THE PLANNING ACT 2008

THE INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES 2010

Dogger Bank South Offshore Wind Farm

Appendix C5 to the Natural England Deadline 5 Submission
Natural England's comments and updated advice on Benthic and Intertidal Ecology

For:

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

Planning Inspectorate Reference EN010125

23rd May 2025

Appendix C5 – Natural England's Advice on Benthic and Intertidal Ecology at Deadline 5

In formulating these comments, the following documents submitted by the Applicant have been considered in relation to the impacts of Dogger Bank South (East and West) Offshore Wind Farm (DBS) on Benthic and Intertidal Ecology:

- [REP4-015] 6.1 Report to Inform Appropriate Assessment (RIAA) Habitats Regulations Assessment (HRA) Part 2 of 4 – Annex I Offshore Habitats and Annex II Migratory Fish (Revision 4) (Tracked)
- [REP4-019] 6.2 Habitats Regulations Derogation Provision of Evidence (Revision 3) (Tracked)
- [REP4-029] 6.2.3 Report to Inform Appropriate Assessment - Habitats Regulations Assessment - Appendix 3 - Project Level Dogger Bank Compensation Plan - Volume 6 (Revision 3) (Tracked)
- [REP4-053] 8.23 In Principle Monitoring Plan (Revision 3) (Tracked)

Our detailed comments on documents submitted by the Applicant in relation to Benthic and Intertidal Ecology as listed above are provided in Tables 1 - 2 below.

Table 1 - Natural England's Advice On: [REP4-015] 6.1 Report to Inform Appropriate Assessment (RIAA) Habitats Regulations Assessment (HRA) Part 2 of 4 – Annex I Offshore Habitats and Annex II Migratory Fish (Revision 4) (Tracked)

NE Ref	Section	Key Concern and/or Update	Natural England's Advice to Resolve Issue
1	General	Natural England welcomes the updates that have been made to incorporate Project Change Request 1 [AS-141], the commitment to bundling of offshore export cables and associated reductions in worst-case parameters relevant to the assessment of Annex I habitats.	To note.
2	6.4.2.1.1, Para 44	The update to this paragraph in relation to Dogger Bank B seabed recovery is derived from the Applicant's additional submission of 'Review of evidence on recovery of sandbank habitat following habitat damage' [AS-025]. This was reviewed by Natural England at Deadline 2 [REP2-065] with further comments provided at Deadline 4 [REP4-127]. As we have previously advised, impacts from the creation of depressions from UXO clearance or jack-up operations in areas of coarse or mixed sediments should be considered as permanent habitat change/loss, unless it can be otherwise evidenced that they will backfill with similar sediment types. This is particularly important in areas of high potential sandeel spawning habitat, as if craters/depressions infilled with fine sediment they would no longer provide suitable spawning habitat.	We continue to advise that assessed impacts from the creation of depressions from UXO clearance or jack-up operations in areas of coarse or mixed sediments require updating and considered as permanent habitat change/loss (rather than temporary disturbance/damage). [R&I C11].
3	Section 6.4.2.6.1, Para 85 to 93	<u>Halo effects – scour protection</u> Natural England highlights that the Applicant has not considered the likelihood of the colonisation of scour protection as well as turbine foundations, and as a result has based their assessment	Natural England refer to our previous advice set out in our Relevant Representations [RR-039], our Deadline 2 submission [REP2-065] and Deadline 4 submission [REP4-127]. [R&I C8]

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		and prediction of extent of ecological halo on the assumption that scour protection itself would not contribute significantly to an ecological halo. We also highlight that in their assessment, the Applicant has not considered the alteration of predator-prey relations and the contribution of this effect within their assessment of the likely extent of the ecological halo. Natural England point to Danish studies (Dong, 2006[1]), which have identified effects from changes in predator-prey relations around turbines in Danish waters and hypothesised the development of a "feeding halo" around the turbines. These are predicted to occur after the development of a mature biofouling community, which is likely to take in excess of five years. Increased biomass values and their potential exploitation by a range of fish species has also been demonstrated in Egmond aan Zee (Bouma and Lengkeek, 2012 in MMO 1031: Review of environmental data associated with post-consent monitoring of licence conditions of offshore wind farms). The Applicant has also put forward evidence from Hutchison et al, 2020[2], stating that the study demonstrated that *"operational monitoring shows greatest benthic changes have occurred on or within the footprints of the foundations…."*. Whilst this statement acknowledges that some changes were observed beyond the foundation footprint, the Applicant has not described or quantified these further. Natural England also highlight that the Hutchison et al., (2020) study sought to monitor small-scale spatiotemporal	We do not agree that all ecological halo effects will fall within the extent of scour protection and advise that the current assessment does not represent a worst-case scenario. We advise that the assessment of extent of ecological halo needs to be updated to consider the likelihood that scour protection itself will become colonised and contribute cumulatively to the ecological halo effect. We also advise that assessments should be updated to consider changes in predator-prey interactions which can be expected to contribute to the ecological halo. Natural England reiterates that a robust assessment is needed of the potential worst-case area of impact on benthic communities within Dogger Bank SAC sandbank feature, and the nature and scale of that impact, as a result of changes to physical and biological processes following the placement of structures and cable/scour protection on the seabed.

[1] DONG (2006). Danish offshore WIND - Key Environmental Issues. Dong Energy, Vattenfall, The Danish Energy Authority and The Danish Forest and Nature Agency.
[2] Hutchison, Zoe & Bartley, Monique & Degraer, Steven & English, Paul & Khan, Anwar & Livermore, Julia & Rumes, Bob & King, John. (2020). Offshore Wind Energy and Benthic Habitat Changes: Lessons from Block Island Wind Farm. Oceanography. 33. 58-69. 10.5670/oceanog.2020.406.

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		changes in dominant biota / biotopes over time at the Block Island Windfarm (BIWF; in the USA) 30 to 90 metres from three turbines 4 years post construction. Hutchison et al., (2020) concluded that: *"The greatest benthic modifications occurred within the footprint of the foundation structures"* but that *"within four years, changes in benthic habitats (defined as biotopes) were observed within the 90 m range of the study, clearly linked to the ...colonization of the structures, which also hosted numerous indigenous fish species"*. Natural England notes that evidence put forward by the Applicant for lack of ecological halo effects at Moray East had limited grabbing and applied monitoring techniques which are not suitable for detecting ecological halo effects with adequate sensitivity.	
4	Section 6.4.2.6.1, Para 92.	<u>Halo effects - biotopes</u> Natural England disagrees that biotopes are simply a statistical construct, this is because in defining a biotope, weighting is given to specific 'characterising species' which cannot be accounted for within statistical analysis without a level of manual interpretation and adjustment, including the application and consideration of environmental data. We further advise that many of the issues highlighted in paragraph 92 are simply effects that would result from the application of poor monitoring strategy and inadequate sampling effort. In contrast to the Applicant's text additions, monitoring reported by Hutchison et al., 2020, as highlighted by the Applicant, allowed for assessments of nearfield spatiotemporal changes in sediment grain size, organic enrichment, and	In considering the effectiveness and development of post construction monitoring, Natural England advise that recommendations from Hutchison et al., 2020 should be considered, these include: *Addressing how OWFs affect these functions (trophic provisions, biogeochemical processes, and biodiversity) will require careful collection of empirical data at spatiotemporally relevant scales (in order to understand regional importance (Wilding et al., 2017). Consideration of the functional changes over the life of an OWF will require data collection over a longer timeframe and a broader spatial scale, partnered with suitable pre-OWF comparisons,*

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		macrofauna within biotopes over multiple monitoring events within an area which can be considered more dynamic and heterogenous than that of Dogger Bank SAC.	*and further should incorporate analyses of cumulative effects (Wilding et al., 2017; Willsteed et al., 2017)*.
5	Section 6.4.2.6.1, Para 93 and 94	<u>Halo effects - biotopes</u> As advised at Deadline 4 [REP4-127], Natural England does not agree that changes to biotopes as a result of a halo effect would not represent a loss of extent of Annex I sandbank. We highlight that the Applicant acknowledges it is likely that there will be a "*change from one Annex 1 sandbank biotope to another Annex 1 sandbank biotope*" but that they do not consider this would represent a loss of Annex 1 habitat. However, the Supplementary Advice on the Conservation Objectives for Dogger Bank SAC[3] for the Conservation Objective (CO) 'Biological Structure: Characteristic communities' states that "*Characteristic communities are ones associated with established biological communities (biotopes) that form the feature"*, and therefore a change in biotope would represent the CO being taken further away from its restore objective.	Please see point 3 above. [R&I C8]
6	Section 6.5.1.1, para 141	The Applicant has updated the document stating that there is no interaction of concern between the feature '*Vegetated sea cliffs of the Atlantic and Baltic Coasts*' and the potential pressures associated with the Project.	Natural England is in agreement with this.

[3] Supplementary Advice on Conservation Objectives for Dogger Bank Special Area of Conservation: JNCC, December 2022

NE Ref	Section	Key Concern and/or Update	Natural England's Advice to Resolve Issue
7	Section 6.6.2.1.1 Para 170	The Applicant has updated the document that as a result of the Project Change Request 1 there is no longer any pathway for effect for sediment transport resulting from construction works in the intertidal environment.	Natural England welcomes this being updated in the RIAA. [R&I C35]
8	Appendix D	As summarised at Deadline 4 [REP4-129], Natural England welcomes the further characterisation of benthic receptors at a suitable resolution and more transparent consideration of the sensitivity and recoverability of designated benthic receptors to the identified pressure pathways within the ZoI. We consider this aspect of the issue to be resolved. However, we maintain our previous advice with regards to the valuing of other receptors, particularly those which contribute to Annex I feature and will be subject to permanent loss/change and therefore for which sensitivity cannot be used to downgrade overall value as per the Applicants outlined methods (this is because all subtidal sediment communities are highly sensitive to loss/change).	We advise that updates to ES documents are conducted accordingly. [R&I C7] In order to provide further advice, Natural England requires additional information to explain how the Applicant has arrived at the receptor values stated. We would question that if permanent loss/change of an Annex I feature does not warrant a high value being attributed to that receptor, then in what scenario would the Applicant consider a receptor high value? [R&I, C9]

Table 2 - Natural England's Advice On: [REP4-019] 6.2 Habitats Regulations Derogation Provision of Evidence (Revision 3) (Tracked) & [REP4-029] 6.2.3 Report to Inform Appropriate Assessment - Habitats Regulations Assessment - Appendix 3 - Project Level Dogger Bank Compensation Plan - Volume 6 (Revision 3) (Tracked)

NE Ref	Section	Key Concern and/or Update	Natural England's Advice to Resolve Issue
1	6.2 - Section 4.3.3.2.2 Para 90.	Halo effects	Please see point 3 and 5 in Table 1 above. [R&I C8]

NE Ref	Section	Key Concern and/or Update	Natural England's Advice to Resolve Issue
	6.2.3 – Section 4.2.1.1 para 97	Natural England disagrees that *"there is no evidence to substantiate that there could be AEoI from 'halo effects' in habitats such as those found within the Dogger Bank".* Whilst we agree there is no established methodology for determining the extent of such an effect (highlighting the importance of evidence gathering post-construction via the IPMP), Natural England considers that there is sufficient literature and evidence available to determine a worst-case scenario of extent for changes to biological structures within the Annex I sandbank which would contribute to an AEoI.	

- **Table 3 - Natural England's Advice On: [REP4-053] 8.23 In Principle Monitoring Plan (Revision 3) (Tracked)**

NE Ref	Section	Key Concern and/or Update	Natural England's Advice to Resolve Issue
1	1.6.4	Natural England welcomes the Applicant's inclusion of the NE-JNCC benthic monitoring objectives for Dogger Bank SAC, monitoring for habitats of principle importance, and invasive non-native species and colonisation of introduced substrate.	To note.