D for each in-combination total when considering Hornsea Four with all current consented projects only as well as matrices for Hornsea Four with all projects up to and including Sheringham Shoal Extension, Dudgeon extension and Rampion 2 within the updated in-combination assessments presented. The former were presented as agreed with Natural England, due to uncertainties regarding final values for Sheringham Shoal Extension, Dudgeon Extension and Rampion2. With respect to the most appropriate displacement and mortality rates for impact assessment conclusions, the Applicant would recommend using the proposed rates based on the evidence review and critical appraisal of displacement undertaken by the Applicant (REP1-069 and REP2-045). These reports extensively reviewed post consent monitoring data for auks from 21 OWFS based on 38 years of combined data from 28 reports and data for gannets from 25 OWFs based on 34 years of combined data from 30 reports. The Applicant would not recommend consideration of Natural England's range- based approach of 30-70% displacement and 1-10% mortality rates for auks or 60-80% displacement and 1-10% mortality rates for gannet due to Natural England defining these ranges without due consideration of the quality or reliability of the datasets, nor how species behaviour may change seasonally.</p>	<p>collision and displacement mortality on the seabird assemblage.</p> <p>Project in combination with other plans and projects – RSPB AEOI conclusions</p> <p>The RSPB's conclusions for each feature of the FFC SPA from Hornsea Four in-combination with other projects are:</p> <ul style="list-style-type: none"> • Kittiwake: adverse effect on site integrity exists due to the impact of collision mortality on the kittiwake population; • Gannet: adverse effect on site integrity exists due to the impact of combined collision and displacement mortality on the gannet population; • Guillemot: adverse effect on site integrity exists due to the impact of displacement mortality on the guillemot population; • Razorbill: cannot rule out adverse effect on site integrity due to the impact of displacement mortality on the razorbill population; • Seabird assemblage: adverse effect on site integrity exists due to the impact of combined collision and displacement mortality on the seabird assemblage. <p>In order to assist the Secretary of State, the RSPB has summarised the updated assessments and, using the Applicant's own calculations, presented counterfactuals of Population Size for the four key species at the Flamborough and Filey Coast SPA in Annex A. These are presented for scenarios as preferred by the Applicant, those preferred by Natural England, which we consider plausible, and those we consider probable, preferred by the RSPB. This approach is the same as we took in REP6-068: section 8 for guillemot and razorbill and REP7-098: section 7 for gannet and kittiwake. While we have not</p>

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		<p>The details of Natural England's approach to assessment of Hornsea Four are based on the following submissions:</p> <ul style="list-style-type: none"> • Additional guidance on the assessment of guillemot and razorbill displacement impacts for the Hornsea Project Four Offshore Wind Farm (REP5-115); • Additional guidance on the apportioning of northern gannet and black-legged kittiwake to Flamborough and Filey Coast (FFC) Special Protection Area (SPA) for the Hornsea Project Four Offshore Wind Farm (REPS-116); and • Natural England's End of Examination Position on Offshore Ornithology (REP7-104). <p>With respect to the guillemot and razorbill feature of the FFC SPA, Natural England proposed an entirely new and bespoke approach to assessment of Hornsea Four (the predicted impact level of which are presented within Appendix D).</p> <p>The Applicant wholly disagrees with the rationale provided by Natural England to justify such deviation from their standard defined seasons for assessment, notwithstanding that this approach goes against previous advice provided by Natural England to Hornsea Four (agreement OFF-ORN 6.12 & 6.13 as set out in the Evidence Plan Logs which are appendices to the Hornsea Four Evidence Plan (B.1.1.1: Evidence Plan (APP-130))). Furthermore, the rationale for Natural England considering that deviation from the standard seasonal assessment approach is required for Hornsea Four is flawed. Migratory pulses of auks during the post-breeding bio-season are commonly recorded across the Southern North Sea and from other OWFs baseline and post-consent monitoring surveys as presented in G5.7 Indirect Effects of Forage Fish</p>	<p>reproduced the graphs from those sections, we refer the Secretary of State to them as they are illustrative of the range of potential impacts and the uncertainty around them.</p> <p>The figures presented in Annex A show, that for gannet, the additional mortality predicted to arise through displacement and collision combined will result in the Flamborough and Filey Coast SPA population being a probable 4.7-7.7% lower after the lifetime of Hornsea Project Four wind farm than it would be without the development, and 55.2-62.0% lower in-combination with other developments, although plausibly it could be as much as 14.7% lower through the project alone, and 80.3% in combination. Even with the application of the macro-avoidance correction factor plausibly it could be as much as 11.3% lower through the project alone, and 72.6% in combination.</p> <p>For kittiwake, the additional mortality predicted to arise through collision will result in the Flamborough and Filey Coast SPA population being a probable 3.2% lower after the lifetime of Hornsea Project Four wind farm than it would be without the development, and 19.5% lower in-combination with other developments.</p> <p>For guillemot, the additional mortality predicted to arise through displacement will result in the Flamborough and Filey Coast SPA population being a probable 9.5-22.1% lower after the lifetime of Hornsea Project Four wind farm than it would be without the development, and 22.1-44.2% lower in-combination with other developments, although plausibly it could be as much as 52.9% lower through the project alone, and 81.6% in combination.</p> <p>For razorbill, the additional mortality predicted to arise through displacement will result in the Flamborough and</p>

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		<p>and Ornithology (REP5-085), yet no such bespoke approach was advised previously for other projects.</p> <p>Further details on the Applicant's concerns with Natural England's bespoke approach are provided in:</p> <ul style="list-style-type: none"> • G5.34 Applicant's response to Natural England's additional guidance on apportioning of seabirds to FFC SPA for Hornsea Project Four (REP5A-018); • G8.3 Applicant's Response to Deadline 6 Ornithology submissions (REP8-012); and • G8.8 Applicant's comments on Natural England's Deadline 7 Ornithology Submissions (REP8-017). <p><u>Updated FFC SPA Population Viability Analysis Results</u></p> <p>The Applicant undertook updated Population Viability Analysis (PVA) modelling, submitted at deadline 6 of Hornsea Four Examination, the results of which are presented in G4.7 Ornithological Assessment Sensitivity Report (REP6-026). These updated PVA results were based on a wide range of generic impact values to account for any changes in impact values through Examination and the decision period. The range of impact values presented within the assessment sensitivity report (REP6-026) cover the full range of potential impacts based on the previous as well as updated in-combination tables in Appendix D, therefore in relation to the CFGR can still be relied upon to infer potential population changes when considering varying levels of predicted impacts apportioned to the FFC SPA.</p> <p>CFPS results for PVA modelling the Applicant undertook and presented within the assessment sensitivity report (REP6-026) are provided within Appendix E, due to not being presented within the assessment sensitivity report (REP6-</p>	<p>Filey Coast SPA population being a probable 7.6-14.6% lower after the lifetime of Hornsea Project Four wind farm than it would be without the development, and 21.1-39.5% lower in-combination with other developments, although plausibly it could be as much as 21.1% lower through the project alone, and 52.4% in combination.</p> <p>The magnitude of these figures, in comparison to those suggested by the Applicant, has implications for any resulting assessment against the Flamborough and Filey Coast SPA site conservation objectives and any resulting compensation requirements, and whether the currently proposed compensation measures are capable of meeting this scale of impact (see section 3 of RSPB REP6-069 for further discussion on this matter).</p>

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		<p>026). The input parameters for all PVA results below are provided within the appendices of the assessment sensitivity report (REP6-026). The CFPS PVA results were previously not presented alongside the CFGR due to significant concerns over the reliability of using such results the justification for which is provided in the assessment sensitivity report (REP6-026).</p>	
20	<p>In relation to the proposed compensation measures for the kittiwake feature of the Flamborough and Filey Coast SPA, the Applicant is requested to provide further details of the artificial nesting sites (ANS). This should include, but not be limited to:</p> <ul style="list-style-type: none"> • Confirmation of the location(s) of the ANS, and evidence that the proposed sites can be acquired/leased. • Details of the ANS design/ adaptations to support kittiwakes and auks, if appropriate. • An implementation timetable for when the compensation measures will be delivered and when they will achieve their objectives in relation to the commencement of operation of the wind farm. 	<p>Please see below the Applicant's response to each of the points requested regarding further details of the artificial nesting sites (ANS) below:</p> <ul style="list-style-type: none"> • Confirmation of the location(s) of the ANS, and evidence that the proposed sites can be acquired/leased. <p>Offshore Repurposed ANS As set out in the examination submissions (such as B2.7.2 Compensation measures for FFC SPA: Kittiwake Offshore Artificial Nesting Roadmap (REP7-021)), the Applicant has signed a memorandum of understanding (MoU) with Alpha Petroleum Resources Limited and Energean UK Limited with a view to the potential repurposing of the Wenlock Platform, the location of which is presented in Figure 3 of B2.7.2 Compensation measures for FFC SPA: Kittiwake Offshore Artificial Nesting Roadmap (REP7-021). The MoU grants exclusivity to the Applicant until 31st December 2023 to allow the parties to negotiate a formal agreement. Following the close of Examination, the Applicant has continued to progress discussions with the owner and operator of the Wenlock platform and is working towards on option to enter into an Asset Transfer Agreement subject to the satisfaction of conditions precedent including the issue of a marine licence to adapt the platform and the platform being</p>	<p>The RSPB has reviewed the Applicant's responses to the Secretary of State's questions. Overall, in respect of the proposed compensation measures for adverse impacts on kittiwakes from the Flamborough and Filey Coast SPA, there has been no substantive progress since the close of the examination.</p> <p>Therefore, to assist the Secretary of State, we have included our summary Table 6 from REP6-069 in Annex B to this submission. As well as specific comments, it identifies the generic need to carry out a metapopulation analysis of any of the kittiwake ANS proposals to:</p> <p><i>"...clarify the dynamics between any proposed artificial nesting structure and SPA/other colony populations: elucidating the feasibility of establishing the proposed colonies and the consequences of such colony establishment on the populations of other colonies, in particular FFC SPA."</i></p> <p>This becomes increasingly important as more offshore wind farms progress and implement kittiwake ANS as compensation measures for their schemes. This need is particularly acute with regard to onshore ANS, but applies equally offshore as part of assessing both their efficacy and impacts on other colonies.</p>

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		<p>made hydrocarbon free. The parties are confident that an option agreement will be agreed during 2023 in line with Hornsea Four's current programme. The letter provided at Appendix F is signed by all parties to demonstrate the progress made to date.</p> <p>Offshore New ANS The site selection process for a new offshore ANS was presented in B2.7.2 Compensation measures for FFC SPA: Kittiwake Offshore Artificial Nesting Roadmap (REP7-021). Following this process, at Deadline 7 a refined area of search for a new offshore nesting structure consisting of a 10 km x 10 km section of the heatmap was identified and is shown in Figure 3 of the Offshore Nesting Roadmap (REP7-021). Discussions with stakeholders had been undertaken on their preference of different sites within the refined area of search. Following the end of Examination, the Applicant has selected a specific site for the new offshore ANS based on stakeholder preference, for which geophysical and geotechnical investigations have been undertaken. This location is within the refined search area is shown in Appendix G.</p> <p>Section 11 of B2.7.2 Compensation measures for FFC SPA: Kittiwake Offshore Artificial Nesting Roadmap (REP7-021) sets out how the Applicant would secure key consents and seabed agreements for the offshore ANS. Following Examination, the Applicant has commenced work to secure a Marine Licence and has submitted an Environmental Impact Assessment (EIA) screening request (reference EIA/2022/00051) to the Marine Management Organisation (MMO) for their consideration on the 15th December 2022. With regards to securing an Area for Lease (AfL) for the site, as stated</p>	<p>In addition, we make the following brief comments on the Applicant's responses below:</p> <ul style="list-style-type: none"> • Offshore repurposed ANS: we have noted the letter provided in Appendix F. While welcome, we consider that no new evidence is provided of substantive progress. We therefore refer the Secretary of State to section 7 of the RSPB's REP6-069 (e.g. paragraphs 7.1-7.3 and 7.7-7.8), including Table 6 (replicated here in Annex B). We note that the Secretary of State has, in his letter of 9 February 2023, requested further information from the Applicant in respect of (i) what consents and licences will be required to repurpose the platform and when these will be provided and (ii) whether the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) has agreed the Wenlock Platform can be repurposed as an ANS; and (iii) when that repurposing would be completed in relation to the first operation of any turbine. The RSPB supports the request for this important information as it highlights the need for a clear regulatory pathway for this option, which was not provided to the examination for consideration by Interested Parties (see Table 6 in Annex B). • Offshore New ANS: we note that a specific location has been identified but is not yet secured e.g. no marine licence at the time of writing and no lease from The Crown Estate. Therefore uncertainty still remains as to whether this option can be secured. • Onshore ANS: we note the Applicant has signed an exclusivity agreement in respect of site in the wider Whitby area. However, no planning or related consents have been obtained and no detail is

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		<p>in Examination, the Applicant has been engaging regularly with The Crown Estate on the site selection for a new offshore ANS and is expecting to receive the draft AFL from The Crown Estate in early 2023.</p> <p>Onshore ANS The site selection process for an onshore ANS was presented in B2.7.4 Compensation measures for FFC SPA: Kittiwake Onshore Artificial Nesting Roadmap (REP7-023). Updates on the site selection for onshore nesting structure were provided at Deadline 6 in G6.3 Kittiwake Onshore Artificial Nesting Structure Site Selection and Evidence on Nesting Limitations Update (REP6-031). Following this process, an ecologically suitable site was identified and the Applicant has signed an exclusivity agreement with the owner. The location of this land parcel is within the southern section of the wider Whitby search area shown in Figure 4 of G6.3: Kittiwake Onshore Artificial nesting Structure Site Selection and Evidence on Nesting Limitation update (REP6-031). Section 10 of B2.7.4 Compensation measures for FFC SPA: Kittiwake Onshore Artificial Nesting Roadmap (REP7-023) sets out how the Applicant would secure key consents for the onshore ANS.</p> <ul style="list-style-type: none"> • Details of the ANS design/ adaptations to support kittiwakes and auks, if appropriate. <p>ANS Design/ Adaptations The design considerations and principles for the topside for both a new or repurposed ANS with regards to kittiwake were presented in B2.7.5: Compensation measures for Flamborough and Filey Coast (FFC) Special Protection Area (SPA): Artificial Nesting:</p>	<p>provided on the exact location for evaluation by interested parties. It is apparent from the experience of Hornsea Project Three that such consents cannot be guaranteed, a matter which the RSPB has raised consistently over the last few years and a reason why we consider such consents should be in place before DCO consent is issued. We refer the Secretary of State to our more detailed comments on this issue in paragraphs 2.1-2.9 in its REP7-099 to the Hornsea Project Four examination.</p> <ul style="list-style-type: none"> • ANS Design/Adaptation for auks: We note the Applicant's response to the Secretary of State's question in respect of the adaptation of offshore ANS for use by auks. However, we consider it entirely premature to consider the use of ANS as compensation for auks. Such a measure is completely untested as compensation, would be highly experimental and therefore unsuited to application as a compensation measure capable of protecting the coherence of the National Site Network for these species. Therefore we consider it premature to consider this as a serious compensation option. Much more scientific research would be needed to understand the use of artificial structures by guillemots and razorbills including detailed knowledge of site selection, productivity and recruitment rates. Without such detailed ecological information there will be little or no confidence in whether or not ANS are suitable as compensation measure option for auks. In the absence of robust evidence, we do not consider them a viable compensation measure. • Implementation timetable: the RSPB notes the Applicant's submissions with regard to lead-in times. The RSPB refers the Secretary of State to its

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		<p>Site Selection and Design (APP-191). In summary, offshore ANS suitable for kittiwake comprise vertical walls with horizontal nesting 'ledges', with a vertical drop to water below ledges. Ledges should be of sufficient protrusion from the back wall to support a nest, but sufficiently narrow to discourage predation by large gulls. Each kittiwake nest requires minimum 20 cm wide, 30 cm of length along a ledge, 40 cm of vertical space between the ledge and the ledge (or 'roof') above and 15 cm depth/protrusion of ledge. Details of the ecological evidence to support these design features is provided in (B2.7.1 Compensation measures for FFC SPA: Offshore Artificial Nesting: Ecological Evidence (APP-189)).</p> <p>Following the end of Examination, the Applicant has continued to progress the design process. The design of the ANS constitutes a modular, scalable solution comprising of modified DNV (offshore shipping) style containers, constructed to accommodate bespoke nesting panels and ancillary components. The utilisation of an industry standard container solution enables its deployment in multiple contexts as its presence throughout industry ensures ease of manufacturing, transportation, installation, lifting and maintenance across the onshore, nearshore, and offshore locations being considered.</p> <p>In the maritime context, it is planned that the container modules are arranged flush along the outer edges of the foundation to establish an artificial cliff face. This design using container modules placed at the edge of the structure would also be applied for the repurposing of the Wenlock Platform, mitigating against the need for significant technical intervention or challenging lifting</p>	<p>various submissions on this matter in the examination (e.g. paragraphs 5.26-5.27 in REP2-089) and in particular paragraphs 2.29-2.34 of REP8-024.</p> <p>The additional information confirms the ongoing uncertainty with each ANS proposal, and therefore whether the Applicant will be able to secure any of the ANS options. This poses significant risks in terms of the ability to deliver compensation, thereby undermining the ability to protect the overall coherence of the National Site Network for kittiwakes.</p>

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		<p>solutions. The containerised ANS provides an optimal solution that fulfils ornithological requirements whilst offering a modular, scalable unit in an omnipresent form.</p> <p>ANS Design/Adaptations for Auks Artificial nesting is not currently being proposed as a compensation measure for auks however the existing designs for kittiwake ANS would likely only require relatively minor modifications to accommodate breeding guillemot and razorbill if needed. This would likely involve the removal of some of the partition walls between nesting compartments to create a longer ledge and inclusion of a slightly wider shelf c. 25 cm depth (which fits within the proposed range of widths from 15 cm to 25 cm suggested for kittiwake). An existing artificial structure in the Baltic Sea (Stora Karlsö Auk Lab - Hentati-Sundberg et. al. 20113) which has been designed specifically for breeding auks (and is occupied by breeding guillemot) includes shelves which are 25 cm deep. In addition, visual observations from existing offshore structures which support breeding guillemot (first photo below) and razorbill (second photo below) demonstrate the species has the capacity to breed on ledges of similar dimensions to nesting kittiwake (though the exact measurements are not currently available and have not been formally scientifically tested/reported).</p> <p>The Applicant is aware that the Offshore Wind Industry Council's Derogation Subgroup (OWIC DS) are considering ANS for auks as part of strategic compensation and the Applicant is happy to continue discussions with the OWIC DS group. If the SoS requires this to be progressed, the Applicant could consider</p>	

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		<p>these dimensions best suited for auk species, discuss with the OOEG and incorporate them into the ANS designs.</p> <ul style="list-style-type: none"> <li data-bbox="712 368 1379 491">• An implementation timetable for when the compensation measures will be delivered and when they will achieve their objectives in relation to the commencement of operation of the wind farm. <p>Timescales for Implementation and Delivery The Applicant provided an indicative timescale for implementation and delivery of the compensation measure of artificial nesting in Table 1 of both B2.7.2 Compensation measures for FFC SPA: Kittiwake Offshore Artificial Nesting Roadmap (REP7-021) and B2.7.4 Compensation measures for FFC SPA: Kittiwake Onshore Artificial Nesting Roadmap (REP7-023).</p> <p>Section 3.2 of B2.7 FFC SPA: Kittiwake Compensation Plan (REP7-019) provides an overview of the timescales for the establishment of the results for this compensation measure. The Applicant has carefully considered the ecological evidence and technical delivery of compensation and held discussions with Natural England with regard to an appropriate lead in time for the compensatory measure. As noted in paragraphs 3.2.1.4 to 3.2.16 of the B2.7 Flamborough and Filey Coast (FFC) Special Protection Area (SPA) Kittiwake Compensation Plan (REP-019), it is the Applicant's position that it is important to balance the need to deliver the compensation measure with the pressing and urgent need to deliver offshore wind energy. There is a strong case to be made to not include a specific timescale within the DCO but to ensure the</p>	


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		<p>ANS should be in place prior to operation; to enable faster deployment of offshore wind energy and is consistent with the change in policy as set out in the BESS (see paragraph 3.2.1.5). If the Secretary of State considers that a lead in time is required, the Applicant has committed to ensure the nesting structure is in place at least three full kittiwake breeding seasons prior to operation of any wind turbine. Three breeding seasons is supported by Coulson's (2011) observations of the recruitment age of English breeding kittiwake where a significant proportion (26.5%) of kittiwakes were aged three when they bred for the first time. The Applicant has been closely following the progress made and engagement undertaken by Hornsea Three and is ensuring this knowledge and lessons learned are carried over to the Hornsea Four project.</p>	
21	<p>In relation to the compensation measures for the auk features of the Flamborough and Filey Coast SPA, the Applicant is requested to provide further details of the proposed measures. This should include, but not be limited to the following:</p> <p>For the predator eradication strategy:</p> <ul style="list-style-type: none"> Confirmation of the location(s) proposed for the predator eradication, and evidence that the necessary permissions to undertake the measures can be obtained at the location(s). 	<p>Please see below the Applicant's response to each of the points requested regarding further details of the proposed compensation measures for the auk features below:</p> <ul style="list-style-type: none"> Confirmation of the location(s) proposed for the predator eradication, and evidence that the necessary permissions to undertake the measures can be obtained at the location(s) <p>The Applicant has provided comprehensive and well-evidenced compensation plans, identifying a suite of compensatory measures for each of the key species, should compensatory measures be required (noting the Applicant maintains there is no risk of an AEoI for guillemot and razorbill). The Applicant is able to confirm following the completion of the implementation study that the locations proposed for compensation on a 'without prejudice' basis have not changed since the Examination submissions, due to favourable outcomes</p>	<p>The RSPB has reviewed the Applicant's response with regard to:</p> <ul style="list-style-type: none"> Confirmation of location and evidence of permissions Evidence that nest predation is a significant limiting factor <p>Apart from a clearer stated preference for the Herm complex over the Alderney sites, we do not consider the Applicant has provided significant new information that changes the RSPB's analysis of the proposals during the examination.</p> <p>Therefore, we refer the Secretary of State to section 5 in the RSPB REP6-069 to the Hornsea Project Four examination, where we set out our detailed critique of the Applicant's proposals and the information required in order to assess the viability of this proposal.</p>

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	<ul style="list-style-type: none"> • Evidence that nest predation is a significant limiting factor in the breeding success of auk species at the proposed location(s). • Evidence that the auk populations in the proposed location(s) are functionally linked to the populations at Flamborough and Filey Coast SPA. • If the proposed location(s) is outside of the jurisdiction of the UK, evidence that any made Order could adequately secure management of the site. 	<p>of that study. The locations proposed for the predator eradication compensation measure remains as the:</p> <p>Bailiwick of Guernsey:</p> <ul style="list-style-type: none"> ○ Herm: Including Herm, The Humps and Jethou; and ○ Alderney: A number of islands/ islets around the main island. <p>As set out in the B2.8 Flamborough and Filey Coast (FFC) Special Protection Area (SPA) Guillemot and Razorbill Compensation Plan (REP7-027) in paragraph 3.3.3.2, the Applicant states that “During Issue Specific Hearing 12, the Applicant confirmed that their preference would be to focus on the Herm Island complex (Herm, Jethou, including Grand Fauconnière and the Humps (islands and islets within the Ramsar site)), with locations in Alderney providing an adaptive management option.” and the Applicant can confirm the refined site selection and chosen locations has not changed since Examination. Rat free nesting space for guillemot and razorbill is highly limited at these locations. Given the preference for these locations, the Applicant has not found it necessary to further progress matters at Sark in the Bailiwick of Guernsey at this stage, however the islands and islets at Sark remain a viable option if required, as detailed in G1.33 Predator Eradication Island Suitability Assessment: Bailiwick of Guernsey (REP5-057). As set out in Table 6 and paragraph 1.1.1.12 of the G1.33 Predator Eradication Island Suitability Assessment: Bailiwick of Guernsey (REP5-057) and confirmed in paragraph 1.3.1.4 in the B2.8 Flamborough and Filey Coast (FFC) Special Protection Area (SPA) Guillemot and Razorbill Compensation Plan (REP7-027) by</p>	<p>To assist the Secretary of State., in Annex B we have replicated Tables 1 and 3 from REP6-069 which summarise our critique and set out the information we consider the Applicant needs to provide to the Secretary of State before a decision on whether to grant consent for the DCO can be made. This information has not yet been provided.</p>

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		<p>undertaking predator eradication there will be sufficient rat free nesting space available for guillemot and razorbill to compensate for potential impacts. The Applicant's ongoing studies in the Bailiwick of Guernsey in 2022 as detailed in Section 5.1 of the B2.8.4 Compensation measures for Flamborough and Filey Coast (FFC) Special Protection Area (SPA) Predator Eradication Roadmap (REP-031) have provided confidence and have further corroborated the available nesting spaces and delivery of the compensation measure at the locations; the Herm island complex and islands and those islands and islets surrounding Alderney (with guillemot and razorbill populations and recent recorded presence of rats) as locations for adaptive management (as set out in Table 6 of the G1.33 Predator Eradication Island Suitability Assessment: Bailiwick of Guernsey (REP5-057)). The Applicant is confident the compensation is deliverable, scalable and can be secured for the quantum of compensation (if any) the Secretary of State considers is required (see G7.4 Applicants Ornithology Position Paper (REP7-085)).</p> <p>The Guillemot and Razorbill Compensation Plan (REP7-027) sets out the evidence that the necessary permissions to undertake the compensation measures can be obtained at the locations (see also Sections 7 and 8 and in particular paragraph 8.1.1.7 in B2.8.4 Compensation measures for Flamborough and Filey Coast (FFC) Special Protection Area (SPA) Predator Eradication Roadmap (REP7-031)). The States of Guernsey and States of Alderney are Crown dependencies, but the land including the islets and islands is administered by the States. An MoU has been agreed by the States of Guernsey (dated 10th June 2022)</p>	

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		<p>and the Alderney Wildlife Trust⁴ (dated 20th December 2022) providing a framework to ensure support and long term security of the compensation measure in addition to letters of comfort (Appendix A and B of B2.8.4 Compensation measures for Flamborough and Filey Coast (FFC) Special Protection Area (SPA) Predator Eradication Roadmap (REP7-031)). All necessary permissions were granted for the implementation studies and the MOUs set the foundation for future permissions and the Applicant is confident the necessary permissions can be secured due to the agreed MOUs. All compensation measures are feasible and can be delivered while providing flexibility and scalability.</p> <ul style="list-style-type: none"> • Evidence that nest predation is a significant limiting factor in the breeding success of auk species at the proposed location(s). <p>The Applicant has provided a detailed review of evidence to support predator eradication to benefit guillemot and razorbill throughout their various submissions. The Applicant presented within their B2.8.3 Volume B2, Annex 8.3: Compensation measures for FFC SPA: Predator Eradication: Ecological Evidence (APP-196) report evidence which showed invasive mammalian predators have been a significant limiting factor to breeding success across multiple UK colonies. The report highlighted that where breeding locations for guillemot and razorbill are accessible to predators, such as rats, there is a likelihood that mammalian predation will be a limiting factor to breeding success including the Bailiwick of Guernsey.</p> <p>The B2.8.3 Volume B2, Annex 8.3: Compensation measures for FFC SPA: Predator Eradication: Ecological</p>	

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		<p data-bbox="759 236 1379 587">Evidence (APP-196) report showed that when mammalian predators were removed from many of the example colonies, guillemot and razorbill seabird populations responded positively. For example, Section 6.2 of the report demonstrated a threefold increase in guillemot following the successful eradication of rats from Lundy Island (Bristol Channel, UK) in 2004. Similar results were also reported for razorbill and other seabird species (such as Manx shearwater) with success being associated with the removal of rats by the eradication project.</p> <p data-bbox="759 628 1379 1046">The Applicant used this evidence to inform a site selection process to identify other guillemot and razorbill colonies where nesting locations which host and are accessible to invasive mammalian predators. The Applicant presented the results of this process within their B2.8.3 Volume B2, Annex 8.3: Compensation measures for FFC SPA: Predator Eradication: Ecological Evidence (APP-196) report. The Applicant refined the site selection process to a shortlist of islands and islets within the Bailiwick of Guernsey and assessed the potential suitability of shortlisted sites within the G1.33 Predator eradication island suitability assessment: Bailiwick of Guernsey (REP5-057) report.</p> <p data-bbox="759 1088 1379 1372">Due to the majority of the habitat within the shortlisted sites (and indeed, generally across the region) across the Bailiwick of Guernsey being low lying and/ or accessible, most potential, current or historic nesting locations are susceptible to mammalian predators. Table 6 of G1.33 Predator eradication island suitability assessment: Bailiwick of Guernsey (REP5-057) shows that only one location within the Bailiwick of Guernsey is likely to offer habitat which is currently rat free. This coincides with the</p>	

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		<p>location being one of the few sites supporting guillemot in high numbers despite other areas of suitable habitat and the region supporting increasing guillemot populations. It is therefore highly likely that where rats are present at guillemot and razorbill colonies, they are impacting breeding success.</p> <p>Within the Applicant's recent submission, including REP5-082, they have evidenced (using camera traps and other methods such as bait blocks) a high degree of overlap between the potential guillemot and razorbill (some of which historically supported both species) and rat habitat. For example, Figure 7 of REP5-082 shows black rats in Alderney in exactly the same location as the boulders with guillemot prospecting nesting locations. The report (REP5-082) found no un-utilised guillemot habitat which was deemed to be not accessible to mammalian predators was identified by the Applicant across the shortlisted locations.</p>  <p>Trail camera photos of a guillemot nesting area (photo taken in daylight) (left) occupied by a black rat (photo taken at night) (right) (Figure 7 in REP5-082).</p> <p>During surveys in 2021, carcasses of adult auks were identified near a bait box which was the closest bait box to the guillemot nesting area, and the remains of a broken razorbill eggshell were found in a likely nest site with damage indicative of predation (see Figure 6 in G5.4</p>	

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		<p data-bbox="759 236 1350 293">Predator Eradication Implementation Study Update (REPS-082)).</p> <p data-bbox="759 336 1379 555">All locations included within G5.4 Predator Eradication Implementation Study Update (REPS-082) are demonstrated as being suitable and feasible for predator eradication to support guillemot and razorbill. During ISH 12, the Applicant stated their preference would be to focus on the Herm Island complex, with locations in Alderney providing an adaptive management option.</p> <p data-bbox="759 598 1391 1114">The impact of mammalian predation on seabirds in the Bailiwick of Guernsey is recognised by the States of Guernsey “The only work carried out to date has been a research study which identified that the Ramsar site was important for seabird populations and that a rat eradication programme would be beneficial to those populations” (see the letter of support Appendix B in B2.8.4 Compensation measures for Flamborough and Filey Coast (FFC) Special Protection Area (SPA) Predator Eradication Roadmap (REP7-031)). The impact of mammalian predation on seabirds has been recognised by Alderney Wildlife Trust since their early reporting on the Ramsar site (see Section 3.2 and 3.4 including footnotes to the Ramsar Site Annual Review in the G1.33 Predator eradication island suitability assessment: Bailiwick of Guernsey (REPS-057)).</p> <p data-bbox="759 1157 1379 1372">Based on the above summary of information provided by the Applicant to date, the Applicant, and technical experts supporting the potential compensation measure are confident the predator eradication and or control at the identified locations will provide rat free nesting opportunities for guillemot, razorbill and other seabird species, and in turn increase breeding success.</p>	

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		<ul style="list-style-type: none"> Evidence that the auk populations in the proposed location(s) are functionally linked to the populations at Flamborough and Filey Coast SPA. <p>The legal framework for HRA and relevant guidance, do not require the guillemot and razorbill compensation measures to directly benefit the FFC SPA. Instead, they require any necessary compensatory measures are secured to ensure the overall coherence of the UK National Site Network is protected. The aim of compensation is to ensure the coherence of the UK National Site Network for the impacted feature. In order to achieve this, the Applicant has proposed compensation measures within the relevant species biogeographic population range (i.e., the north east Atlantic breeding population of guillemot which includes the <i>Uria aalge albionis</i> and <i>Uria aalge aalge</i> subspecies) from which recruits to the Flamborough and Filey Coast SPA population are drawn.</p> <p>Further information to support this was provided by the Applicant in G3.4.1: Compensation measures for FFC SPA: Ecological Connectivity of Compensation Measures Annex 1 (REP3-034).</p>	<p>Notwithstanding the Applicant's view regarding the need to show the auk populations in the proposed location(s) are functionally linked to the populations at the Flamborough and Filey Coast SPA, the Applicant provides no new evidence on the connectivity of guillemots and razorbills fledged in the Channel Islands to the UK SPA network for these species.</p> <p>The RSPB addressed this matter in section 3 of its REP5-120 to the Hornsea Project Four examination, with particular reference to paragraphs 3.12-3.23, in particular paragraph 3.22, repeated here:</p> <p><i>"For the reasons set out above [3.12-3.21], we do not support the Applicant's claim that there is a sufficient scientific evidence base to conclude the proposed compensation measures for guillemots and razorbills will directly benefit their UK SPA network populations, in particular that of the Flamborough and Filey Coast SPA. In many respects, there is simply no direct evidence currently available e.g.</i></p> <ul style="list-style-type: none"> <i>There are no studies demonstrating that guillemots and razorbills reared in the Channel Islands definitively recruit into the respective UK SPA networks, rather than more locally; and conversely the extent to which the birds encountered in the English Channel will have connectivity with the UK SPA network, in particular the Flamborough and Filey Coast SPA;</i> <i>There is scant evidence demonstrating the location of the natal colonies of non-breeding birds in the English Channel in general, and more critically, the as yet unspecified locations where the Applicant</i>

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			<p><i>proposes to implement its bycatch reduction measures. This is complex as it would need to distinguish between breeding adults and immature birds encountered in the English Channel as these would exhibit different behaviour during the breeding season. Based on Buckingham et al., 2022 it would appear that breeding adult guillemot at individual colonies have distinct non-breeding season spatial strategies."</i></p> <p>In respect of the predator eradication compensation proposals, this was subsequently developed in our detailed critique of the predator eradication compensation proposals set out in Table 1 of REP6-069 (repeated here in Annex B) e.g. see sections on:</p> <ul style="list-style-type: none"> - Extent - Timing. <p>Therefore, we consider the Applicant has failed to provide evidence that any guillemots or razorbills reared in the Channel Islands would eventually breed within the UK SPA network for each species, let alone demonstrate how that would meet the required level to protect the coherence of each species' SPA network.</p>
		<ul style="list-style-type: none"> • If the proposed location(s) is outside of the jurisdiction of the UK, evidence that any made Order could adequately secure management of the site. <p>As provided within the Applicant's Comments to RSPB (REP5-119) (REP5-120), and the Applicant's response to 6.42-6.50 in G3.3 Applicant's comments on other submissions received at Deadline 2 (REP3-031); it is important to note that the Applicant is not seeking to obtain planning consent or land rights to deliver the</p>	<p>The RSPB refers the Secretary of State to pages 17-24 of its REP7-099 submission to the examination:</p> <ul style="list-style-type: none"> - Pages 18-19: This includes a request that the Applicant's MoUs with the States of Guernsey and Alderney Wildlife Trust be submitted to the examination due to the reliance placed on these by the Applicant regarding the long term security of the compensation measures. We note that the Secretary of State has requested copies of these MoUs from the Applicant in his letter dated 9

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		<p>compensatory measures via the DCO. The question of "jurisdiction" is not therefore relevant. Draft DCO provisions to secure compensatory measures for guillemot and razorbill have been provided by the Applicant. These can be included in the Order made by the Secretary of State if he cannot rule out AEoI for those species. These provisions contain a restriction on the operation of the wind turbine generators (which are the subject of the DCO application and within the remit of the Secretary of State) until the predator eradication measure has been carried out. The fact that the predator eradication measure may be carried out in a location outside of the UK (but with connectivity to the UK National Site Network) has no bearing on the ability of the Secretary of State to enforce this provision against the Applicant.</p> <p>It is not necessary for the Secretary of State (or the MMO) to also be responsible for permitting or property rights over the area in which the compensation measures are located. A parallel can be drawn with ANS for kittiwake (accepted on five DCOs to date). The Secretary of State is not responsible for permitting the structures (this will be the local planning authority onshore or the MMO offshore). Property rights are granted by private landowners or The Crown Estate. Responsibility for permitting or granting land rights has no bearing on the ability of the Secretary of State to secure the compensatory measures, and if it were ever necessary, to enforce the provisions of the DCO against the relevant undertaker. Notwithstanding the ability to enforce the DCO, the Applicant has provided sufficient evidence that the Secretary of State can be confident at the point of awarding the DCO that the compensation measures can be secured.</p>	<p>February 2023. We would welcome the opportunity to review these documents once they are made available, in line with our request to the examination in 2022.</p> <ul style="list-style-type: none"> - Pages 19-24: this highlights the need for the Secretary of State to request further documentation from the Applicant to verify claims made in respect of the confidence the Applicant has, for example, that "<i>necessary permissions and consents can be secured</i>". Again these documents were not submitted to the examination for review and should be made available to Interested Parties and Secretary of State for review. - It also highlights that the Applicant's claims of the level of protection that would be afforded to any predator eradication compensation site are at best uncertain and clearly not equivalent to those in the UK.

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		<p>Please see the Applicants above response to question 21 regarding the evidence demonstrating the Applicant can secure the necessary permissions if compensation measures are required.</p>	
21	<p>For the by-catch reduction strategy:</p> <ul style="list-style-type: none"> Evidence that the use of looming eye buoys (LEBs) would significantly reduce the by-catch of auks from the Flamborough and Filey Coast SPA. Details of how the proposed measures will be secured for the lifetime of the project. 	<p>Regarding the bycatch reduction compensation measure:</p> <ul style="list-style-type: none"> Evidence that the use of looming eye buoys (LEBs) would significantly reduce the by-catch of auks from the Flamborough and Filey Coast SPA <p>The evidence presented within B2.8 FFCSPA: Guillemot and Razorbill Compensation Plan (REP7-028) and supporting annexes (including B2.8.2 Compensation measures for FFCSPA: Guillemot and Razorbill Bycatch Reduction: Roadmap (REP7-029)) demonstrates that the proposed measures are capable of compensating for the potential impact on the qualifying guillemot and razorbill features of the FFC SPA as part of a compensation package (as determined by the Secretary of State). Further information on the success of the LEB is provided in G5.13 Bycatch Reduction Technology Selection Phase Summary (REP5-068).</p> <p>Whilst bycatch reduction cannot be undertaken within the FFC SPA, the birds that the compensation measure will prevent the mortality of will assimilate into the biogeographic population of guillemot and the biogeographic population of razorbill thereby ensuring the coherence of the UK National Site Network is maintained. Further information to support this is provided in G3.4.1: Compensation measures for FFCSPA: Ecological Connectivity of Compensation Measures Annex 1 (REP3-034). The bycatch reduction measure is</p>	<p>The RSPB has reviewed the Applicant's response with regard to:</p> <ul style="list-style-type: none"> Evidence that the use of looming eye buoys (LEBs) would significantly reduce the by-catch of auks from the Flamborough and Filey Coast SPA Details of how the proposed measures will be secured for the lifetime of the project; Evidence that the proposed measures will be in addition to any by-catch reduction measures required by UK policy or legislation. <p>In summary, nothing has changed since the examination in terms of the evidence presented by the Applicant. Therefore, we refer the Secretary of State to section 6 in the RSPB REP6-069 to the Hornsea Project Four examination, where we set out our detailed critique of the Applicant's proposals.</p> <p>To assist the Secretary of State., in Annex B we have provided Tables 4 and 5 from REP6-069 which summarise our critique and set out the information we consider the Applicant needs to provide to the Secretary of State before a decision on whether to grant consent for the DCO can be made. This information has not yet been provided including very basic information (also relevant to claims on long-term implementation) such as boat type, gear types, location, time and depth of fishing and bycatch rates.</p>

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		<p>proposed to be deployed within the English Channel during winter (see Figure 1 of B2.8 FFC SPA: Guillemot and Razorbill Compensation Plan (REP7-028)). Ringing data shows connectivity between the English Channel and the wider UK National Site Network, thereby the bycatch reduction measure will provide benefits that will feed back into the UK National Site Network population as well as the relevant biogeographic populations of guillemot and razorbill from FFC SPA (see paragraph 4.2.1.4 of G3.4.1 Compensation measures for FFC SPA: Ecological Connectivity of Compensation Measures Annex 1 (REP3-034)). This is discussed further in Section 4.2 Wintering Connectivity of G3.4.1 Compensation measures for FFC SPA: Ecological Connectivity of Compensation Measures Annex 1 (REP3-034).</p> <ul style="list-style-type: none"> • Evidence that the use of looming eye buoys (LEBs) would significantly reduce the by-catch of auks from the Flamborough and Filey Coast SPA. <p>The Applicant is confident the bycatch reduction compensation if required can be secured for the lifetime of the project. As detailed in G5.13 Bycatch Reduction Technology Selection Phase Summary (REP5-068) during 2021/2022 the Applicant recruited ten vessels to participate in the bycatch reduction technology selection phase. The Applicant has expanded the number of vessels using Looming Eye Buoys (LEBs) during the non-breeding season 2022/2023 (as confirmed in the G5.13 Bycatch Reduction Technology Selection Phase Summary (REP5-068)) and recruited over 30 vessels to use the LEBs with participant contracts signed by all fishers and purchased further LEBs and monitoring systems. Fishers are requested to fish following their normal practice including with regards to location, but to</p>	<p>In addition to those comments, we can now provide an update on one of the trials of LEBs the RSPB has been involved with, which casts further doubts on the Applicant's claims.</p> <p>The RSPB and Fuglavernd - BirdLife Iceland (ISPB) have recently completed a research project testing the effects of LEBs in the Icelandic lumpfish fishery, assessing effects in seabird bycatch rates and target fish catch. A manuscript aiming at peer-review publication is currently in preparation (Rouxel et al. in prep.), and should be submitted soon.</p> <p>The results suggest an <u>absence</u> of effect in terms of seabird bycatch mitigation, including for Guillemot species (i.e. common and black guillemots). We acknowledge that the nature of this fishery and its operative conditions are different to gillnet fisheries operating in UK waters.</p> <p>However, in the absence of scientifically demonstrated evidence from the Applicant, our results seriously question the validity of the Applicant's claim that LEBs are "...capable of compensating for the potential impact on the qualifying guillemot and razorbill features of the FFC SPA...". The Applicant failed to demonstrate reduced seabird bycatch levels during their experiment: there are far too many uncertainties associated with the Applicant's claims.</p> <p>Consistent with our submission to the examination (see Annex B), we consider the current situation is not acceptable from a scientific point of view, and serious corrective actions should be taken by the Applicant to make their experiment and its results more transparent</p>

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		<p>deploy LEBs on each hauling trip and a monitoring system installed so there is no onerous requirements for fishers. The large number of fishers contracted in the 2022/2023 use of the LEB (over three times the amount required to compensate for the impact to guillemot and razorbill, if required (Table 2 in B2.6 Compensation measures for Flamborough and Filey Coast (FFC) Special Protection Area (SPA) Overview (REP7-017)) and the largest implementation of its kind) demonstrates the willingness of fishers to participate. The fishers co- operation would be secured through private contractual arrangements whereby an annual monetary sum (index linked) is paid to individual fishers to secure the measure for the lifetime of the project. It is anticipated that the terms would be substantially the same as in the contracts for the first two years study. Section 6.3 of the Roadmap (B2.8.2 Compensation measures for Flamborough and Filey Coast (FFC) Special Protection Area (SPA) Guillemot and Razorbill Bycatch Reduction Roadmap (REP7-029)) sets out the approach to adaptive management, if required. The compensation measures are part of a suite of compensation measures which provides the benefits of flexibility, scalability and resilience to respond to feedback or requirements identified by the adaptive management process or contribute to the Marine Recovery Fund (or equivalent fund) to enable successful delivery of the compensation (Section 4 of B2.8 Flamborough and Filey Coast (FFC) Special Protection Area (SPA) Guillemot and Razorbill Compensation Plan (REP7-027) and G8.8 Applicant's comments on Natural England's Deadline 7 Ornithology Submissions (REP8-017))).</p> <p>Following DCO consent and if compensation is deemed necessary by the Secretary of State, a long-term supply</p>	<p>and open to scientific scrutiny. In the absence of that, the bycatch reduction proposal from the Applicant cannot be considered a valid compensation measure (separately see our comments on the issue of additionality below).</p> <p>In addition, the Applicant's response reinforces this lack of transparency (contracts with fishers would be substantially the same as for the trial) and makes it clear it would persist for the lifetime of the measure. This would undermine any ability to verify whether the measure was working and more broadly, the UK Government and Devolved Administrations' obligations to minimise and where possible eliminate the incidental catch of sensitive species alongside using an ecosystem-based approach to fisheries management to ensure negative impacts are minimised and where possible reversed.</p>

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		<p>contract will be entered into to supply the technology and ensure its ongoing maintenance. In addition, the Applicant will enter into long term individual agreements with fishers to pay an annual sum for utilising the technology on their boats and monitoring bycatch (see Section 7 of B2.8.2 Compensation measures for Flamborough and Filey Coast (FFC) Special Protection Area (SPA) Guillemot and Razorbill Bycatch Reduction Roadmap (REP7-029)).</p>	
	<p>For the by-catch reduction strategy:</p> <ul style="list-style-type: none"> Evidence that the proposed measures will be in addition to any by-catch reduction measured required by UK policy or legislation. 	<ul style="list-style-type: none"> Evidence that the proposed measures will be in addition to any by-catch reduction measured required by UK policy or legislation. <p>The Applicant confirms that the proposed bycatch reduction measure is in addition to any bycatch reduction measures required by UK policy or legislation. The Marine Wildlife Bycatch Mitigation Initiative policy paper was published in August 2022 (Defra, 2022) and provides information on existing UK government legislation and policy as well as objectives and ambitions to reduce bycatch of seabirds. The paper also lists various related initiatives, workstreams and steering groups which are working to identify the extent of bycatch, trial and implement measures to mitigate and minimise the bycatch of seabirds. Though there are workstreams run by Statutory Nature Conservation Bodies (SNCBs) or Non-Governmental Organisations (NGOs) to conduct research and identify areas for implementation of mitigation measures, no policies or legislation has been identified that enforce the reduction of seabird bycatch in a manner which overlaps with the Applicant's proposals, or which propose to do so. The Applicant's compensation measure is therefore additional to the normal practices</p>	<p>The Applicant's statements in respect of its proposals being in addition to any measures being in addition to those required by UK policy or legislation must first be seen in the context that the Applicant has not put forward a viable compensation measure – see comments above. Therefore, it cannot be considered a bycatch reduction measure and therefore cannot be included in a decision as to whether or not it can be considered additional.</p> <p>Notwithstanding that, the RSPB disagrees with the Applicant's claim that:</p> <p>“there are currently no policy or legislation requirements in parallel to these initiatives which overlap with the Applicant's proposals, or which propose such requirements.”</p> <p>There are legal obligations to address these impacts which will and do intersect with what the Applicant is proposing – see “Policy and legislation related to bycatch” in Defra (2022) Marine Wildlife Bycatch Mitigation Initiative. Therefore, working on the basis that the Government will proceed to meet its legal and policy obligations in respect of bycatch reduction (as set</p>

Ref	BEIS request	Applicant's response (omitting footnotes)	RSPB response
		<p>required for the protection and management of guillemot and razorbill in the UK.</p> <p>The Applicant is aware of the following general policy and legislation which include ambitions to reduce seabird bycatch, however so far as the Applicant is aware no set requirements or enforcement measures have been identified to reduce bycatch which overlap with the bycatch reduction measure proposed by the Applicant:</p> <ul style="list-style-type: none"> • The Fisheries Act 2020 and Joint Fisheries Statement (UK Public General Acts, 2020); • The Marine Strategy Regulations 2010 (UK Statutory Instruments, 2010); • 25 Year Environment Plan (England only) (Defra, 2018); • Scotland's Fisheries Management Strategy 2020 - 2030 (Scotland only) (Scottish Government, 2020); • EU Regulation 2019/1241 (European Parliament and Council, 2019); • The Conservation of Habitats and Species Regulations 2017 (UK Statutory Instruments, 2017a) and The Conservation of Offshore Marine Habitats and Species Regulations 2017 (UK Statutory Instruments, 2017b); • Multilateral environmental agreements e.g., the OSPAR Convention (OSPAR, 1992), the Convention on the Conservation of Migratory Species of Wild Animals (CMS, 2020) and the International Convention for the Regulation of Whaling (IWC, 2022); • The 1995 FAO Code of Conduct for Responsible Fisheries (FAO, 1995); and • Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA, 1999). 	<p>out in the UK Bycatch Mitigation Initiative and Joint Fisheries Statement), it is apparent that the Applicant's proposed approach (if it was ever shown to work) overlaps with those obligations in terms of practical measures to reduce bycatch. For example, Action 3 of the Bycatch mitigation Initiative commits Governments to:</p> <p>'develop, adopt and implement effective measures to minimise and where possible eliminate bycatch and entanglement of sensitive marine species'.</p> <p>To accept the Applicant's argument, the Secretary of State would need to demonstrate how the Applicant's proposal (i) would work to reduce bycatch for the affected species to a level capable of meeting compensation objectives and thereby address the predicted losses to those species' populations incurred at the FFC SPA by the Hornsea Four wind farm, (ii) is additional in practical effect to those measures the Government and Devolved Administrations have committed to develop, adopt and implement and (iii) how this intersects with Governments' obligation <i>inter alia</i> to achieve and report against progress to achieve Good Environmental Status (GES).</p>

Ref	BEIS request	Applicant's response (omitting footnotes)	RSPB response
		<p>The Applicant acknowledges that the EU Regulation 2019/1241 (European Parliament and Council, 2019) references "General restrictions on the use of static nets and driftnets" (Article 9), "Catches of marine mammals, seabirds and marine reptiles" (Article 11) and "Mitigation measures to reduce incidental catches of sensitive species" (Annex 8 Part B). The Applicant confirms that the bycatch reduction proposal is in addition to any of the requirements cited. Specific bycatch reduction technologies mentioned within EU Regulation 2019/1241 refer to the use of line weighting and bird-scaring lines used in longlining, with no mention of specific gillnet bycatch mitigation options.</p> <p>Additionally, the Applicant acknowledges the following initiatives and research led by SNCBs and NGOs:</p> <ul style="list-style-type: none"> • Clean Catch UK (Defra); • UK marine bird bycatch Plan of Action (JNCC/Defra); and • Various research workstreams led by the RSPB (e.g. the Cornwall Bycatch Project (IFCA, 2021) and the demersal longline bycatch reduction project (UK Seafood Innovation Fund, 2022)). <p>Therefore, although SNCBs and NGOs are funding projects to understand seabird bycatch within UK waters, there are currently no policy or legislation requirements in parallel to these initiatives which overlap with the Applicant's proposals, or which propose such requirements. As noted above, the bycatch reduction compensation measure proposed by the Applicant is in addition to UK legislation and policy requirements</p>	

Ref	BEIS request	Applicant's response (omitting footnotes)	RSPB response
		specifically with regards to the protection of guillemot and razorbill in the UK.	

Annex A

Offshore ornithology matters

To assist the Secretary of State, the RSPB presents here the mortalities and consequent Counterfactual of Population Size apportioned to the gannet, kittiwake, guillemot and razorbill populations of the Flamborough and Filey Coast SPA. For gannet these are mortalities from displacement and collision impacts combined, for kittiwake from collision alone and for guillemot and razorbill displacement and barrier effects alone. These have been calculated from the values presented by the Applicant in the tables in appendices D and E of the Applicant's January 2023 Response.

For gannet, we present mortalities as derived from three sets of displacement and consequent mortality rates, combined with mortality arising from collision:

- **For displacement**, we have used:
 - the minimum and maximum of the two ranges favoured by the Applicant (60-80% all year, and breeding 40-60%, non-breeding 60-75%);
 - a *plausible* range of 60-80% advocated by Natural England; and what can be considered
 - a *probable* value of 70%, as reflected in advice to offshore wind farm developments in Scottish waters and preferred by the RSPB.
- **For mortality**, we have used:
 - the 1% rate favoured by the Applicant;
 - a *plausible* range of 1-10% as advocated by Natural England; and what can be considered
 - a *probable* range of 1-3% as reflected in advice to offshore wind farm developments in Scottish waters and preferred by the RSPB.

The collision mortalities are derived from the Applicant's preferred approach to apportionment, the NE and RSPB preferred approach to apportioning, and the preferred avoidance rates, which for RSPB includes a 98% breeding season Avoidance Rate. For gannet we also present the Applicant and NE's range with additional macro avoidance. The RSPB currently does not accept the use of this correction factor, for reason outlined in section 6 of REP7-098.

As kittiwake is only assessed for collision impacts, we have not presented a range of mortalities. This is for clarity and to assist the Secretary of State. However, we stress the importance of also looking at the potential range of values using upper and lower confidence intervals.

For guillemot and razorbill, we present total mortalities as derived from three sets of displacement and mortality rates:

- **For displacement**, we have used:
 - the 50% rate favoured by the Applicant;
 - a *plausible* range of 30-70% advocated by Natural England; and what can be considered
 - a *probable* value of 60%, as reflected in advice to offshore wind farm developments in Scottish waters and preferred by the RSPB.
- **For mortality**, we have used:
 - the 1% rate favoured by the Applicant;
 - a *plausible* range of 1-10% as advocated by Natural England; and what can be considered
 - a *probable* range of 3-5% for the breeding season and 1-3% for the non-breeding season, as reflected in advice to offshore wind farm developments in Scottish waters and preferred by the RSPB.

Also for guillemot and razorbill we present the Applicant's preferred approach and Natural England's "bespoke" approach.

The Counterfactuals of Population Size (CPS), that is the percentage decrease in impacted population size relative to unimpacted population size, have been taken from Appendix E of the Applicant’s January 2023 Response. As the Applicant did not present all the possible annual mortalities, where necessary, we have rounded mortalities to the nearest presented value.

The predicted annual mortalities and CPS values arising from displacement and collision of gannet, collision of kittiwake and displacement of guillemot and razorbill apportioned to the Flamborough and Filey Coast SPA are presented below. The source tables in the Applicant’s Response to RFI dated 16 December from which the figures were derived are listed in the table legend.

Gannet

Table 1. The predicted annual mortality of gannet apportioned to the Flamborough and Filey Coast SPA arising from Hornsea Project Four alone and in-combination and the consequent percentage decrease in impacted population size relative to unimpacted population size (CPS) presented as ranges using the Applicant’s approach, the plausible range and the probable range of displacement and mortality rates, combined with predicted collision estimates. Derived from tables 1, 2, 3 and 6 of Appendix D and table 1 of Appendix E of the Applicant’s January 2023 Response.

	Project alone						In combination					
	Applicant		Plausible/NE		Probable		Applicant		Plausible/NE		Probable	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Displacement	2.8	4.1	5.7	75.7	6.6	19.9	38.1	55.0	54.7	728.9	63.8	191.3
Collision	7.1	7.1	14.6	14.6	26.4	26.4	327.1	327.1	334.7	334.7	453.5	453.5
Collision + MA	1.4	1.4	2.9	2.9	5.3	5.3	65.4	65.4	66.9	66.9	90.7	90.7
Total	9.9	11.2	20.3	90.3			365.2	382.1	389.4	1063.6		
CPS (%)	1.6	1.6	3.1	14.7	4.7	7.7	45.1	45.1	47.4	80.3	55.2	62.0
Total + MA	4.2	5.5	8.6	78.6	11.9	25.1	103.5	120.5	121.6	795.8	154.5	282.0
CPS (%)	0.8	0.8	1.6	11.3			14.7	18.1	18.1	72.6		

Kittiwake

Table 2. The predicted annual collision mortality of kittiwake apportioned to the Flamborough and Filey Coast SPA arising from Hornsea Project Four alone and in-combination and the consequent percentage decrease in impacted population size relative to unimpacted population size (CPS) Derived from tables 9 and 10 of Appendix D and table 2 of Appendix E of the Applicant’s January 2023 Response.

	Project alone			In combination		
	Applicant	NE	RSPB	Applicant	NE	RSPB
Mortality	23.3	71.4	71.4	465.7	513.8	513.8
CPS (%)	0.9	3.2	3.2	18.62	19.5	19.5

Guillemot

Table 3. The predicted annual mortality of guillemot apportioned to the Flamborough and Filey Coast SPA arising from Hornsea Project Four alone and in-combination and the consequent percentage decrease in impacted population size relative to unimpacted population size (CPS) presented as ranges using the Applicant’s approach, the plausible range and the probable range of displacement and mortality rates. Derived from tables 11 and 17 of Appendix D and table 4 of Appendix E of the Applicant’s January 2023 Response.

	Project alone						In combination					
	Applicant		Plausible/NE		Probable		Applicant		Plausible/NE		Probable	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Mortality	39.5	39.5	96.9	2261.6	306.4	694.1	170.8	170.8	175.7	4099.3	824.5	1625.4
CPS (%)	1.3	1.3	3.2	52.9	9.5	22.1	5.6	5.6	5.6	81.6	22.1	44.2

Razorbill

Table 4. The predicted annual mortality of razorbill apportioned to the Flamborough and Filey Coast SPA arising from Hornsea Project Four alone and in-combination and the consequent percentage decrease in impacted population size relative to unimpacted population size (CPS) presented as ranges using the Applicant’s approach, the plausible range and the probable range of displacement and mortality rates. Derived from tables 20 and 26 of Appendix D and table 5 of Appendix E of the Applicant’s January 2023 Response.

	Project alone						In combination					
	Applicant		Plausible/NE		Probable		Applicant		Plausible/NE		Probable	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Mortality	1.9	1.9	9.8	228.1	78.2	156.4	33.9	33.9	29.0	676.1	231.8	463.6
CPS (%)	0.5	0.5	1.1	21.1	7.6	14.6	3.1	3.1	3.1	52.4	21.1	39.5

These figures show, that for **gannet**, the additional mortality predicted to arise through displacement and collision combined will result in the Flamborough and Filey Coast SPA population being a probable **4.7-7.7%** lower after the lifetime of Hornsea Project Four wind farm than it would be without the development, and **55.2-62.0%** lower in-combination with other developments, although plausibly it could be as much as 14.7% lower through the project alone, and 80.3% in combination. Even with the application of the macro-avoidance correction factor plausibly it could be as much as 11.3% lower through the project alone, and 72.6% in combination.

For **kittiwake**, the additional mortality predicted to arise through collision will result in the Flamborough and Filey Coast SPA population being a probable **3.2%** lower after the lifetime of Hornsea Project Four wind farm than it would be without the development, and **19.5%** lower in-combination with other developments.

For **guillemot**, the additional mortality predicted to arise through displacement will result in the Flamborough and Filey Coast SPA population being a probable **9.5-22.1%** lower after the lifetime of Hornsea Project Four wind farm than it would be without the development, and **22.1-44.2%** lower in-combination with other developments, although plausibly it could be as much as 52.9% lower through the project alone, and 81.6% in combination.

For **razorbill**, the additional mortality predicted to arise through displacement will result in the Flamborough and Filey Coast SPA population being a probable **7.6-14.6%** lower after the lifetime of Hornsea Project Four wind farm than it would be without the development, and **21.1-39.5%** lower in-combination with other developments, although plausibly it could be as much as 21.1% lower through the project alone, and 52.4% in combination.

The magnitude of these figures, in comparison to those suggested by the Applicant, has implications for any resulting assessment against the Flamborough and Filey Coast SPA site conservation objectives and any resulting compensation requirements, and whether the currently proposed compensation measures are capable of meeting this scale of impact (see section 3 of RSPB REP6-069 for further discussion on this matter).

Annex B:

Extracts from the RSPB's submissions to the Hornsea Project Four examination: critique of predator eradication and bycatch reduction compensation proposals

Below we have replicated the relevant tables (including original numbering) from the RSPB's REP6-069 to the Hornsea Project Four examination. Based on a review of the Applicant's responses to the Secretary of State's request for further information, we consider they still apply.

Kittiwake artificial nesting structure compensation proposals (replicated from RSPB REP6-069 to the Hornsea Project Four examination)

Table 6: the RSPB's overall rating of the Hornsea Four artificial nesting structure compensation measure for Kittiwake and recommended actions

RSPB's OVERALL RATING OF COMPENSATION MEASURES FOR KITTIWAKE
- Artificial nesting structures (offshore and onshore)
<p>Summary</p> <p>Detailed concerns set out in previous submissions remain:</p> <ul style="list-style-type: none">- Lack of agreement on magnitude of impact to be compensated for (see section 2, Annex A)- Lack of agreement on the methodology to convert those impacts to compensation objectives;- whether nesting habitat is a limiting factor for breeding kittiwakes in the southern North Sea and whether any new structure will be used by additional breeding adults as opposed to existing adults choosing to redistribute;- whether and over what timescale any new colony will achieve the target population and also recruit breeding adults to the UK National Site Network for kittiwakes, including FFC SPA;- lack of a meta-population analysis to clarify the dynamics between any proposed artificial nesting structure and SPA/other colony populations: elucidating the feasibility of establishing the proposed colonies and the consequences of such colony establishment on the populations of other colonies, in particular FFC SPA;- the lead-in time for the proposed compensation in relation to the point at which impact will occur and the lifetime of the compensation measure in relation to damage. <p>Review of the most recent materials confirms fundamental issues remain relating to the securing of (i) a location and (ii) a regulatory pathway agreed with the relevant regulators to allow the repurposing of an offshore oil or gas structure for compensation purposes.</p> <p>Further information is required on the Applicant's proposals, with particular reference to:</p> <ul style="list-style-type: none">- A secured location for the proposed Artificial Nesting Structure- If this is a repurposed offshore structure, details of agreement with the relevant regulatory authorities on the regulatory pathway that will secure that structure for the lifetime of the compensation measure.- If it is an alternative ANS, details of the relevant agreements that secure the location and any regulatory requirements.- Details of the design of the relevant ANS, compensation objectives, implementation, monitoring, reporting and adaptive management strategies. <p>Due to the uncertainty on these critical matters in respect of a repurposed offshore ANS, there is currently significant doubt as to whether the Applicant will be able to bring forward an artificial nesting structure, where that structure will be, what form it will take and whether any other barriers remain in respect of securing the compensation measure.</p>

Predator eradication compensation proposals (replicated from RSPB REP6-069 to Hornsea Project Four examination)

Table 1: the RSPB’s comments on the Hornsea Four predator eradication compensation measure proposal against compensation criteria

EC criteria [See Table 4 in REP2-089 for fuller description]	RSPB RAG rating (Red, Amber, Green)	RSPB key observations based on current proposals and information provided
Targeted <ul style="list-style-type: none"> - Appropriate to impact predicted - Shared understanding and agreement on impacts - Address structural/functional aspect of site integrity affected 		<ul style="list-style-type: none"> - Focus of documents is on guillemot (see para 1.1.1.12, REP5-058, Island Suitability Assessment) based on the assumption that the compensation requirements for razorbill are low and suitable nesting sites will be available. (See Extent and paragraphs 3.7-3.8 above on magnitude of compensation.) - The Applicant frequently equates presence of a predator (e.g. rat) in a colony of birds with predation. While it presents limited evidence of this in some locations, more substantive evidence is needed to distinguish between scavenging and predation in order to assess any claimed benefit. - Lack of coherent strategy with clear, defensible eradication units, and incomplete information (see Effective, Technically Feasible and Location) mean it is not possible to determine if the measure will target guillemot and/or razorbill in practical terms. - No assessment of impacts of proposed plans on non-target species (see also Technically Feasible).
Effective <ul style="list-style-type: none"> - Based on best scientific knowledge. Scientific evaluation carried out - Specific to the location to be implemented - Clearly defined timescales - Feasible and operational in reinstating required conditions - Measures where no reasonable guarantee of success should not be considered 		<p>The RSPB welcomes the work to date and the various statements that surveys into breeding birds, habitat suitability and presence of INNS are ongoing. This raises the prospect that relevant, fuller information may be acquired in due course and could be made available to Interested Parties and the Secretary of State as part of a post-examination consultation process.</p> <p>However, due to the lack of a coherent strategy at this stage (which could have given confidence in how such information would be analysed and applied by the Applicant in any future Feasibility Study etc), we are unable to rate this as Amber.</p> <p>Breeding bird presence/habitat suitability</p> <ul style="list-style-type: none"> - Variation in quality of source information used for assessment is not clear on a site by site basis. - Methodology on use of pictures of islands is unclear. No explanation given as to why, for

EC criteria [See Table 4 in REP2-089 for fuller description]	RSPB RAG rating (Red, Amber, Green)	RSPB key observations based on current proposals and information provided
		<p>islands which were photographed, all areas of suitable cliff not photographed.</p> <ul style="list-style-type: none"> - Methodology for each site should be summarised in a table. Do not consider sites assessed without local expert knowledge or where oblique images used to make measurements. <p>Assessing benefit to guillemot/razorbill</p> <ul style="list-style-type: none"> - Documents make general assumption (without evidence) that breeding productivity will automatically be enhanced by removal of INNS without ruling out other factors that may explain the absence of guillemot or razorbill or them not occupying all suitable habitat (see also Targeted). - This feeds into the strong implication (e.g. paras 5.1.1.1-2 in REP5-082 Predator Eradication Implementation Study Update) that islands will be colonised by guillemot and razorbill after eradication, regardless of whether the Applicant has confirmed presence of rats or not and, in particular, whether the absence of the birds on those islands is due to rats or other factors. For example, the claim of “profound benefits” to guillemot and razorbill from rat eradication in para 3.2.1.3 of REP5a-019 (Predator Eradication and control: Opportunities within the Bailiwick of Guernsey). - Whilst it is not necessary to know if rats are present on every island within an eradication unit (as a precautionary approach should be taken and all islands within the unit should be assumed to host rats and hence be baited) it IS necessary to have this information if the calculation of benefits to guillemot and/or razorbill is based on the assumption that rats ARE present, when in fact that information is not known. - Therefore, for some of the possible islands there may be no benefit to guillemots or razorbills, despite the assumptions made by the Applicant. - No productivity analysis is yet presented to demonstrate relevance of this assumption to potential locations. Only one productivity dataset is intended to be provided (post examination): a single season will not account for natural fluctuation. Therefore, assumed benefits are unproven and certainly not site specific at this stage.

EC criteria [See Table 4 in REP2-089 for fuller description]	RSPB RAG rating (Red, Amber, Green)	RSPB key observations based on current proposals and information provided
		<p>Use of A24 traps to reduce predation pressure</p> <ul style="list-style-type: none"> - Given rat density is already low, it is unclear what benefit there will be in the use of these traps.
<p>Technically feasible</p> <ul style="list-style-type: none"> - Design must follow scientific criteria and evaluation in line with best scientific knowledge - See also Effective 		<ul style="list-style-type: none"> - No feasibility assessment: the Feasibility Study (which addresses 7 criteria specific to eradication schemes) is explicitly deferred until after the examination (e.g. see para 5.1.3.9-5.1.3.12 in REP5-031, Roadmap Version 4, in particular logistical considerations). Compounded by lack of explicit site selection (see Location below). - Incomplete surveys and results: Incomplete information, alongside assumptions rather than evidence. Not all sites have yet been surveyed for: <ul style="list-style-type: none"> o Breeding bird presence or habitat suitability (compounded by inconsistent survey and assessment methods) o Presence/absence of INNS. 9 of the 19 islands/islets listed in Table 6 (REP5-058) were not surveyed to confirm presence/absence. As set out above, while it is appropriate to assume INNS presence from a baiting operation perspective, it cannot be assumed that baiting a site that may or may not host rodents will benefit razorbill or guillemot. - No clear eradication strategy set out: lack of detail on how eradication at each island/island group will be undertaken, what the eradication units will be, and what is being committed to e.g. eradication to zero density or merely ongoing control. <ul style="list-style-type: none"> o Implication that Sark will only be subject to “control” perpetuating risk of continued reinvasion of adjacent islets (see para 5.3.1.1 in REP5-082).

EC criteria [See Table 4 in REP2-089 for fuller description]	RSPB RAG rating (Red, Amber, Green)	RSPB key observations based on current proposals and information provided
		<ul style="list-style-type: none"> - Use of A24 traps: the implication that, post-eradication, reliance will be placed on the use of Goodnature A24 kill traps to reduce predation pressure. Given the recorded rat density is low already, it is not made clear what the benefit will be of this measure, nor is evidence provided of A24 efficacy in similar situations. - Community support: demonstration of community support inadequate – based on very low sample (see separate comment below, paragraphs 5.15-5.21) - No assessment of other risk factors: No assessment/mention of other factors that increase risk of failure/incursion, nor how they would be managed. For example, presence of waste management sites on Alderney close to some potential sites. No data presented that assesses the risks to non-target species (see also Targeted). - Lack of biosecurity plan: no biosecurity plan presented and unclear when it will be put in place e.g. see paragraph 3.1.1.1 in REP5a-019 and reference to use of adaptive management for biosecurity. This cannot replace need for detailed biosecurity plan.
Extent <ul style="list-style-type: none"> - Relates directly to quantitative and qualitative element of integrity likely to be impaired - Estimated effectiveness of measure - Key uncertainties identified and factored in - [If no reasonable guarantee of success should not be considered] 		<ul style="list-style-type: none"> - Agreement has yet to be reached on the scale of the impact to be compensated for on guillemot and razorbill from the Flamborough and Filey Coast SPA. This is due to the delays in the submission of updated baseline characterisation and revised impact assessment information until Deadlines 5 and 5a (see Annex A for the RSPB’s view on the new information). - Agreement would then need to be reached on: <ul style="list-style-type: none"> o the scale of impact to be compensated for each species; o how that should be converted into relevant population metrics in order to describe robust compensation objectives, including number of birds that need to be recruited into the UK National Site Network population each year (see paragraphs 3.7-3.8 above) o Detailed assessment of the likely effectiveness of the proposed compensation measure in the selected island/island group in respect of improvements in productivity; o Assessment of the likely level of connectivity of birds reared in the selected location to the species’ UK

EC criteria [See Table 4 in REP2-089 for fuller description]	RSPB RAG rating (Red, Amber, Green)	RSPB key observations based on current proposals and information provided
		<p>National Site Network and the likely level of recruitment of those birds into the population in that National Site Network (see also RSPB REP5-120, section 3 on connectivity, especially paragraphs 3.12-3.23).</p> <ul style="list-style-type: none"> o From this, an adjustment could be made (ratio) to determine the number of additional breeding pairs and fledged young required each year. <p>- At present we do not have agreement on any of these matters and serious concerns with regard the level of connectivity, let alone the likely level of successful recruitment.</p>
<p>Location</p> <ul style="list-style-type: none"> - Located where they will be most effective to protect coherence of species' National Site Network - Must be able to provide ecological structure and functions required by species 		<ul style="list-style-type: none"> - Lack of site selection strategy: No site selection strategy presented, how islands/islets or groups of islands will be categorised for selection purposes, and no final site selection. - No coherent approach to site selection: currently no discernible coherent approach to site selection. Lack of structured approach to island/island group selection, what is scoped in and out. Compounded by incomplete information on INNS presence, evidence of predation, benefit to guillemot/razorbill. - Opaque approach to reinvasion risk: the Applicant has, to date, failed to set out its approach to the identification of eradication units. Instead, it has focused on describing individual islands/islets. This non-standard practice makes it difficult to discern its likely eradication strategy. <p>Other issues include:</p> <ul style="list-style-type: none"> o Lack of biosecurity plan means no current information on how Applicant has identified and intends to manage natural and assisted reinvasion risks. o The RSPB does not accept that a site 50m from a source population of black rat is highly likely to be reinvaded but an island 52, 54 or 55m would be at significantly reduced risk of reinvasion by the species. <ul style="list-style-type: none"> - Island characteristics: Table 6 (island suitability update, REP5-058) requires improvement and confirms view that strategy is not clear: <ul style="list-style-type: none"> o Refers only to guillemot o Only 10 out of 19 islands confirmed to have rats present.

EC criteria [See Table 4 in REP2-089 for fuller description]	RSPB RAG rating (Red, Amber, Green)	RSPB key observations based on current proposals and information provided
		<ul style="list-style-type: none"> o Does not state which species of rat present. Each poses different risk to guillemot and razorbill (see RSPB REP2-093, section 4). o Does not state distance from each island to those islands where no intention of eradicating rodents. This is an essential characteristic to understand.
<p>Timing</p> <ul style="list-style-type: none"> - Must provide continuity in ecological processes to maintain structure/functions contributing to species' National Site Network - No irreversible damage before compensation operational - Should be fully functional before damage occurs - All technical, legal or financial provisions completed before project implementation starts to prevent delays to effective compensation 		<ul style="list-style-type: none"> - Significant problems remain that pose challenges in respect of ability to implement a successful predator eradication programme as a compensation measure, and therefore the timing and effectiveness of implementation in respect of compensating for the predicted damage: <ul style="list-style-type: none"> o Lack of site selection strategy and associated Feasibility Study, Implementation Plan, Biosecurity Plan for expert assessment o Lack of full survey results in respect of breeding seabirds, and presence/absence of INNS o Lack of robust assessment on potential benefit of proposed strategy to guillemot and/or razorbill; o Lack of robust assessment of benefit to UK National Site Network for guillemot and razorbill. - This includes a fuller understanding of: <ul style="list-style-type: none"> o The timescales over which any benefits to guillemot and razorbill will accrue at the predator eradication sites; o The magnitude of any improvements in productivity against current (baseline) productivity; o The sustainability of any positive changes in population and productivity, including long term recruitment to Guernsey; o The likelihood of any birds reared in Guernsey being recruited into the UK National Site Network for either species and the timescales for achieving that, given the long-delay before fledged birds reach breeding age (typically 5-6 years for guillemot and 4-5 years for razorbill). This is likely to result in a considerable time lag before any benefit to the UK National Site Network occurs (even assuming that such benefits accrue, which the RSPB considers to be unsubstantiated e.g. see comments on connectivity in REP5-120).

EC criteria [See Table 4 in REP2-089 for fuller description]	RSPB RAG rating (Red, Amber, Green)	RSPB key observations based on current proposals and information provided
Long-term implementation <ul style="list-style-type: none"> - Legal rights to secure and implement compensation measures in place prior to consent being granted - Financial security secured - Protection, monitoring and maintenance of sites secured before consent - In place for as long as impact on affected SPA occurs 		<ul style="list-style-type: none"> - Lack of precise strategy and locations means legal rights cannot be guaranteed to be secured prior to consent being granted; - Lack of clarity over level of protection to be afforded selected locations (c.f. UK Government policy to afford compensation sites that same level of protection as SPAs and SACs) - Lack of commitment to maintain the compensation in place for as long as impact on affected SPA occurs. Commitment is only for 35 year lifetime of wind farm plus 3 years.
Additionality <ul style="list-style-type: none"> - Measures must be additional to those already required - Able to demonstrate claimed benefits are additional to current baseline (e.g. breeding population, productivity etc) 		<ul style="list-style-type: none"> - The fundamental challenge is the ability to demonstrate: <ul style="list-style-type: none"> o If any benefit will accrue at the local (Channel Islands) level e.g. whether any apparent population change is simply birds redistributing or responding to other factors besides the predator eradication o Whether any local (Channel Islands) benefit that is observed will result in benefit to the UK National Site Network for the species. - Using Alderney as an example: <ul style="list-style-type: none"> o Inclusion of locations (e.g. Fourquie, La Nache) where predator control work is already underway is inappropriate and would not be compensation. In addition, given the proximity of e.g. Fourquie, La Nache to the main island of Alderney, and the ongoing risk of reinvasion, this should not be considered eradication. o A defensible eradication including these islets would need to include Alderney itself. Only Burhou (more than 2km from Alderney) would avoid the need to include Alderney in its eradication unit. o L’Etac de la Quiore: no rats present and no guillemots breeding, with no explanation as to why. Unclear how this could offer additionality.

Table 3: the RSPB’s overall rating of the Hornsea Four predator eradication compensation measure for Guillemot and Razorbill and recommended actions

RSPB’s OVERALL RATING OF COMPENSATION MEASURE FOR GUILLEMOT AND RAZORBILL		
- Predator eradication		
<p>Key issues to resolve revolve around the inadequate evidence base underpinning the Applicant’s proposals. Below we set out the actions required to address these prior to the Secretary of State carrying out further consultation with interested parties.</p> <ul style="list-style-type: none"> - Lack of coherent strategy for identifying islands/island groups for predator eradication and associated detailed documents; - Inadequate evidence to demonstrate benefit to breeding guillemot and razorbill of proposed eradication strategy; - Lack of evidence of connectivity of guillemots and razorbills from Channel Islands to respective UK National Site Networks. 		
RSPB observation/ Issue	Action required by the Applicant	What would this provide?
Lack of coherent strategy for identifying islands/island groups for predator eradication and associated detailed technical documents	<p>Prior to determination of DCO by Secretary of State, submit full versions of the following documents for review by Interested Parties:</p> <ul style="list-style-type: none"> - Project selection, including coherent strategy and rationale for scoping islands/island groups in and out - Feasibility Study - Implementation Plan (Project Plan, Operational Plan, Monitoring & Evaluation Plan) - Biosecurity and Emergency Response Plan. 	<p>Full information for review by Interested Parties to assess:</p> <ul style="list-style-type: none"> - feasibility of predator eradication proposals - benefit to guillemot and razorbill - evidence that guillemots and razorbills reared in Channel Islands will recruit to respective UK National Site Networks at required scale to protect coherence of those networks
Inadequate evidence to demonstrate benefit to breeding guillemot and razorbill of proposed eradication strategy	<p>Prior to determination of DCO by Secretary of State, submit full versions of the following for review by Interested Parties:</p> <ul style="list-style-type: none"> - Provision of full breeding bird and INNS survey and monitoring results; - Detailed rationale and evidence, based on chosen eradication strategy and selected locations, to demonstrate benefit to breeding guillemot and razorbill through increases in productivity and survival over and above existing levels experienced at the selected locations. 	<p>Advice from Interested Parties will ensure Secretary of State can take a fully informed and rational decision in respect of whether the compensation measure will protect the coherence of the UK National Site Network for guillemot and razorbill.</p>
Lack of evidence of connectivity of guillemots and razorbills from Channel	<p>Prior to determination of DCO by Secretary of State, submit full</p>	

RSPB's OVERALL RATING OF COMPENSATION MEASURE FOR GUILLEMOT AND RAZORBILL

- Predator eradication

Islands to respective UK National Site Networks	<p>version of the following for review by Interested Parties:</p> <ul style="list-style-type: none"> - Provision of additional evidence to demonstrate level of connectivity between guillemots and razorbills reared in Channel Islands and those recruited into respective UK National Site Networks 	
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Bycatch reduction compensation proposals (replicated from RSPB REP6-069 to Hornsea Project Four examination)

Table 4: the RSPB's comments on the Hornsea Four bycatch reduction compensation measure proposal against compensation criteria

EC criteria [See Table 4 in REP2-089 for fuller description]	RSPB RAG rating (Red, Amber, Green)	RSPB key observations based on current proposals and information provided
Targeted <ul style="list-style-type: none"> - Appropriate to impact predicted - Shared understanding and agreement on impacts - Address structural/functional aspect of site integrity affected 		Looming Eye Buoys (LEB) remain unproven for bycatch reduction <ul style="list-style-type: none"> - The proposed bycatch reduction measures remain unproven as the presented analysis of the trial results are not scientifically robust (see Effective). As a result, these measures are currently inappropriate as compensation for impacts on guillemot or razorbill. Razorbills absent from trial <ul style="list-style-type: none"> - No razorbills were caught during the LEB experimental or control trials, therefore there is no way of knowing if LEBs would reduce bycatch of razorbills (to address the impact of the development) even if proven for guillemot. LEBs remain untested for razorbill. Unclear impact on target site species <ul style="list-style-type: none"> - It is unknown if bycatch reduction in the south of England would benefit the birds from FFC SPA given lack of evidence on connectivity (see RSPB REP5-120, section 3, comments on connectivity).
Effective <ul style="list-style-type: none"> - Based on best scientific knowledge. Scientific evaluation carried out - Specific to the location to be implemented 		Insufficient statistical analysis <ul style="list-style-type: none"> - The Applicant "<i>presents a comparison of proportion of guillemot bycatch in control versus LEB nets in order to assess the potential for LEBs to reduce guillemot bycatch in gillnets.</i>" (REP5-068, Page 14, 2.5.1.1).

EC criteria [See Table 4 in REP2-089 for fuller description]	RSPB RAG rating (Red, Amber, Green)	RSPB key observations based on current proposals and information provided
<ul style="list-style-type: none"> - Clearly defined timescales - Feasible and operational in reinstating required conditions - Measures where no reasonable guarantee of success should not be considered 	Red	<ul style="list-style-type: none"> - And claims “LEBs have reduced the level of bycatch of guillemot within a commercial gillnet fishery by approximately 25% within a 50 m radius”. (REP5-068, Page 19, 4.1.1.4). <p>This 25% metric is not scientifically robust because:</p> <ul style="list-style-type: none"> - It does not highlight if results are statistically significant or coincidental. - It does not allow for adequate scientific scrutiny and the analysis is not presented in a way that is repeatable by others. - This metric seems to be calculated by cross multiplying the percentage of nets that caught at least one guillemot in LEB nets (42.9%) versus control nets (57.1%)- this is not recognised as an effective way to calculate bycatch reduction. Standard analyses would require either paired sampling designs, and comparison of bycatch rates (bycatch per unit effort) in LEB and control nets, or zero-inflated models that account for; variation in space, time, effort, and fishing gear on bycatch rates, and can accommodate the large number of fishing events where no bycatch occurs. - It presents the proportion of nets with/without bycatch, which indicates nothing of the magnitude of bycatch events or the overall intensity. - There is no indication of sample size, so 25% could mean control nets caught 4 birds and LEBs 3. - It cannot be used to interpret whether the level of bycatch reduction is credible and of sufficient magnitude to offset any loss from windfarms. - Pseudoreplication- the Applicant states, “where guillemot bycatch were recorded more than once for an individual net, these were considered as separate catching events.” (REP5-068, 2.5.1.3, page 14). Modelling events that occur in the same net separately, unless properly accounted for in the modelling strategy (for which no evidence is provided), introduces the risk to erroneously find statistical evidence for an effect that does not exist, because data are effectively duplicated and sample size is artificially increased, thus inflating the power to detect an effect (even though none may exist). Scientific bycatch research treats each net as a single datum with the number of birds per net (effort) providing a bycatch rate- this avoids pseudoreplication. - There is no error distribution specified and it is therefore not possible to independently

EC criteria [See Table 4 in REP2-089 for fuller description]	RSPB RAG rating (Red, Amber, Green)	RSPB key observations based on current proposals and information provided
		<p>evaluate whether the assumptions of the model are likely to be met, or what response variable was modelled.</p> <p>The Applicant has not provided any rationale for why they have used bycatch proportions as a metric rather than aggregated numbers and an associated bycatch rate in both control and experimental nets. The bycatch rate (number of birds caught per km per net per day) should be provided as a scientifically recognised metric used in bycatch research. Bycatch rate could be presented in an entirely anonymised way, so as not to implicate individual fishers. The scientific literature on seabird bycatch mitigation provides many examples of how to do this, using specific statistical analysis, which does not appear to have been conducted here.</p> <p>Scientific data omitted The Applicant omits key details from the trial findings (REP5-068) that are fundamental to any robust scientific bycatch evaluation, including:</p> <ul style="list-style-type: none"> - Fishing effort and sample size- data were collected from 9 fishers, but there are no details provided on: the gear that was used (see point below), how long it was in the water, and the number of hauls, along with the sample size used in their analysis. For example, for each fisher, data could be from 1 net over 1 season or 1 net a day. If nets vary in length between 50 and 500 metres, then counting the nets is not the same as accounting for equal fishing effort. - Gillnet type - gillnets vary greatly (mesh size, length, etc.), so this small sample could be from a very diverse range of gillnet types and therefore statistical weight of their sample size might be lower. - Location and time- bycatch is hugely variable in time and space, the Applicant has not provided the range of locations and time of bycatch/ fishing. The RSPB is aware, from its own trials, that there is significant variation in the nets used depending on time of day and location along the south coast of England. Likewise, bycatch risk might be elevated at certain times of day which can also inform mitigation design – see the RSPB’s recent paper, Cleasby et al (2022)¹ assessing bycatch

¹ Cleasby, I. R., Wilson, L. J., Crawford, R., Owen, E., Rouxel, Y., & Bolton, M. (2022). Assessing bycatch risk from gillnet fisheries for three species of diving seabird in the UK. *Marine Ecology Progress Series*, 684, 157-179.

EC criteria [See Table 4 in REP2-089 for fuller description]	RSPB RAG rating (Red, Amber, Green)	RSPB key observations based on current proposals and information provided
		<p>risk from gillnet fisheries for three diving seabird species.</p> <ul style="list-style-type: none"> - Experts that reviewed the data are completely unknown, so it is unclear if they have suitable credentials to analyse the data. - Data collection details: <ul style="list-style-type: none"> o location of cameras on boats. o proportion of bycatch events that were identifiable (ability to identify species from an image of a bird carcass in a net). o proportion of bycatch self-reported by fishermen versus from cameras. o method to verify self-reported bycatch (e.g with camera footage). o Confirmation that the control nets were identical to the experimental nets. o Bycatch reduction results for the other species they caught. - Variables -The Applicant references statistical models to account for variables, but the results of these are not presented. They present basic percentage of trials with bycatch for sea state, wind speed and time of day; but that does not equal a proper statistical model analysis and does not take into account key variables including those listed above (fishing effort, location etc.). <p>Insufficient data collection Whilst the methodology for collecting the data is promising, albeit limited by an absence of transparency, data from one season cannot provide a comprehensive enough scientific sample to confidently assess bycatch reduction (see ACAP guidance² and our previous submission REP4-058).</p> <p>Lack of data transparency See paragraph 6.2. Unfortunately, without access to the data there is no way to check any of the Applicant’s analyses.</p> <p>See also Location and Timing.</p>
<p>Technically feasible</p> <ul style="list-style-type: none"> - Design must follow scientific criteria and evaluation in line with best scientific knowledge - See also Effective 		<p>ACAP best practice</p> <ul style="list-style-type: none"> - The proposed bycatch reduction measures are not in line with ACAP Best Practice guidance³ - The Applicant has not provided sufficient evidence to support their claims - the way

² ACAP (2021) ACAP Review of mitigation measures and Best Practice Advice for Reducing the Impact of Pelagic Longline Fisheries on Seabirds. In: ACAP - Twelfth Meeting of the Advisory Committee. Online.

³ ACAP (2021) ACAP Review of mitigation measures and Best Practice Advice for Reducing the Impact of Pelagic Longline Fisheries on Seabirds. In: ACAP - Twelfth Meeting of the Advisory Committee. Online

EC criteria [See Table 4 in REP2-089 for fuller description]	RSPB RAG rating (Red, Amber, Green)	RSPB key observations based on current proposals and information provided
		<p>results and methodology are presented crucially lacks scientific best practice.</p> <p>Other research The Applicant continues to draw incorrect conclusions from scientific studies, principally Rouxel et al (2021). As stated in REP5-120, author of the paper, Yann Rouxel (RSPB Bycatch Project Manager), has confirmed that comparing this paper to the Applicant’s research is inappropriate given the fundamental differences between the two studies.</p> <p>Similar trials have not found similar results. Preliminary results from trials conducted in other gillnet fisheries are not supportive of the claimed effectiveness at 25% bycatch reduction of guillemots.</p>
<p>Extent</p> <ul style="list-style-type: none"> - Relates directly to quantitative and qualitative element of integrity likely to be impaired - Estimated effectiveness of measure - Key uncertainties identified and factored in - [If no reasonable guarantee of success should not be considered] 		<ul style="list-style-type: none"> - Agreement has yet to be reached on the scale of the impact to be compensated for on guillemot and razorbill from the FFC SPA. This is due to the delays in the submission of updated baseline characterisation and revised impact assessment information until Deadlines 5 and 5a (see Annex A for the RSPB’s view on the new information). <p>Integrity of razorbill and guillemot/ target species</p> <ul style="list-style-type: none"> - To date the Applicant has not provided qualitative or quantitative evidence that bycatch reduction can compensate for the impacts on the integrity of FFC SPA arising from Hornsea 4 and its impacts on razorbill and guillemot from FFC SPA. Notwithstanding the absence of transparent data and multi-year trials, the lack of a bycatch rate means it is not possible to calculate the scale of bycatch reduction measures (if proven) required for compensation. <p>LEB remains unproven and uncertain</p> <ul style="list-style-type: none"> - Fundamental uncertainties remain around the effectiveness of LEBS (see Effective) - In the absence of robust scientific analysis there is no reasonable guarantee of success as LEB remains unproven.
<p>Location</p> <ul style="list-style-type: none"> - Located where they will be most effective to protect coherence of species’ National Site Network - Must be able to provide ecological structure and functions required by species 		<ul style="list-style-type: none"> - It is unknown if bycatch measures in the south of England, even if proven, will benefit razorbill and guillemot from FFC SPA. This is due to: <ul style="list-style-type: none"> o difficulty in knowing which colony a bycaught bird comes from; and o the lack of evidence on connectivity between the bycatch trial locations

EC criteria [See Table 4 in REP2-089 for fuller description]	RSPB RAG rating (Red, Amber, Green)	RSPB key observations based on current proposals and information provided
		(unknown) and the Flamborough and Filey Coast SPA, as well as other SPAs designated for guillemot and razorbill in the UK National Site Network (see RSPB REP5-120).
<p>Timing</p> <ul style="list-style-type: none"> - Must provide continuity in ecological processes to maintain structure/functions contributing to species' National Site Network - No irreversible damage before compensation operational - Should be fully functional before damage occurs - All technical, legal or financial provisions completed before project implementation starts to prevent delays to effective compensation 		<ul style="list-style-type: none"> - Although the Applicant has stated they can commence the bycatch reduction scheme in one year, this is on the basis of a one season trial which is not in line with best practice. Multi- year trials should be conducted <u>before</u> the measures are agreed and implemented – the Applicant has not committed to, or accounted for, the additional time required to conduct more trials before implementation.
<p>Long-term implementation</p> <ul style="list-style-type: none"> - Legal rights to secure and implement compensation measures in place prior to consent being granted - Financial security secured - Protection, monitoring and maintenance of sites secured before - In place for as long as impact on affected SPA occurs 		<p>Uncertainty of participation over 35 years</p> <ul style="list-style-type: none"> - No confirmation how the Applicant will ensure there are sufficient participating fishers over the 35 year period (RSPB disputes this time period as too short) or how bycatch compensation measures will interplay with future regulation and fisheries management (see REP2-092). <p>Long term risk of using an unproven measure</p> <ul style="list-style-type: none"> - When implementing bycatch reductions measures over a long timescale it is vital to get the starting point right, with thoroughly tested and proven measures. The economic impacts on fishers need to be considered. If this is not done correctly it will risk damaging relationships with fishers, if measures are found to be ineffective, and could jeopardise trials and uptake of more advanced robust bycatch reduction measures in the future. <p>Monitoring</p> <ul style="list-style-type: none"> - Monitoring of the compensation effectiveness and bycatch rates will be crucial, yet the exact method of monitoring will be decided based upon further evidence gathering and discussion with industry experts- this is not best practice. A monitoring programme needs to be detailed and agreed before the examination closes and before implementation.

EC criteria [See Table 4 in REP2-089 for fuller description]	RSPB RAG rating (Red, Amber, Green)	RSPB key observations based on current proposals and information provided
<p>Additionality</p> <ul style="list-style-type: none"> - Measures must be additional to those already required - Able to demonstrate claimed benefits are additional to current baseline (e.g. breeding population, productivity etc) 		<ul style="list-style-type: none"> - There are a series of existing general policy and legislative commitments at national, regional seas and global scales that require the UK Administrations to act on wildlife bycatch in UK waters. - As previously stated in REP2-092, governments are required to monitor and address bycatch of sensitive species – including seabirds. - Developers and decision-makers must recognise 1. there is a question of additionality, when governments are required to address bycatch and 2. that the policy and legislative approach to addressing wildlife bycatch is currently very dynamic. - The UK Administrations are currently developing a series of policies that should see the introduction of further measures to address wildlife bycatch issues in UK waters, most notably these include: <ul style="list-style-type: none"> o The UK Fisheries Act (2020) o The UK Marine Strategy (part 3 - programme of measures) o The UK Bycatch Mitigation Initiative and o Seabird Conservation Strategies in each of the four countries - The introduction of regulations and legal frameworks could require fishing practices to change which could impact the developer's compensation proposals or ability to implement them.

Table 5: the RSPB's overall rating of the Hornsea Four bycatch reduction compensation measure for Guillemot and Razorbill and recommended actions (taken from Table 9 in the RSPB's Hornsea Project Four REP6-069)

RSPB's OVERALL RATING OF COMPENSATION MEASURE FOR GUILLEMOT AND RAZORBILL		
- Bycatch reduction		
<p>Key issues to resolve revolve around the inadequate evidence base underpinning the Applicant's proposals. Below we set out the actions required to address these prior to the Secretary of State carrying out further consultation with interested parties.</p> <ul style="list-style-type: none"> - Expert (peer) review; - Absence of scientifically robust statistical analysis (bycatch rates) - Lack of detail on variables; - Dataset not comprehensive; - Missing data collection details; - Insufficient modelling of variables; - Pseudoreplication/ Error distribution. 		
RSPB observation/ Issue	Action required by the Applicant	What would this provide?
Expert (peer) review	<ul style="list-style-type: none"> - Provide detail on the fisheries, ornithologist and statistical experts that conducted the data and statistical analysis including 	<ul style="list-style-type: none"> - Confidence that the results of the trial have been verified by an independent third-party bycatch expert and a robust peer review.

RSPB's OVERALL RATING OF COMPENSATION MEASURE FOR GUILLEMOT AND RAZORBILL

- Bycatch reduction

	<p>their credentials and who is paying them.</p> <ul style="list-style-type: none"> - The RSPB requests that the Applicant authorise a confidential review by an independent expert in seabird bycatch data analysis. - The RSPB would like to offer the Applicant the opportunity to share their data confidentially with the RSPB's bycatch experts including Yann Rouxel, Bycatch Project Manager, developer of the LEB, and Steffen Opper, Senior Scientist and experienced analyst of seabird bycatch data. <p>Alternatively, the RSPB can recommend experts from leading independent scientific organisations (Zoological Society of London, University of Washington or the British Trust for Ornithology).</p>	<ul style="list-style-type: none"> - Confirmation and evidence that the results of the bycatch reduction trials to date are as effective as the Applicant states, so that Interested Parties and the Secretary of State can determine the level of confidence that can be placed in the results.
Absence of scientifically robust statistical analysis (bycatch rates).	<ul style="list-style-type: none"> - Calculate and share the bycatch rates for all birds and specific species (this can be done without sharing the underlying data). - Describe data analysis conducted in the methods such that it is repeatable 	<ul style="list-style-type: none"> - Bycatch rates would allow the Applicant to say how many birds they could save through bycatch reduction measures. - Provide a repeatable analytical method- a basic foundation of sound science.
Lack of detail on variables	<p>Provide detail, for the range of experimental LEB and control nets, on:</p> <ul style="list-style-type: none"> - Fishing effort - Sample size - Gillnet type - Location and times 	<ul style="list-style-type: none"> - An ability to understand the basis for any analysis and subsequent claims around efficacy.
Dataset not comprehensive	<ul style="list-style-type: none"> - Conduct multi- year trials 	<ul style="list-style-type: none"> - Best-practice, wider diverse sample size, more confidence.
Missing data collection details	<p>Provide detail on the below factors influencing data collection:</p> <ul style="list-style-type: none"> - location of cameras on boats. - proportion of bycatch events that were identifiable (ability to identify species from an image of a bird carcass in a net). - proportion of bycatch self-reported by fishermen versus from cameras. - method to verify self-reported bycatch (e.g with camera footage). - Confirmation that the control nets were identical to the experimental nets - Bycatch reduction results for the other species they caught 	<ul style="list-style-type: none"> - These are again elements of the experiment which will have an influence on the results – it is important to present these such that the robustness of the results can be scrutinised and assessed. - Ability to evaluate over what area and time horizon the results can be extrapolated. If mitigation works only at certain times of the year the annual mortality reduction would be lower than when you assume that the reduction is constant across all seasons.

RSPB's OVERALL RATING OF COMPENSATION MEASURE FOR GUILLEMOT AND RAZORBILL - Bycatch reduction		
Insufficient modelling of variables	<ul style="list-style-type: none"> - Conduct statistical models to account for variables (including fishing effort), and present findings. 	<ul style="list-style-type: none"> - Reassurance that the described effect is real and supported by valid data and analysis.
Pseudoreplication/ Error distribution	<ul style="list-style-type: none"> - Data need to be analysed with a Poisson distribution (numerical response), or some other approach must be taken to overcome the pseudoreplication issue for binary data. - If the trials are strictly paired then a simple paired t-test would be sufficient to assess the differences. 	<ul style="list-style-type: none"> - Magnitude of the bycatch reduction (in absolute and not just relative terms) to evaluate whether the scale of mortality reduction can indeed compensate for the scale of windfarm-induced mortality.