



THE PLANNING ACT 2008

THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES

2010

Sheringham Shoal Extension and Dudgeon Extension Offshore Wind Farms

Appendix L to the Natural England's Deadline 1 Submission

Natural England's Response to Examining Authority's First Written Questions

For:

The construction and operation of the Sheringham Shoal Extension and Dudgeon Extension Offshore Wind Farms located approximately 16km and 27km respectively from the Norfolk Coast in the Southern North Sea.

Planning Inspectorate Reference: EN010109

20th February 202

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Natural England's (NE's) responses to the Examining Authority's (ExA) first set of Written Questions and requests for information (WQ1) published on 02 February 2023. Natural England has only included responses on those questions directed to NE by the ExA or pertain to our remit.

Q1.3. Benthic ecology, Intertidal, Subtidal and Coastal effects			Natural England Response
Q1.3.1 Effects on Marine Life and Benthic Habitats including through Cable Installation Methods			
Q1.3.1.1	Local Authorities Environment Agency Natural England Royal Society for the Protection of Birds Marine Management Organisation	Intertidal and Subtidal areas Are you content with the Applicant's assessment of the adverse effects of the use of long HDD to bring the export cables ashore at landfall [APP-094]? Explain with reasons.	With regard to the rugged outcropping chalk, Natural England is content with the Applicant's assessment of the adverse effects of the use of long HDD to bring the export cables ashore at landfall. However, we have concerns with other aspects relating to subcropping chalk and the HDD exit pits. Please see our Relevant Rep Appendix G at Section 4 [RR-063]
Q1.3.1.2	Natural England	Benthic Ecology Recovery Time Comment on the Applicant's assertion that a full recovery of benthic habitats and communities for SEP and DEP is anticipated within two years of construction [APP-094, Paragraph 164].	The Applicant's assertions are predominantly based on the existing Sheringham Shoal and projects. However, cable protection was not used for these projects. That is not the case for SEP and DEP. Natural England notes that impacts where cable protection

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			<p>has been placed on the seabed from protection will persist for the entire project lifetime. Further, there is the likelihood that scour protection may not be fully decommissioned at the end of the lifetime of the project.</p> <p>Where protection is not used, while recovery occurs, Natural England is not in a position to say that it will occur within 2 years. Due to the Rochdale approach of the application, there are uncertainties outstanding.</p>
Q1.3.1.7	Applicant	<p>Cable Protection in the MCZ</p> <p>NE states regarding the MCZ states [RR-063, Appendix G, Paragraph 6,]: "<i>Of particular concern is the area of mixed sediment within the cable corridor, which has a more diverse community. Should cable protection be placed in this location then the conservation objectives to restore/maintain features will not be achieved</i>". In responding to this point, explain how the conservation objectives of the MCZ can be maintained or restored if cable protection is used in this area.</p>	Natural England will review the Applicant's Response.
Q1.3.1.8	Applicant	<p>Cumulative Effect to MCZ</p> <p>NE [RR-063 Appendix G, Paragraph 9 and 10] state that "<i>the O&M phase activities for DEP (and or) SEP combined with DOW, SOW, Hornsea Page 5 Project Three and on-</i></p>	Natural England will review the Applicant's Response.

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		<p><i>going Oil and Gas impacts will result in lasting habitat change / physical disturbance which will further hinder the conservation objectives of the CSCB MCZ” and that “The risk of, and observed, reduction in designated habitat extent which has occurred and/or is predicted to arise from the above developments has meant that the MCZ is highly likely to be taken further away from its required conservation state in the future.”</i> In that regard provide further explanation why the ES (APP-094, Paragraph 333] concludes that the cumulative effects on the MCZ with other projects amounts to only minor adverse significance.</p>	
<p>Q1.3.1.9</p>	<p>Natural England Marine Management Organisation</p>	<p>Micro-Siting Are both the MMO and NE content that the use of micro-siting can avoid adverse impacts to Annex I / UK BAP priority habitat <i>S. spinulosa</i> reefs and the UK BAP priority habitat 'peat and clay exposures with piddocks.'</p>	<p>Natural England is content with the inclusion of micro-siting as mitigation. However, we note within Appendix A of our RR a query is outstanding on how this mitigation is being secured within the dML. We advise this should also include the potential presence of Annex I stony reef habitat.</p> <p>We draw your attention to findings from previous installations that for other projects due to the prevalence of features, it has not always possible to completely avoid impact to Annex I / priority habitats. beyond reasonable doubt</p>

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			<p>Micro-siting reduces the risk of impact, but where impact cannot be avoided allows for discussion of reducing that impact.</p> <p>Please note that there are also micro-siting requirements to mitigate for other factors, such as archaeology features, technical requirements and other constraints that need to be considered. These additional requirements can limit the ability to micro-site the cable around ecological features.</p>
Q1.3.2 Impact on subtidal chalk features			
Q1.3.2.1	Applicant	<p>Effects of HDD Exit Pits</p> <p>NE [RR-063 Appendix G, Paragraph 15] advises against the HDD exits pits being located in an area of subcropping chalk, with concern over cable protection use on chalk features within the MCZ. What alternatives were considered in this regard, and why were they dismissed?</p>	<p>We draw the ExA attention to Point Q1.3.1.1 above. Natural England will review the Applicant's Response.</p>
Q1.3.2.2	Natural England Marine Management Organisation	<p>Micro-siting and Chalk Features</p> <p>Are both the MMO and NE content that the use of micro-siting can avoid adverse impacts to chalk features within the MCZ</p>	<p>Please see our advice on subcropping chalk within our Relevant Rep at Appendix G Section 4 [RR-063] and our response to Point Q1.3.1.1 above.</p>
Q1.3.3 Coastal erosion effects and coastal processes			

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Q1.3.3.1	Applicant Natural England	Coastal Impacts It is noted that there would be use of HDD to link the offshore cables with landfall, but is it anticipated that there would be any impact to coastal features such as the cliffs or any other coastal processes?	<p>Natural England notes the Applicant did not present evidence of any historical cliff recession or beach profile data that were used to inform the proposed setback distance and HDD cable burial depth at landfall. Therefore, it is not clear how the proposed onshore infrastructure setback distance and landfall cable burial depth have been calculated, nor how the influence of climate change has been accounted for in these calculations.</p> <p>The shoreline at landfall is characterised by easily eroded glacial till cliffs overlying a chalk base and fronted by a steep narrow shingle beach. At Weybourne Hope there are also low-lying areas and cliffs. We understand that the beach at the nearshore area is dynamic with elevational changes of up to 3m and the coast is experiencing ongoing cliff and nearshore seabed erosion. It is also understood that the Environment Agency no longer actively manages the barrier beach here, thus allowing it to roll back in future. Therefore,</p>
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			we would advise that if/when consent is granted, that the most up-to-date cliff retreat and beach profile data should be sought by the Applicant to inform appropriate setback distances for onshore infrastructure at landfall and cable burial beneath the beach/shore platform. This quantitative assessment should include consideration of the potential influence of climate change on likely future cliff erosion and beach profile change rates.
Q1.3.4 Effects on the Marine Conservation Zone			
Q1.3.4.1	Marine Management Organisation Natural England Norfolk Wildlife Trust East Inshore Fisheries and Conservation Authority Royal Society for the Protection of Birds	Measures of Equivalent Environmental Benefit (MEEB) The Applicant has proposed planting of oyster beds with the Marine Conservation Zone (MCZ) as a MEEB [APP-084]. In this respect: a) Of the options set out in Table 7-1 [APP-083], do you agree with the Applicant's assessment of the feasibility of providing other MEEB? b) If the answer to (a) is no, set out what options are available or preferred instead of oyster bed planting? c) Would the planting of a 1ha oyster bed in itself have ramifications for the composition and quality of the MCZ or would it be a superficial surface element unlikely to upset the balance of the conservation objectives?	a) We refer you to our Relevant Rep Appendix G [RR-063] Section 9 comments on the Applicants options. Natural England is supportive from an ecological perspective for progression of an oyster bed. b) N/A c) Natural England has already highlighted the ramifications. See our Relevant Rep points 20 to 23 where we requested re-location of MEEB to an area less

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		<p>d) Would the oyster bed (not currently within the MCZ) attract different fish, prey and predator species to the area?</p> <p>e) Would the oyster bed, directly or indirectly, support the food resource for foraging birds?</p> <p>f) What is the likelihood of success of oyster beds establishing in the locality and what confidence can the ExA place upon this MEEB in recommending to the SoS BEIS about discharging their obligations under the MCA?</p>	<p>likely to impact on the conservation objectives of the site.</p> <p>d) Based on the compensation hierarchy (see https://consult.defra.gov.uk/marine-planning-licensing-team/mpa-compensation-guidance-consultation/supporting_documents/mpacompensatorymeasurebestpracticeguidance.pdf) It is Natural England's preference for MEEB to be delivered within the MCZ.</p> <p>e) Natural England queries which bird species the ExA is referring to. It is probable the oyster bed may provide a resource for water birds e.g., Annex I common scoter RTD, but not sandwich terns.</p> <p>f) Natural England advise establishment can take some time but is no less certain than other benthic MEEB at this moment. As with all MEEB there is a level of uncertainty as they are untested. However, we recognise native oysters have</p>
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			been present historically in this area. Please see NE Relevant REP [RR-063].
Q1.3.4.3	Natural England Environment Agency Marine Management Organisation Norfolk Wildlife Trust East Inshore Fisheries and Conservation Authority Royal Society for the Protection of Birds	<p>MEEB and Sandeels</p> <p>Sandeels are considered an important part of the food resource for bird species, including kittiwakes and sandwich terns [APP-069].</p> <p>a) Could sandeel habitat be artificially formed and sustained in the MCZ?</p> <p>b) If so, would that area be afforded protection from the fishing industry due to the designation?</p>	<p>a) MEEB are designed to offset impacts to <u>Benthic</u> features of the MCZ. Any habitat restoration /re-creation to improve productivity for Annex I kittiwakes and sandwich terns is compensation to improve the productivity of those species. The most appropriate location would be within current foraging locations, which are outside of the MCZ. Please see our comments on positive measures that could be undertaken to improve local Annex I sandwich tern populations.</p> <p>b) MEEB and oyster bed would be protected from fishing until it can be considered sustainable. All MEEB areas would be afforded protection to reduce the impact to those features from all pressures to an acceptable level.</p>
Q1.3.4.4	Applicant	Condition Assessment for the Marine Conservation Zone	As the SNCB with responsibility for updating the conservation

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	Marine Management Organisation	In the absence of any official condition assessment, what assumptions can be made with regards to the condition and quality of the MCZ [APP-084] and the desirability for its conservation?	advice and condition assessment, Natural England advises the Cromer Condition Assessment is likely to be submitted in spring 2023. We will provide further update at Deadline 2.
Q1.3.4.5	Marine Management Organisation	<p>Marine Conservation Zone position statement</p> <p>Confirm, in a simple tabular format, whether you are content with the Applicant's assessment of effects, mitigation, MEEB and conclusions regarding the Marine Conservation Zone, or if more work is required.</p> <p>Suggested table headings:</p> <p>Species / Agree methodology (Y/N) / Agree assessment of effects (Y/N) / mitigation suitable (Y/N) / MEEB suitable (Y/N) agree conclusions (Y/N)</p> <p>The table produced will also be requested for the final deadline in the Examination to provide a summary of where outstanding issues, if any, remain. This may form part of the statement of common ground.</p>	Natural England has spoken to the MMO and recognise this is our remit. We will respond on this for Deadline 2.

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Q1.7. Commercial Fisheries and Fishing			
Q1.7.2 Effects on fishing enterprises as a result of navigational or special restrictions			
Q1.7.2.1	<p>Applicant Trinity House Maritime and Coastguard Agency Natural England East Inshore Fisheries and Conservation Authority Interested Parties</p>	<p>Restricted Fishing</p> <p>The ES states: <i>"The Applicant considers the most effective way this could be achieved would be to restrict fishing on sandeel, and with respect to prey availability for Sandwich tern, sprat or juvenile herring in UK waters. However, this would need to be implemented either by Defra in the case of sandeel or the relevant Inshore Fisheries and Conservation Authority (IFCA) in the case of sprat and juvenile herring fisheries within UK inshore waters."</i> [APP-069, Paragraph 127].</p> <p>All</p> <p>a) What is your assessment of the economic effects on fishing communities if such restrictions were imposed?</p> <p>Applicant</p> <p>b) How would DEFRA or the IFCA implement such fishing restrictions?</p> <p>c) How would such restrictions be secured in the dDCO and could the dDCO be able to compel another organisation to enact such restrictions?</p> <p>d) Do the powers of a Development Consent Order allow for the imposition of byelaws or restrictions of the type suggested in the ES?</p>	<p>Please refer to Natural England's cover letter [RR-063]. Natural England's remit does not cover advice on the economic effects for any sector.</p>

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Q1.10. Design			
Q1.10.1 Design Principles			
Q1.10.1.1	Applicant Local Authorities Statutory Bodies Interested Parties	<p>Suitability and Adequacy of the Applicant’s Approach to Design</p> <p>a) Has the Applicant satisfied the requirements set out in NPS EN-1 Section 4.5 in relation to sensitivity to place and contributing to the quality of the area in which the infrastructure would be located?</p> <p>b) Clarify, with reasons, whether you believe that design outcomes relating to proposed elements of infrastructure, structure and buildings proposed within the order limits, flood risk, landscape and ecology are sufficiently well developed within the application documents.</p> <p>c) Confirm, with reasons, whether you believe that noise mitigation measures and construction structures related to the construction compound should also be considered as part of the Applicant’s approach to design. Applicant may respond.</p>	As Natural England provided our detailed response within our Relevant Representations [RR-063], we consider our response has been provided. We also refer you to our Onshore Ecology SoCG with the Applicant at Deadline 1.
Q1.10.2 Design Development Process			
Q1.10.2.1	Applicant Local Authorities Statutory Bodies Interested Parties	<p>Design Development Process</p> <p>a) Provide further detail of the structured framework within which the Applicant has carried out its design process to date, giving detail of the key milestones which have been reached within that process and setting out which elements of the overall design have been fixed at this stage.</p> <p>b) Set out the main stages of the remainder of the design process required to fully develop the Applicant’s design of the Proposed Development in the event that its application is granted Development Consent, giving an indication of expected deliverables and timescales wherever possible and indicate how this process will be secured within the draft DCO.</p> <p>c) Provide an outline description of the design professional disciplines that have contributed to the Applicant’s design process to date.</p>	Natural England considers all items of this question are for the Applicant to respond and we have no further comment to make. We reserve the right to respond to the Applicant’s response

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		d) Set in further detail how the Applicant's design principles – established in its Design and Access Statement [APP-287] – are secured within the draft DCO	
Q1.10.2.2	Applicant Local Authorities Statutory Bodies Interested Parties	Design Review Comment, with reasons, if the Applicant should seek independent design review advice in line with the policy recommendation in NPS, Paragraph 4.5.5.	Natural England does not consider this is within our remit for response.

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Q1.11. Draft Development Consent Order			
Q1.11.2 Definitions			
Q1.11.2.3	Applicant Interested Parties	<p>Maintain</p> <p>Justify if the drafting "<i>to the extent assessed in the environmental statement</i>" is an adequate bar in the definition of maintain to limit maintenance activities authorised under the dDCO and the dDMLs to those that are assessed within the ES.</p>	Natural England notes that the Applicant has produced an Outline Operations and Maintenance Plan (OOMP) as part of the application. This document is a certified document and provides details on the operations and maintenance requirements for the offshore aspects of the project based on the details provided in the Environmental Statement. It may provide greater clarity post consent if the definition referred to this document for the offshore aspects of maintain.
Q1.11.3 Schedules			
Q1.11.3.3	Natural England	Article 6 – Disapplication and modification of legislative provisions	Natural England has no comment to make

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	Environment Agency Affected Persons	<p>a) EA, are there any concerns regarding the scope of the provisions sought to be modified or disapplied?</p> <p>a) Do Affected Persons have any concerns regarding the disapplication of the provisions of the Neighbourhood Planning Act 2017 relating to the temporary possession of land as proposed in Article 6(1)(e)?</p>	on the disapplication of this part of the Neighbourhood Planning Act 2017.
Q1.11.3.12	Applicant Interest Parties	<p>Article 45 – Modification of DOW section 36 consent</p> <p>a) Article 45, is a novel provision in this dDCO, and the ExA is seeking input from parties if they have concerns or support for the provision and drafting, and implications for future applications for development consent. Applicant may respond.</p> <p>b) Applicant, submit into Examination, further details of Riverside Energy Park Order 2020 that has been referred to as precedence, including a brief description of the relevant context.</p>	Natural England does not have any observations on the wording of Article 45 specifically, but we do question if a DCO has the ability to change an already granted consent for another project, consented under different legislation. We recommend the ExA seeks advice on this issue.
Q1.11.6 Draft Deemed Marine Licences			
Q1.11.6.1	Applicant Marine Management Organisation	<p>Timeframes for determinations</p> <p>a) MMO, concern has been raised regarding a four-month lead-in period for review and decisions from the MMO on detailed submissions. Set out what periods for consultation would be reasonably achievable, and in line with other made OWF DCOs.</p> <p>b) Applicant, what are the implications to construction programme and viability of providing additional time, as requested by MMO for the discharge of approvals.</p>	Natural England has provided comment on this condition as part of Annex A of our relevant representation [RR-063]. Noting that we have concerns with the overall timing of most of the pre-

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			construction conditions and a specific concern with relation to condition 15 (3) of part 2 of the dMLs.
Q1.11.6.2	Applicant Marine Management Organisation	Outline Offshore Operation and Maintenance Plan The ExA are concerned regarding the 'amber' items highlighted within the Relevant Representation [RR-053], particularly that additional licences may be required "if proposed works exceed those assessed within the ES or described within the DCO." What is the likelihood / probability of the works falling outside of the scope of the DCO or causing greater effects than assessed as the worst-case scenario in the ES?	Natural England notes that most consented Offshore Wind Farm projects apply for smaller licences or variations to their original licence to change/extend different aspects of their consent. This covers such activities as UXO detonation, additional cable protection, change in installation methodology and a range of other activities. These additional consents are often sought due to increased information from the pre-construction surveys which highlight an

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			unforeseen or greater than anticipated need.
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Q1.12. Habitats and Ecology Offshore		
Q1.12.1 Effects on Ornithology		
Q1.12.1.1	Natural England Royal Society for the Protection of Birds	<p>Quality of Data</p> <p>There are instances within the ES [APP-097, Paragraphs 172, 240, 313] where the Applicant raises issues with data and the approach taken to using it. In these respects:</p> <p>a) Are you concerned that, in several places, the Applicant has stated “it was not considered possible to produce reliable and precise design-based density estimates for offshore ornithology receptors for DEP-N and DEP-S, only DEP as a whole” and, if so, do you consider that this undermines the Applicant’s conclusions on the significance of adverse effects?</p> <p>b) Is it appropriate and proportionate for the Applicant to have relied upon written sources to gather data across the export cable corridor rather than undertaking baseline ‘on-site’ surveys?</p> <p>c) The Applicant acknowledges departing from Natural England’s suggested mortality rates, because such rates are higher. Do you consider there to be sufficient justification for this departure and if not, why not?</p> <p>d) Are you content with the approach undertaken with regards to assessing the overall effects of the Proposed Development considered alongside other projects?</p>
		<p>a) The survey was designed to ensure sufficient coverage (i.e. number and width of transects) of DEP as a whole, with the expectation that the assessment will be conducted at this level (i.e. assessing the impact of DEP as a whole). Conclusions regarding the worst-case impacts of DEP Rochdale envelope on offshore ornithology are therefore not undermined. The fact that that it is not possible to produce estimates for sub-sections of the overall DEP area does somewhat undermine the confidence in an assessment of impact of DEP N alone or DEP S alone. Should there be a need to consider the impacts of DEP N alone or DEP S alone as the</p>

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			<p>Examination progresses, there will need to be careful consideration as to how best to account for the lack of DEP-N and DEP-S specific density estimates. The applicant refers to encounter rate, corrected by transect length of the two sub-sections. However, transect length may not be the most appropriate measure of difference in the two sub sections footprints. While it is still possible to draw conclusions, it does need to be recognised that there is reduced confidence in the quantitative outputs that relate to DEP-N or DEP-S alone, which Natural England would reflect in their advice should that be sought by the ExA.</p> <p>b) This approach is in line with that taken by other OWF projects with export cable corridors through red-throated</p>
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			<p>diver (RTD) SPAs and is acceptable to Natural England. The data in Lawson et al (2016) currently represents the best available evidence on RTD abundance and distribution in the Greater Wash SPA.</p> <p>Natural England recommend applying a range of both displacement and mortality rates, as described and presented in the ES (and Appendices). We do not consider there to be sufficient evidence to justify reducing the range of mortality rates to exclude the higher rates considered in the assessment, nor indeed basing the assessment of impacts on single values for displacement and mortality.</p> <p>c) The justification provided by the applicant</p>
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			<p>centres on comparing population level mortality rates (for example the total annual mortality experienced by for RTD is 22.8%) with impact specific rates. This is not a useful direct comparison. To illustrate this, if we were assessing a pollution event, we might predict that 50% of RTD within 1km of the oil spill would die (i.e. 50% mortality rate). This is not undermined by the fact that the overall annual mortality rate is 22.8%, it is simply that part of that total mortality is made up by some individuals being caught up in an oil slick. The same is true for the individuals subject to displacement, except that our evidence base is extremely limited when it comes to mortality arising from displacement, hence the SNCB guidance advising</p>
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			<p>the use of a range of mortality rates.</p> <p>d) Please see Natural England advice in relation to in-combination effects raised in our Relevant Reps [RR-063]. As advised, Natural England will need to receive up-to-date cumulative and in-combination assessments for review before we can provide our final advice.</p>
Q1.12.1.3	Natural England Royal Society for the Protection of Birds	<p>Use of a Scientific Study</p> <p>In Relevant Representation [RR-083], in relation to studies on seabird activity, it states that the study undertaken by Cook in 2021 has not been adopted by SNCBs and therefore cannot be relied upon for its data on collision risk modelling.</p> <p>a) Are the findings of Cook 2021 currently disputed?</p> <p>b) What is the process of adoption for a scientific paper and is there a timescale in which such an evidence base would be either adopted or rebuked (reported on)?</p> <p>c) What would be an appropriate equivalent evidence base from which evidence could be relied upon that you say the Applicant should have referred to instead?</p>	<p>a) – b) The findings in Cook et al 2021 have been superseded by a follow up review conducted by the University of Exeter (Ozsanlav-Harris et al in prep), in response to some data issues identified. To provide some background to this: In 2020 Natural England commissioned the BTO to undertake a new review of all available studies with the aim of combining avoidance</p>

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			<p>rates (ARs) from the sites presented in Cook et al. (2014), with those derived from the ORJIP study (Bowgen & Cook, 2018), and any additional sites with available appropriate data, to provide avoidance rates based on data across a range of sites. This resulted in the Cook 2021 paper. MacArthur Green undertook a critical review of Cook 2021, which highlighted some concerns with the way the data was used to calculate avoidance rates, in particular the influence of one particular windfarm on overall avoidance rates. In response to these concerns, JNCC commissioned further review and sensitivity analysis (Ozsanlav-Harris et al in prep). We are awaiting the publication of this paper; however, it has been appraised and reviewed by a project steering group that</p>
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			<p>included a variety of expert stakeholders (SNCBs, RSPB, industry).</p> <p>In the specific case of gannet, Natural England recommends a methodology to estimate gannet collision risk which aims to account for three issues. Firstly, that all ARs calculated (by Ozsanlev-Harries et al, in prep, Cook 2021, Cook 2014) are 'within-windfarm' avoidance rates; secondly, there is not a gannet specific AR (i.e there is no data on gannet collisions to inform an AR); and thirdly that there is a growing evidence base that gannets exhibit some level of macro-avoidance i.e. avoiding OWF arrays altogether. The methodology recommended requires the reduction of density of birds in flight by an agreed macro-avoidance rate as an input to the</p>
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			<p>CRM, followed by using an 'all gulls' AR within the CRM.</p> <p>An evidence report has been commissioned by Natural England to inform the selection of appropriate, evidence led macro avoidance rates. This report is in review, awaiting finalisation and publication. Until this is available, we recommend reducing density of gannet in flight going into the CRM by a representative range of macro-avoidance rates of between 65% - 85% (or select a single rate of 70%), based on the current evidence base detailed in Cook (2021).</p> <p>SNCBs and industry seek to identify key evidence needs and commission projects that will inform these. In the case of Avoidance Rates several papers have been commissioned, some published (e.g. Cook</p>
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			<p>2021) and some are awaiting publication (Ozsanlav-Harris et al in prep, the gannet macro-avoidance evidence review). Once papers are published then SNCBs can issue a joint SNCB guidance note (as per SNCBs 2014). In the meantime, Natural England has produced an interim guidance note advising the use of avoidance rates in Ozsanlav-Harris et al (in prep) and details of how to account for gannet macro-avoidance. This was submitted as part of our Relevant Rep (RR-063).</p>
Q1.12.1.4	Natural England	<p>Project Environment Management Plan and Red-throated divers</p> <p>A number of mitigation measures for red-throated diver are listed in the PEMP [APP-297, Section 5.1].</p> <ul style="list-style-type: none">a) Comment on the effectiveness of the proposed mitigation measures.b) Comment on the Applicant's conclusion on the residual effects as assessed in the ES.c) What further measures do you think could be implemented to mitigate the adverse effects upon the species?	<p>In our Relevant Representations [RR-063], we highlight that there is potential for SEP and DEP to make contributions to the in-combination impacts for the RTD of the Greater Wash SPA, and that the extent of this</p>

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			<p>contribution is as yet unclear. We also advised that we could not confirm that the proposed mitigation for impacts on vessel movements would be sufficient and that the need for seasonal restrictions could not be ruled out.</p> <p>We are expecting further information from the Applicant to be submitted at Deadline 1. Once we have reviewed this submission we will update the Examination as regards c) – e).</p>
<p>Q1.12.2 Effects on Aquatic Wildlife including Mammals, Fish and Shellfish</p>			
Q1.12.2.1	Natural England	<p>Published Guidance</p> <p>Update the ExA on any recently published guidance documents by Natural England that are applicable to the Proposed Development, setting out whether the Proposed Development complies with or goes against such guidance.</p>	<p>Natural England has not recently published any guidance documents that are applicable to the proposed development in relation to marine mammals, fish and shellfish. Any guidance documents are referred to in our relevant representations [RR-o63]</p>

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Q1.12.2.5	Applicant Marine Management Organisation Natural England	Recreational Activity It is known that recreational boat trips take place from Blakeney to view seals along the North Norfolk Coast. a) What would the impacts be on recreational boat trips from the Proposed Development? b) Would there be a cumulative effect upon seals arising from construction/maintenance vessels for the Proposed Development and the continued recreational tourist boat trips?	a) Natural England advises this question should directed to the Applicant. b) If the Applicant committed to a vessel code of conduct during all phases of development, as suggested in General Comment 2 [RR-063], then there should be negligible risk of a cumulative effect on seals from the Project and recreational tourist boat trips. Natural England is not aware of any assessment of the impact from recreational tourist boat trips on seals along the North Norfolk Coast. Without such an assessment it is not possible to comment on the level of impact that may occur cumulatively between the Project and the continued
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			<p>recreational tourist boat trips.</p> <p>We advise the MMO may be better positioned to advise on this question, if they are aware of any assessment of recreational tourist boat trips.</p>
Q1.12.2.6	Marine Management Organisation	<p>Marine Mammals Position Statement</p> <p>Confirm, in a simple tabular format, whether you are content with the Applicant's assessment of effects, mitigation and conclusions regarding harbour porpoise, minke whale, white-beaked dolphin, grey seal and harbour seal, or if more work is required. Suggested table headings: Species / Agree methodology (Y/N) / Agree assessment of effects (Y/N) / mitigation suitable (Y/N) / agree conclusions (Y/N)</p> <p>The table produced will also be requested for the final deadline in the Examination to provide a summary of where outstanding issues, if any, remain.</p>	<p>Natural England advises that this falls within our remit. Please see out response in NE Table 1 Q1.12.2.6 Marine Mammals Position Statement – NE Response.</p>
Q1.12.2.7	Natural England	<p>Scope of the Marine Mammal Mitigation Protocol</p> <p>Your relevant representation [RR-063] states the Marine Mammal Mitigation Protocol, does not provide any mitigation for disturbance. The Applicant said at ISH1 [EV-012] [EV-016] that this document does not serve the purpose of setting out mitigation in relation to disturbance and no other examples apparently do this. Do you have any examples of MMMPs that do provide mitigation for disturbance or what content, in particular, would you expect / wish to see contained in the MMMP?</p>	<p>As outlined in General Comment 1 of the Relevant Representation [RR-063], the purpose of the MMMP is to mitigate injury, not disturbance.</p> <p>To our knowledge, there are no existing MMMPs that specifically focus on mitigating disturbance. However, there are some</p>

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			measures in the MMMP that may indirectly reduce disturbance i.e. the use of noise abatement systems. Natural England advises any mitigation measures to reduce disturbance should be detailed separately by the Applicant.
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NE Table 1 Q1.12.2.6 Marine Mammals Position Statement – NE Response.

Species	Agree methodology (Y/N)	Agree assessment of effects (Y/N)	Mitigation suitable (Y/N)	Agree conclusions (Y/N)
Harbour porpoise	Y	Y ²	N ²	N ²
Minke whale	Y	Y	Y	Y
White-beaked dolphin	Y	Y	Y	Y
Grey seal	N ¹	Y ²	N ²	N ²
Harbour seal	N ¹	N ³	N ³	N ³

1. We do not agree with the approach taken to determine the reference population of these species. The results of the digital aerial surveys add further concern over the potential number of animals impacted.
2. Based on the information presented by the Applicant in the ES, we agree with the conclusion of Moderate Adverse from cumulative disturbance to harbour porpoise and grey seal. For this specific impact pathway, we do not agree that the SIP is appropriate mitigation to reduce disturbance to grey seals or harbour porpoise at the MU-level. Therefore we do not agree with the conclusions for this impact pathway.

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3. Regarding effects to harbour seal, we do not agree with the approach to assessing effects on prey, and effects on foraging. We advise at this stage that the MMMP and SIP will not be suitable for mitigating a significant effect from disturbance to foraging behaviour of harbour seals, or prey (if a significant effect is concluded).

General point: should the Applicant revise their assessment, in line with our comments or otherwise, our view on the assessment as outlined in the Table may also change.

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Q1.13. Habitats and Ecology Onshore			NE Response
Q1.13.1 Effects on European Designated Sites and Sites of Special Scientific Interest			
Q1.13.1.1	Local Authorities Environment Agency Natural England	<p>Air Quality and Screening of Ecological Sites</p> <p>Can you confirm if the approach to the selection of all the relevant European sites, the scopes of the in-combination assessment, the assessments and the conclusions reached by the Applicant is acceptable [APP-108, paragraph 138 (though not limited to that paragraph only)].</p>	<p>Please refer to Natural England’s comments regarding air quality in our relevant representation [RR-063] point 18. We refer the Applicant to Natural England’s standing advice for ancient woodland and the management of buffers Ancient woodland, ancient trees and veteran trees: Ancient woodland, ancient trees and veteran trees: advice for making planning decisions - GOV.UK (www.gov.uk).</p>
Q1.13.2 Effects on Protected and Priority Species			
Q1.13.2.1	Applicant Interested Parties	<p>Great Crested Newts</p> <p>The Applicant reports that 15 ponds were inaccessible due to landowner access limitations and a further four ponds were inaccessible due to terrain [APP-106, Paragraph 132].</p> <p>a) Do you consider that the omission of surveys at these 19 ponds (11% of the total ponds studied) has any impact on the reliability of GCN eDNA results and, if so, what are the implications for the ExA to take into account?</p> <p>b) Do you consider there to be any impediments that would prevent the Applicant from obtaining a full District Level Licence?</p>	<p>a) Natural England advises un-surveyed ponds are still factored into the DLL Impact Assessment. All of the ponds in question are located within the Amber risk zone and therefore there is a precautionary assumption in the calculations that 50% of these ponds are occupied by GCN. There is confidence that this has no further bearing on the wider eDNA</p>

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			<p>results, which have also been used to determine the impacts to GCN.</p> <p>b) Natural England advises a DLL Certificate was awarded and a 1st stage Conservation Payment received, and we cannot at this stage see any impediment to the applicant obtaining a DLL Licence.</p>
Q1.13.2.2	Natural England Environment Agency	<p>Construction Sites and Compounds</p> <p>ES reports that bat species rely on watercourses for foraging and commuting corridors [APP-106]. For HDD crossings of watercourses, these are to be set a minimum of 9m back from the riverbanks and the compounds would be subject to minimal artificial lighting. Would the 9m setback be sufficient to avoid noise and light disturbance to bat species (and their prey) or should further mitigation be explored by siting such compounds further away given HDD cable lengths can extend approximately up to 1,000m?</p>	<p>Natural England advises the onus is on the Applicant to determine whether a minimum 9m setback is sufficient to avoid noise and light disturbance to bat species (and their prey).</p> <p>However, we advise the extent of the buffer should be informed by the Applicant's survey findings demonstrating how the bats are using the area, for example (but not exclusively) bats crossing water courses, use of adjacent habitats at and adjacent to the location of the construction sites and compound.</p> <p>With regards to the potential notification of Wensum Woods as a SSSI, we advise the Applicant that no damage should occur that could affect the notified features of the site (barbastelle colonies) to</p>

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			<p>include their core sustenance zone (CSZ). Suitable mitigation should therefore be provided to ensure that there is no significant effect on the integrity of the site.</p> <p>Natural England wishes to further note that all lighting should be designed as per the BCT Bats and Artificial Lighting in the UK guidance (BCT and ILP, 2018). This includes the use of directional lighting during construction. Artificial lighting should also be kept to a minimum and directed away from linear features and important habitats, such as trees, hedgerows and waterways and directed downwards to minimise disturbance to bats and other nocturnal animals. We advise the OLEMS should reflect this.</p> <p>It may be useful for the Applicant to consider EuropBats Guidelines for consideration of bats in lighting projects (EuropBats, 2018) which includes avoidance and mitigation recommendations and for habitats that constitute key foraging areas. Bat Conservation Trust and Institute for Lighting Professionals</p>
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			<p>(2018) <i>Guidance note 8/18. Bats and Artificial Lighting in the UK: Bats and the Built Environment series</i>. Available</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>EUROBATS (2018) <i>Guidelines for consideration of bats in lighting projects 3, Publication Series No. 8 8</i>. UNEP/ Secretariat, Bonn, Germany. Available:</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>
Q1.13.2.3	Natural England	<p>Letters of No Impediment</p> <p>LoNI are appended to the Planning Statement in respect of badgers and bats [APP-285]. Are there any outstanding LoNI that are likely to be forthcoming during the Examination?</p>	<p>Natural England advise there are no further LoNI forthcoming during examination. However as advised in our Relevant Reps [RR-063] if water vole are identified during pre-construction surveys, the Applicant will require a LoNI.</p>
Q1.13.2.4	Applicant Royal Society for the Protection of Birds	<p>Weybourne Cliffs</p> <p>It is identified that populations of sand martins nest within the cliffs [APP-106]. Would noise and vibration from the landfall construction operations, with particular regard to vibrations from the HDD, have any effect upon the integrity of the cliffs or the living conditions of the sand martins such that nesting could be abandoned?</p>	<p>Natural England advises it is for the Applicant to demonstrate HDD will not affect the integrity of the cliff and thus the living conditions of the sand martins as a result of vibration and noise from HDD operations. Please see our response to point Q1.3.4.1 above.</p>

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			Please also see Natural England's Relevant Representation [RR-063] (Point 8). If pre-construction bird surveys reconfirm the presence of breeding sand martins within the bank which would be impacted by construction, we advise suitable mitigation measures must be followed to avoid disturbance to active colonies to ensure nests are not abandoned as a result of construction works.
Q1.13.2.6	Natural England	<p>Pink-Footed Goose</p> <p>Are there any fundamental concerns regarding this species that warrants either more information or the submission of a mitigation plan during the course of the Examination [APP-106]?</p>	Natural England has concerns in relation to PFG and these are detailed in our advice at Deadline 1. See Natural England Deadline 1 Appendix I1 submission.
Q1.13.4 Effects on Rivers and River-Based Wildlife			
Q1.13.4.1	Environment Agency Natural England	<p>Watercourse Fish Surveys</p> <p>Do you have any concerns regarding the Applicant's approach and data collection, and the implications for the ExA to take into account [APP-106, Paragraph 165].</p>	Natural England defers to the EA for response on this matter.
Q1.13.4.3	Environment Agency Natural England	<p>River Crossings</p> <p>The effects of vibration on sensitive receptors are said to be negligible at distances in excess of 100m [APP-106, Table 20-17]. Given that the drill for HDD under watercourses would only be 2m below each respective riverbed, are there any likely effects upon fish or aquatic animal species from vibration causing displacement or fatality?</p>	Natural England is not aware that vibration has been an issue for aquatic receptors for any other project.

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Q1.14. Habitats Regulation Assessment			NE Response
Q1.14.1 Effect of the Proposed Development on its own and In-combination with Other Plans and Projects			
Q1.14.1.3	Natural England Marine Management Organisation	<p>RIAA, Screening and Outstanding Matters</p> <p>a) Are the screening matrices in the RIAA [APP-059] acceptable or do further features/ sites need to be included?</p> <p>b) An explanation, with evidence as appropriate, as to whether you agree or disagree with the conclusions stated in paragraphs 105 and 106 of the RIAA presented by the Applicant.</p> <p>c) Provide an update on benthic SACs and whether the concerns raised in respect of the DOW have been addressed sufficiently by the Applicant either in advance of the Proposed Development being submitted or through the ES and HRA Reports [APP-059, Table 7-1].</p>	<p>a) Natural England refer the ExA to our Relevant Representation Appendix I [RR-063] where we highlight With respect to the onshore elements of the project, Natural England does not disagree with the summary of potential effects on the River Wensum SAC as set out in Table 10-1 of the RIAA, however clarity is required as to why white clawed crayfish, brook lamprey and bullhead were screened out and an appropriate assessment of the impact of the project on these qualifying features of the River Wensum not undertaken.</p> <p>b) We agree with the conclusions that in-combination adverse</p>

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			<p>effects on North Norfolk Coast SPA sandwich tern and Flamborough & Filey Coast (FFC) SPA cannot be ruled out. We do not agree that in-combination adverse effects on FFC SPA guillemot and razorbill can be ruled out. For FFC SPA gannet, our current position is we consider that it is likely that in-combination adverse effects can be ruled out, but we cannot confirm this until an updated in-combination assessment for this feature is provided. Please see our Relevant Representations for Natural England's advice on each feature.</p> <p>c) Natural England Refer the ExA to our Relevant Representation Appendix E [RR-063]. At present Natural England is unable to agree with the LSE conclusions for Inner Dowsing, Race Bank and North Ridge SAC and The</p>
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			<p>Wash and North Norfolk SAC. We highlight at Appendix E Point 21 that sediments disturbed during construction of the SEP array, will enter the Inner Dowsing, Race Bank and North Ridge SAC (within 10km tidal excursion).</p> <p>Further consideration is also still needed in relation to sediment transport disruption from the placement of cable protection in the nearshore as set out in our marine process relevant/written rep Appendix, before significant impacts to coastal aspects of marine SACs can be excluded with any certainty.</p> <p>Natural England provided the Applicant with the DOW advice on 11th March 2021. Where relevant, these points have been considered</p>
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			during production of the assessment in 7.4
Q1.14.1.5	Natural England	<p>RIAA and Gannet</p> <p>You indicated in the relevant representation [RR-063] that gannet could potentially be excluded from receiving compensation providing that there were no significant changes to collision and displacement modelling results.</p> <p>a) Describe what you consider would constitute significant changes to the modelling that would change your view on the necessity for the compensation?</p> <p>b) Describe and explain why, having determined a significant adverse impact on gannet at the EIA scale, you are content that an AEoI can be excluded for the species?</p> <p>c) Would you advise the Applicant, and indeed the ExA, that compensation for gannet should be removed from the Applicant's compensation documents at the close of the Examination, assuming of course that the position remains the same?</p>	<p>a) Significant changes to the modelling would be those that resulted in an increase in the project alone and/or in-combination totals so that the impacts on gannet were increased to levels that would constitute an AEoI. Whilst unlikely in this instance, such changes could result from e.g. a rejection of the use of the Macro-avoidance rate or updates to in-combination figures that were not provided in the ES (such as Hornsea 4 and Rampion 2).</p> <p>b) We have yet to determine a significant adverse impact at the EIA scale for gannet within this examination process. Past cases have resulted in that outcome, however our updated advice on CRM</p>

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			<p>parameters and methods (see our response to 'Use of a scientific study' above) will result in changes to the cumulative totals for gannet. We await submission of those revisions until we can provide an updated determination for this species. N.b. As the EIA considers impacts at the biogeographic scale and the HRA the impacts on specific SPAs, it does not follow that a significant EIA impact will lead to an adverse effect on an SPA (or vice versa</p> <p>c) This was the approach taken in the Hornsea 4 Examination, during which Natural England concluded that adverse effects on FFC SPA gannet could be ruled out in-combination towards the end of the Examination.</p>
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Q1.14.1.6	Natural England	<p>RIAA, Ornithology and DEP-N</p> <p>At ISH1 [EV-011] [EV-015], the Applicant stated the mitigation hierarchy of avoid, reduce, mitigate had been followed during the formulation of the 'red line boundary' (i.e. Order limits) thus informing the extent of the application sought. Consequently, there was no need for DEP-N to be reconsidered under this mitigation hierarchy and no need for DEP-N to be sterilised or removed from the dDCO as a result (as suggested in your relevant representation [RR-063]).</p> <p>a) What is your response?</p> <p>b) Why is DEP-N deemed to be in conflict with the mitigation hierarchy?</p>	<p>f) and g) - For avoidance of doubt, Natural England did not advise that DEP N should be sterilised or removed from the dDCO – rather our recommendation was that the specific scenario presented in the ES where all the turbines were placed in DEP N should not be progressed into the DCO. This is because it would run appear to run counter to the mitigation hierarchy in the specific context of adverse effects to FFC SPA kittiwake and North Norfolk Coast SPA Sandwich tern.</p> <p>The mitigation hierarchy seeks avoidance, reduction and mitigation of impacts before compensation is considered, which can involve consideration of alternative project configurations with reduced impacts, of which others are clearly presented in the ES e.g.</p>
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			<p>turbines spread across DEP N and DEP S. There are higher densities of both Sandwich tern and kittiwake in DEP N, so if all the turbines are located in DEP N, the collision totals would be greater than if spread across DEP N and DEP S (e.g. an increase in over 20% of collisions for Sandwich tern).</p>
Q1.14.1.7	Natural England	<p>The Case for Derogation and Compensatory Measures</p> <p>In relation to comments made in the Relevant Representation [RR-063]:</p> <ul style="list-style-type: none"> a) Elaborate on the reasons why it is considered that compensation works on the Farne Islands (in the form of predator exclusion, reduced human disturbance, flood protection and/ or vegetation control [APP-066, Section 3.5]) do not “provide meaningful compensation.” b) The RSPB has suggested the robustness of bird populations to mortality has decreased following the outbreak of avian influenza [RR-083]. How would you respond to this and what, if any, evidence can be relied upon to demonstrate against this assertion, notwithstanding Relevant Representation [RR-063, Appendix B2]? c) Why is compensation at Loch Ryan in Scotland, a not insignificant distance away, acceptable in this instance [EV-011] [EV-015]? 	<p>a) In terms of site management, the principal issues affecting the Sandwich tern population at the Farne Island SPA are considered to be insufficient vegetation control and large gull management. As part of normal site management measures, these issues should in due course be addressed as part of proposed future management plan for the Farne islands National Nature Reserve, which is currently under review.</p>

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			<p>The Applicant's proposed measures are not a substantial part of the NNR management plan (a limited degree of nest shelter provision is being considered in the NNR plan). This reflects the rather limited benefits likely to arise from them, which in turn makes them unlikely to deliver significant compensatory benefits. If they were likely to be effective, given the need to restore the Farne Islands SPA Sandwich tern population they would be incorporated into normal site management, and therefore would not be available as compensatory measures on grounds of additionality.</p> <p>b) It is entirely plausible that the robustness of some seabird populations to mortality effects has decreased as a result of Highly Pathogenic Avian</p>
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			<p>Influenza (HPAI) – indeed Natural England’s guidance note provided in our Relevant Representations [RR-063, Appendix B2] considers that <i>'newly depleted populations could be less resilient and vulnerable to additional impact'</i>. However as also set out in our interim guidance note, at this stage in the pandemic it is unclear what the short, medium and long-term effects will be on seabird colony abundance and vital rates. This makes quantifying the current sensitivity of a given population very challenging.</p> <p>c) Compensatory measures are required to maintain the coherence of the national site network for the impacted species, in this case North Norfolk Coast SPA Sandwich tern. It would of course be preferable to bring forward measures</p>
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			<p>that would directly benefit the impacted SPA, should suitable options be identified. During pre-application discussions, the potential options for delivering compensatory measures within the North Norfolk Coast SPA were discussed in detail. However, there were very limited feasible options identified by the Applicant that would deliver benefits beyond those already being achieved by existing management measures within the SPA. If alternative site-specific initiatives that emerge during the Examination, we would be open to discussing them.</p> <p>Accordingly, when identifying other compensatory options, the Applicant considered other locations in the UK where Sandwich tern breed or have bred. One of the significant issues</p>
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			<p>for the UK Sandwich tern population is the significant reduction in the number and range of occupied colonies, with for example no colonies remaining on the West coast of Scotland. The restoration of a Sandwich tern colony at Loch Ryan could therefore help re-establish the species range and increase resilience of the overall network by reducing reliance on a few major breeding colonies. The species conservation benefit of increasing resilience by range restoration and population dispersal is particularly highlighted by the recent HPAI outbreak.</p> <p>Natural England therefore agrees with the suitability of the Loch Ryan area for Sandwich tern for compensation, subject to a high-quality habitat creation proposal being</p>
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			<p>brought forward. This reflects the likely presence of the required environmental aspects to support breeding Sandwich tern at Loch Ryan, other than a lack of suitable nesting habitat. The Applicant's proposed measures intend to remedy this by creating such habitat and ensuring that it is protected from pressures such as disturbance and predation. As Sandwich tern populations are quite dynamic and the species is wide-ranging, re-colonisation is plausible, but inevitably uncertain. Ensuring the habitat is highly attractive to the species will increase the likelihood of this occurring.</p> <p>Natural England therefore considers that on the basis of the material presented, and subject to a high-quality design being brought forward,</p>
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			<p>this intervention could provide an effective means of maintaining the coherence of the national site network.</p> <p>However, it would be useful to clearly identify and prioritise locations other than Loch Ryan as 'insurance' <u>in case of</u> insurmountable issues with acquiring or developing a site there, or for potential adaptive management options if required.</p>
Q1.14.1.10	Applicant Natural England RSPB	<p>Norfolk Boreas and Norfolk Vanguard DCO Decisions</p> <p>Do the SoS's HRAs and decisions on the Norfolk Boreas and Norfolk Vanguard projects affect the process or conclusions of the HRA undertaken for this Proposed Development by the Applicant, including the deliverability and timing of the proposed compensation measures, especially in relation to the kittiwake interest feature of the Flamborough and Filey Coast SPA?</p>	<p>The DCOs for both projects (and indeed those of the subsequent East Anglia One North and East Anglia Two decisions) both required the installation of the new Artificial Nest Structures (ANS) as compensation for FFC SPA kittiwake at least four breeding seasons before the operation of the turbines. We note the</p>

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			<p>Applicant's intention to install their compensatory measures four breeding seasons in advance, but that the DCO commitment refers to three breeding seasons instead. We see no particular reason why a shorter time period is necessary for SEP&DEP, given the relative practicability of the proposed measure.</p>
<p>Q1.14.1.11</p>	<p>Natural England</p>	<p>Offshore Artificial Nests In relation to the proposed creation of artificial nests offshore [APP-065]:</p> <ul style="list-style-type: none"> a) Explain whether these are floating features or permanent fixtures (i.e. requiring to be affixed to the seabed). b) Explain how far away from the impacted colonies the artificial nests should be. c) Explain how far away from any offshore wind turbine the artificial nests should be. d) Explain how far away from any primary shipping routes the artificial nests should be. e) Explain, with evidence where possible, the effectiveness of providing such a compensatory measure and why it represents betterment over an onshore nesting site. f) Could NE explain its view [RR-063] that further onshore artificial nesting structures for kittiwake are unlikely to result in sufficient benefits to provide adequate compensation. Nest for nest, why does 	<ul style="list-style-type: none"> a) - e) Natural England defers to the Applicant as this is not our responsibility to provide this information. Natural England's remit is to provide comment the proposals as submitted. f) Natural England start from the position that there is a lack of evidence to suggest that nesting space is a significant factor hindering the North Sea population of kittiwake as a whole. However, we consider it plausible that

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		<p>it consider that offshore nesting structures might provide a higher level of compensation than onshore nesting structures?</p> <p>g) Kittiwakes are known for being exclusively cliff-nesting gulls. In that case, what confidence can be had in the success of offshore nesting sites?</p>	<p>there may be a shortage of sufficient high-quality nest space in specific locations.</p> <p>The vast majority of English kittiwake nest on the North Sea coastline between the Scottish border and Flamborough Head. As well as cliff-nesting birds, there are a small number of urban colonies by the North Sea, including the well-established 'inland' colony in Gateshead/Newcastle. FFC SPA holds by far the largest colony in England and holds well over half of the English population. South of Flamborough Head in the North Sea, kittiwakes are largely absent as a coastal breeding bird, reflecting the general shift from hard to soft geology. The exception are colonies on man-made structures at Lowestoft and Sizewell in Suffolk.</p>
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			<p>Kittiwakes are also known to nest on offshore structures such as oil and gas rigs. The numbers present are not well understood, but surveys indicate that there are likely to be well over 1,000 pairs of nesting kittiwake on offshore structures in the North Sea.</p> <p>Natural England advised the first set of developers seeking sites for ANS to bring forward proposals on North Sea coastlines where nest availability might be most limited e.g. due to lack of cliffs. Thus far planning permission/marine licences have been granted for four structures in the vicinity of Lowestoft and Sizewell totalling c2000 nest spaces, with approval still being sought for additional ANS in the north-east.</p>
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			<p>Natural England considered the above strategy had a reasonable prospect of success for those projects consented so far. However as more developments requiring compensation come forward, it seems likely that installing further ANS on the North Sea coast will face the law of diminishing returns, particularly in areas where large numbers of kittiwakes breed in adjacent colonies and would be in competition for prey resources.</p> <p>Compared to the North Sea coastline, the offshore environment is highly nest space-restricted, and the provision of ANS offers significant opportunities to create new colonies (or increase existing ones) in locations where foraging resources are currently under-exploited by coastal-nesting</p>
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			<p>kittiwake i.e. because they lie beyond the reach of optimal kittiwake foraging ranges from coastal colonies. Hence Natural England considers that offshore ANS are rather more likely to generate sufficient kittiwake into the biogeographic population from which FFC SPA draws its recruits. However, we will continue to consider each compensation proposal on its merits.</p> <p>g) Natural England this question is relevant to the Applicant for response. However, we note there are numerous examples where kittiwake have successfully nested elsewhere on man-made structures (e.g. Turner 2010) including on offshore oil and gas structures.</p>
Q1.14.1.12	Natural England	Increasing Prey Supply for Sandwich Terns and Kittiwakes	Sandwich terns depend primarily on sandeels (<i>Ammodytes</i> spp. and

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		<p>[RR-063] suggests increasing prey supply and availability may be of benefit to the affected species.</p> <ul style="list-style-type: none">a) Identify specifically the prey that would need to be increased and what quantities are anticipated to be enough to support the relevant bird speciesb) Explain the preferred habitat for this prey and whether this exists in enough abundance near to the Proposed Development to support both existing and additional prey numbersc) Could artificial habitat be created for these species by the Applicant and, if this is possible, is this something that could be provided as MEEB within the MCZ?	<p><i>Hyperoplus</i>) and clupeids (Herring <i>Clupea harengus</i>/Sprat <i>Sprattus sprattus</i>) to feed their chicks.</p> <p>The birds at North Norfolk Coast SPA fed a larger proportion of clupeids (Sprat) to their young than sandeels in the years studied (Perrow et al 2010).</p> <p>It is worth noting that Perrow et al (2010) observed adults foraging on a wider range of prey items and prey sizes (including invertebrates) at sea, than that delivered to the chicks for provisioning. This suggests that while sandeels and clupeids are crucial for chick-rearing, there is a broader range of prey species that benefit the adult population.</p> <p>Breeding kittiwakes at most colonies around the</p>
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			<p>North Sea, including Flamborough and Filey Coast SPA, feed mainly on sandeels and breeding success of kittiwake (and in some instances adult survival) has been shown to be strongly influenced by the abundance of sandeels (See MacGregor et al 2022 and refs therein)</p> <p>The quantification of what would be considered enough to support the either Sandwich tern or kittiwake is a complex task. Cury et al (2011) advocates that that to ensure good seabird productivity the rule of thumb should be that the forage fish stock is at or above one third of the maximum ever recorded stock biomass.</p> <p>MacGregor et al (2022) provide detail for this in regards to the relevant sandeel area for kittiwake at FFC SPA, concluding that:</p>
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			<p><i>Based on the recommendations of Cury et al. (2011) the necessary stock biomass to maintain the productivity of seabird populations dependent on this stock, such as the kittiwakes at FFC SPA, would be 666,667 tonnes. However, ICES data show that this only occurred in three of the last 16 years between 2003 and 2018 (ICES 2020) (Figure 9)</i></p> <p>Similar assessments would need to be made for sandwich tern prey fish (i.e. clupeids) to understand the quantities required.</p> <p>Further detail on increasing prey supply as a compensatory measure for both kittiwake and Sandwich tern are provided in the NE report '<i>Assessment of compensatory measures</i></p>
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			<p><i>for impacts at offshore windfarms on seabirds'</i> MacGregor et al (2022)</p> <p>b) Preferred Habitat</p> <p>Lesser sand eel <i>(Ammodytes tobianus)</i> Found from mid-tide level over sandy shores to the shallow sublittoral to depths of 30 metres. They bury themselves 20-50 cm deep in the sand during the winter. (Rowley, S.J. 2008).</p> <p>Greater sand eel <i>(Hyperoplus lanceolatus)</i> Found over clean sandy seabeds; from the shore down to about 150 m. (Ruiz, A. 2008)</p> <p>Herring: Herring deposit their egg masses on gravel and maerl habitats, and geographically the spawning grounds tend to be well-defined, although the intensity of spawning varies and over time some areas may be deserted and new ones be occupied. The habitats</p>
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			<p>of juveniles and adults are primarily pelagic. (ICES-fishmap-herring)</p> <p>Sprat: Being a pelagic species, its distribution is strongly affected by hydrographic conditions and large variations in distribution and abundance have been observed between individual years. The larvae are known to be most abundant in the vicinity of tidal mixing fronts. Sprat is characterised by a tolerance to a wide range of salinities and is also abundant in estuarine habitats. (ICES-fishmap-sprat)</p> <p>Further research would need to be conducted to establish the extent of the preferred habitat near the proposed development (although if prey supply was to be increased for the purposes of compensation it would be the proximity to the</p>
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			<p>relevant population that would be key, not the proposed development site). As noted above, an assessment would need to be made of what level of additional prey might be required.</p> <p>Given the ecology set out in b) above, it is apparent that creating artificial habitat for these prey species is not really possible. In any event, the Cromer Shoal Chalk Beds MCZ appears to lie outside the preferred foraging areas of Sandwich terns from North Norfolk Coast SPA (Wilson et al, 2014).</p>
Q1.14.1.14	Natural England	<p>Maximum Parameters, Rochdale Envelope and HRA</p> <p>If the Applicant committed to reducing the scope of the Rochdale Envelope:</p> <p>a) Would this provide greater certainty to the conclusions of the HRA and RIAA?</p> <p>b) Would any downwards reductions to parameters have any implications for the conclusions of the HRA, or would these be suitably covered by the existing documentation?</p>	<p>a) Natural England advises that reducing the scope of the Rochdale Envelope would, as a general rule, increase the level of certainty in the conclusions of the HRA and RIAA.</p> <p>b) Natural England is not entirely clear what is</p>

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		<p>c) Set out fully the reasons why DEP-N should be excluded from the dDCO and, if the ExA were to agree, what the consequential implications would be for the HRA and RIAA.</p>	<p>meant by 'downwards reductions to parameters'. If a refinement of the Rochdale envelope to exclude development scenarios with greater environmental impacts is being referred to, the extent to which this would change the conclusions of the HRA would very much depend on which scenarios were being excluded, and which receptor was being considered.</p> <p>We note that one of the consequences of the Rochdale envelope is that impact assessments are set against the worse-case scenario for the receptor in question, as the associated DCO would permit the worse-case scenario in question.</p> <p>c) Please see our response to Q1.12.1.1 above. Natural England</p>
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			has <u>not</u> advised that DEP N should be excluded from the dDCO.
Q1.14.1.18	Applicant	<p>Assumptions Regarding Headroom</p> <p>Although there is reference to releasing headroom by not implementing the existing s36 consent, the following needs clarifying:</p> <p>a) The ES suggest that the possibility of as-built capacity at OWF being exploited would result in the decommissioning and rebuilding of the existing OWF to their consented designs (or older turbine models being installed) [APP-097, paragraphs 680 to 687]. Both of these scenarios are reported as being 'unrealistic.' If that is the case, and the DOW could not be fully developed in accordance with the s36 consent, what weight or worth is the 'headroom' in the DOW when considering the Proposed Development?</p> <p>b) The ExA understands headroom (crudely) to be that, if DOW was built-out in full, 100% of wildlife would be affected but, with the DOW only built to 80%, only 80% of wildlife would be affected. Then the difference of 20% of affected wildlife could 'passover' to be affected by the SEP/DEP turbines. Is that, in essence what the Applicant's case rests on?</p> <p>c) Signpost where the headroom concept has been assessed in the ES and where its effects have been taken into account in determining impacts on the environment.</p> <p>d) Provide any necessary quantification in relation to how headroom has been calculated and how it has been taken into account within the ES assessments (if it has).</p> <p>See related question in Construction Effects Offshore.</p>	<p>Natural England notes that we have not been asked to respond to this question. With regard to b), please note Natural England does not agree with a percentage reduction as there are more factors to the reduction in generation. The determination of impact is far more detailed than implied by percentage reduction – turbine, blade size, location, rotor speed etc can all have implications on impact.</p>
Q1.14.1.19	Applicant Natural England	<p>Red-Throated Diver Clarification</p> <p>The RSPB has raised concern that the Applicant has not taken fully into account the conservation objectives for red-throated diver [RR-083]. NE</p>	<p>At this moment in time, Natural England is not able to rule out an AEoI.</p>

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	<p>Royal Society for the Protection of Birds Norfolk Wildlife Trust</p>	<p>has also raised concerns for this species, but it is not clear to the ExA whether both organisations consider an AEoI on red-throated diver can be ruled out. Can the position be clarified?</p>	<p>In our Relevant representations [RR-063], we highlight that there is potential for SEP and DEP to make contributions to the in-combination impacts for RTD, and that the extent of this contribution is as yet unclear. Our concerns relate to displacement of RTD within the Greater Wash SPA from the presence of the SEP array, and disturbance/displacement of divers within the Greater Wash and potentially Outer Thames Estuary SPAs from vessel movements associated with the construction (including cable installation) and operation of both DEP and SEP. We are expecting further information on these matters from the Applicant to be submitted at Deadline 1.</p>
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<p>Q1.14.1.21</p>	<p>Natural England RSPB Marine Management Organisation Norfolk Wildlife Trust</p>	<p>Marine Recovery Fund</p> <p>The Applicant has set out compensatory measures for those species/features identified as where an AEoI cannot be ruled out. The Applicant has stated however, that it may not implement such compensatory measures if the 'Marine Recovery Fund' (or equivalent) is introduced by the Government.</p> <p>a) Is it appropriate for the Applicant to substitute in a contribution towards a strategic compensation fund as opposed to proactively implementing its own proposed package of physical and proactive compensatory measures (bearing in mind the fund does not yet exist)?</p> <p>b) Would there be any guarantees that the contribution to the fund would be directed specifically towards compensating for the adverse effects of the Proposed Development on sandwich terns and kittiwakes?</p> <p>c) From what you know of the fund, is it purely to be directed to whatever project the Government allocates as needing attention rather than project specific?</p>	<p>a) Natural England recommends that due to current uncertainties with mechanisms associated the MRF for delivering strategic compensation measures that project level compensation is still progressed in parallel to having options available through DCO conditions to progress strategic compensation measures such as the MRF, if required and/or when available.</p> <p>b) The criteria for inputting into the MRF is not yet agreed. However, as recently advised for other NSIP projects the Applicant will need to specify which type of thematic project compensation they will fund e.g. one which increases Kittiwake productivity to offset harvesting</p> <p>c) Again, this is not yet determined but we advise</p>
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			<p>that the same compensatory requirements are required for either project or strategic compensation as set in (b)</p> <p>Please see our comments on the proposed compensation measures.</p>
Q1.14.1.23	Natural England	<p>Loch Ryan</p> <p>NPS EN-1 5.3.7 says that where significant harm cannot be avoided, appropriate compensation measures should be sought. You have stated that the current scale of compensation is not yet clearly defined, but that the Applicant should be ambitious. In the context of the national policy, to what extent should compensation be guided by ambition and is there a requirement for compensation to provide betterment or be in excess of that which is being lost?</p>	<p>In the context of the Habitats Regulations, the requirement for compensatory measures is to maintain the coherence of the national site network. To achieve this, the habitat created at Loch Ryan should be highly attractive to Sandwich tern to increase the likelihood of colonisation, good breeding success and colony growth to the required number of pairs estimated as needed to address the predicted impacts. This would in turn provide appropriate confidence to the Secretary of State that</p>

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			<p>he is able to secure suitable compensatory measures for the impacts to North Norfolk Coast SPA Sandwich tern.</p> <p>Natural England consider that the Loch Ryan proposals submitted into the Examination contained some elements that would likely be attractive to Sandwich tern (e.g. size of islands), but that other elements were less attractive e.g. situating the islands within a fairly small lagoon surrounded by non-wetland habitat. Hence our conclusion in our Relevant Reps that <i>'...the proposals for habitat restoration at Loch Ryan are not sufficiently ambitious'</i> (5.15)</p> <p>We consider that a larger lagoon would be considerably more likely to induce Sandwich tern</p>
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			<p>into prospecting and settling to breed on the new islands, because larger areas of open water around the islands will provide the prospect of disturbance-free nesting sites that are hard to access by terrestrial predators. This will increase the chances of the compensation being successful.</p> <p>Habitats Regulations compensation has generally involved the application of a 'multiplier' between the impacts and the compensation and/or a package of multiple measures targeting the impacted species or habitat. Ratios have put in place to address the inevitable uncertainties associated with creating or restoring new habitat. Provision of multiple measures provide reassurance that if one</p>
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			<p>measure is ineffective or under-performs, other benefits will arise.</p> <p>To inform our advice on an appropriate scale of compensation, Natural England has sought further information from the Applicant regarding how the proposed scale of the compensatory benefits (i.e. additional adult Sandwich terns produced) have been calculated. We will review this once it is submitted.</p>
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Q1.16. Land Use			
Q1.16.2 Soils and Soil handling, Ground Conditions, Contamination and Minerals			
Q1.16.2.12	Environment Agency Natural England	Nitrate Vulnerable Zones The ES [APP-103, Paragraphs 81 and 82] identify that the Proposed Development does not have any direct overlaps with any geological SSSIs, and as such no impacts are anticipated so no further assessment is undertaken by the Applicant. Do you consider this appropriate, or should potential indirect impacts be assessed?	Natural England defers to the EA.

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Q1.17. Landscape and Visual Effects			NE Response
Q1.17.1 Effect on Landscape Character and Views			
Q1.17.1.13	Interested Parties	<p>The Applicant's Assessment of Effects within its LVIA Documents</p> <p>Please set out, or provide signposting to where you have set out, any areas of disagreement with the Applicant's baselines, methodologies and assessment of effectiveness of proposed mitigation measures within its Landscape and Visual Impact Assessment [APP-112]. If no areas of disagreement exist, please indicate this with reasons explaining why you believe the application documents provide satisfactory information on this topic.</p>	<p>Please refer to Natural England's Relevant Representation[RR-063] Paras 27 to 29 where our outstanding concerns with regards to LVIA are set out regarding the vital mitigation measure should both projects be approved, is for the onshore cabling to be installed for both simultaneously and not sequentially.</p>

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Q1.18. Seascape and Visual Effects			NE Response
Q1.18.3 Effects on Designated and Historic Landscapes			
Q1.18.3.1	The Applicant Local Authorities, Interested Parties	<p>The Existing Baseline and its Effect on the Statutory Purpose of the NCAONB</p> <p>NE states that the existing OWF installations have a compromising effect on the statutory purpose of the NCAONB [RR-063]. Respond, with reasoning.</p>	Natural England refers the ExA and Interested parties to our reasoning as set out in [RR-063].
Q1.18.3.3	The Applicant Local Authorities, Interested Parties	<p>Cumulative Impact Assessment</p> <p>Should a CIA be undertaken in order to inform the EIA to ensure that the impact of SEP and DEP on the statutory purpose of the NCAONB, in the context of the existing OWF, can be made?</p>	<p>Natural England refers the ExA to our rationale for a CIA to be undertaken in Para 3 of our relevant Representation [RR-063].</p> <p>Natural England seeks to determine the additional harm that SEP and DEP will present to the statutory purpose of the NCAONB. We advise that a Cumulative Impact Assessment (CIA) should be</p>

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			undertaken to inform the EIA to ensure that the impact of SEP and DEP on the statutory purpose of the NCAONB, in the context of the existing OWFs, can be made.
Q1.18.3.4	The Applicant Natural England	<p>Agreement between Parties</p> <p>Set out, in further detail, the specific factors which might prevent agreement being reached on Seascape matters and outline what proposals you can bring forward which could enable agreement to be reached during the course of the examination.</p>	<p>Natural England has provided our advice in our Relevant Representation [RR-063].</p> <p>We defer until the Applicant has responded to our representation at Deadline 1.</p>
Q1.18.4 Cumulative Effects			
Q1.18.4.1	Local Authorities Interested Parties	<p>Cumulative Effects</p> <p>Are you satisfied with the list of projects included in the assessment of potential cumulative landscape and visual effects? If not, identify those projects that you believe should be included and indicate why you believe that they should be included.</p>	<p>Natural England agrees with list of projects for inclusion as listed in para 89 of SVIA chapter 25. The List covers all currently visible arrays from</p>

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			NCAONB. The only other (proposed) array is Outer Dowsing c.55km from the North Norfolk Coast.
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ICES Fishmap – Herring [REDACTED]

[REDACTED]

ICES Fishmap – Sprat [REDACTED]

[REDACTED]

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