



Hornsea Project Four

Clarifications on Ornithology Matters arising from Deadline 8

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Glossary

Term	Definition
Appropriate Assessment (AA)	An assessment to determine the implications of a plan or project on a European site in view of the site's Conservation Objectives. An AA forms part of the Habitats Regulations Assessment and is required when a plan or project is likely to have a significant effect on a European site.
Bio-season	Bird behaviour and abundance is recognised to differ across a calendar year, with particular months recognised as being part of different seasons. The biologically defined minimum population scales (BDMPS) bio-seasons used in this report are based on those in Furness (2015), hereafter referred to as bio-seasons.
Common guillemot biogeographic population	The north east Atlantic breeding population of guillemot which includes the <i>Uria aalge albionis</i> and <i>Uria aalge aalge</i> subspecies and includes individuals from the Flamborough and Filey Coast SPA (Stroud <i>et al.</i> , 2016). Proposed compensation measures will be undertaken within this populations breeding and migratory range.
Compensation / Compensatory Measures	If an Adverse Effect on the Integrity on a designated site is determined during the Secretary of State's Appropriate Assessment, compensatory measures for the impacted site (and relevant features) will be required. The term compensatory measures is not defined in the Habitats Regulations. Compensatory measures are however, considered to comprise those measures which are independent of the project, including any associated mitigation measures, and are intended to offset the negative effects of the plan or project so that the overall ecological coherence of the national site network is maintained.
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for one or more Nationally Significant Infrastructure Projects (NSIP).
Displacement	The potential for birds and other animals to avoid an area due to the presence of the wind turbines or from vessel activity.
HRA Derogation Provisions	Provisions set out under Regulations 64 and 68 of the Conservation of Habitats and Species Regulations 2017 and Regulations 29 and 36 of the Conservation of Offshore Marine Habitats and Species Regulations 2017 that permit a plan or project with AEOI on a European site(s) to be consented provided the tests derived from Article 6(4) are met i.e. there are no alternative solutions, there are imperative reasons of overriding public interest and that necessary compensation measures are secured.
European site	A Special Area of Conservation (SAC) or candidate SAC (cSAC), a Special Protection Area (SPA) or a site listed as a Site of Community Importance (SCI). Potential SPAs (pSPAs), possible SACs (pSACs) and Ramsar sites are also afforded the same protection as European

	sites by the National Planning Policy Framework – para 176 (Ministry of Housing, Communities and Local Government, 2019). European offshore marine sites are also referred to as “European sites” for the purposes of this document.
Habitats Directive	European Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora.
Habitats Regulations	The Conservation of Habitats and Species Regulations 2017 and the Conservation of Offshore Marine Habitats and Species Regulations 2017.
Habitats Regulations Assessment (HRA)	A process which helps determine likely significant effects and (where appropriate) assesses adverse impacts on the integrity of European sites. The process consists of up to four stages: screening, appropriate assessment, assessment of alternative solutions and assessment of imperative reasons of over-riding public interest (IROPI) and compensatory measures.
Hornsea Project Four Offshore Wind Farm	The proposed Hornsea Project Four Offshore Wind Farm project. The term covers all elements of the project (i.e. both the offshore and onshore). Hornsea Four infrastructure will include offshore generating stations (wind turbines), electrical export cables to landfall, and connection to the electricity transmission network. Hereafter referred to as Hornsea Four.
In-Combination Effect	The effect of Hornsea Four in-combination with the effects from other plans and projects on the same feature/receptor.
National Site Network	The network of European Sites in the UK. Prior to the UK’s exit from the EU and the coming into force of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 these sites formed part of the EU ecological network known as “Natura 2000”.
Nature Directives	The EU Habitats Directive (European Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora) and EU Wild Birds Directive (79/409/EEC amended in 2009 to become Directive 2009/147/EC).
Net zero by 2050 commitment	The UK governments legally binding target of achieving net zero greenhouse gas emissions by 2050 as set out in the Climate Change Act 2008 (2050 Target Amendment) Order 2019.
Orsted Hornsea Project Four Ltd.	The Applicant for the proposed Hornsea Project Four Offshore Wind Farm Development Consent Order (DCO).
Planning Inspectorate (PINS)	The agency responsible for operating the planning process for Nationally Significant Infrastructure Projects (NSIPs).
Razorbill biogeographic population	The breeding population of razorbill which includes <i>Alca torda islandica</i> and includes individuals from the Flamborough and Filey Coast SPA (Stroud <i>et al.</i> , 2016). Proposed compensation measures will be undertaken within this populations breeding and migratory range
Report to Inform Appropriate Assessment	The information that the Competent Authority needs to inform an Appropriate Assessment at Stage 2 of the HRA process and which has been provided by the Applicant in [the RIAA (Volume 2, Annex 2).

	Report to Inform Appropriate Assessment REP5-012, REP2-005, AS-013, REP1-012 and APP-171-APP-178).
Special Area of Conservation (SAC)	Strictly protected sites designated pursuant to Article 3 of the Habitats Directive (via the Habitats Regulations) for habitats listed on Annex I and species listed on Annex II of the directive.
Special Protection Area (SPA)	Strictly protected sites designated pursuant to Article 4 of the Birds Directive (via the Habitats Regulations) for species listed on Annex I of the Directive and for regularly occurring migratory species.

Acronyms

Acronym	Definition
AA	Appropriate Assessment
AEOI	Adverse Effect on Integrity
CGR	Counterfactual of growth rate
CPS	Counterfactual of final population size
DCO	Development Consent Order
FFC	Flamborough and Filey Coast
HRA	Habitats Regulations Assessment
JNCC SMP	Join Nature Conservation Council Seabird Monitoring Programme
NGO	Non-Governmental Organisation
PINS	Planning Inspectorate
PVA	Population Viability Analysis
pSACs	Possible Special Area of Conservation
pSPAs	Potential Special Protection Area
RIAA	Report to Inform Appropriate Assessment
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SCI	Site of Community Importance
SNCBs	Statutory Nature Conservation Bodies
SPA	Special Protection Area
UK	United Kingdom

1 Purpose of this Document

1.1.1.1 This document responds to and clarifies three specific issues relating to Deadline 8 submissions on ornithology, specifically:

- RSPB's comment at section 3 of [REP8-024](#) noting that Action Point 16 arising from ISH11 remained outstanding. The Applicant confirms this was an oversight and has provided a response to Action Point 16 at section 2 below;
- Natural England's response to the ExA's Rule 17 Letter in [REP8-027](#) relating to ID4 and the addition of a third matrix for a discrete post-breeding season for Hornsea Four (section 3 below); and
- Document [G8.8 Applicant's comments on Natural England's Deadline 7 Ornithology Submissions REP8-017](#) and a minor clarification with regards to quantum and delivery of compensatory measures for auks (section 4 below).

2 Counterfactuals

2.1.1.1 In response to the ExAs request (Action Point 16, [EV-035a](#)), the Applicant has reviewed the information relating to the last six consented offshore wind farm (OWF) projects in respect of which Population Viability Analysis (PVA) was undertaken and relied upon for informing population effects from predicted impacts on all species. As detailed below, the only comparable project is Norfolk Boreas, as that is the only other OWF project which has utilised the Natural England Seabird PVA tool in the same manner as Hornsea Four. All other projects have relied upon different PVA models which were based on different simulation types to that used by the Seabird PVA tool, with a primary focus on density dependent results rather than density independent and therefore the applicability of the results presented can be considered low for all other consented projects.

2.2 East Anglia One North (EA1N) and East Anglia Two (EA2)

2.2.1.1 For both EA1N and EA2, no additional PVA modelling was undertaken by the developer, instead they relied upon PVA modelling results undertaken for other projects and studies (WWT 2012; EATL 2015a & 2016; MacArthur Green 2018), none of which relied upon the Seabird PVA Tool for analysis.

2.2.1.2 Due to the developer not presenting updated PVA modelling, Natural England relied upon PVA modelling undertaken by Norfolk Boreas and Norfolk Vanguard (MacArthur Green 2019a & 2019b) for concluding their position on predicted impacts at both the EIA and HRA scale (Natural England 2021), which were primarily modelled using the Seabird PVA Tool. Although within Natural England's position statement both the counterfactual of final population size (CPS) and counterfactual of growth rate (CGR) are both presented, for informing impacts the CGR was solely relied upon only for informing Natural England's position (Natural England 2021).

2.2.1.3 As presented within the SoS HRA assessment (BEIS 2022) for the predicted consequent population level effects from predicted impacts for EA1N & EA2 alone or in-combination with other projects both the CPS and CGR were presented. Although for informing the final conclusions, only the CGR was considered in detail with comparisons made against known

trends for predicted impacts on the qualifying features of the FFC SPA, suggesting that only the CGR was relied upon (BEIS 2022a).

2.3 Norfolk Boreas

- 2.3.1.1 Norfolk Boreas was the first project to use the Seabird PVA Tool for informing population effects for predicted impacts from OWF on seabirds (MacArthur Green 2019a). The developer modelled both density independent and density dependent models and presented both the CPS and CGR, however the developer focused on the CGR for interpretation of predicted population effects citing the same concerns as the Applicant in relation to CPS results in the absence of density dependence (MacArthur Green 2019a). For the FFC SPA only, the developer ran updated PVA modelling and provided further information relating to their position on interpretation of PVA results (MacArthur Green 2021). As stated in Section 2 (MacArthur Green 2021), the developer of Norfolk Boreas further reiterates that in the absence of density dependence, only the CGR should be appropriately relied upon for informing PVA outputs only.
- 2.3.1.2 At the time of Natural England drafting their position (Natural England 2020) in relation to Norfolk Boreas impacts alone and cumulatively/ in-combination with other projects, Natural England had concerns in relation to the manner in which the Seabird PVA Tool was run (mainly to do with the simulation count for the PVA modelling being less than 5000 simulations), so instead used the PVA Results from Hornsea Project Three (2018) to inform their position in relation to the FFC SPA apportioned impacts. Although within Natural England's position statement both the CPS and CGR are both presented, for informing impacts, the CGR was solely relied upon only for informing Natural England's position (Natural England 2020).
- 2.3.1.3 As presented within the SoS HRA assessment (BEIS 2021) for the predicted consequent population level effects from predicted impacts for Norfolk Boreas alone or in-combination with other projects both the CPS and CGR were presented. Although for informing the final conclusions, only the CGR was considered in detail with comparisons made against known trends for predicted impacts on the qualifying features of the FFC SPA, suggesting that only the CGR was relied upon (BEIS 2021).

2.4 Norfolk Vanguard

- 2.4.1.1 For Norfolk Vanguard, PVA modelling was undertaken by the developer only for the lesser black-backed gull feature of the Alde Ore Estuary SPA (MacArthur Green 2019b) which was not modelled using the Seabird PVA Tool. For all other PVA the developer relied upon PVA modelling results undertaken for other projects and studies (WWT 2012; EATL 2015 & 2016). The PVA modelling used to inform population effects from Norfolk Vanguard alone and cumulatively/ in-combination with other projects primarily focused on density dependent modelling and therefore the results presented are not applicable for inferring suitable results for a density independent model.
- 2.4.1.2 As presented within the SoS HRA assessment (BEIS 2022b) for the predicted consequent population level effects from predicted impacts for Norfolk Vanguard alone or in-combination with other projects both the CPS and CGR were presented. Although for informing the final conclusions, only the CGR was considered in detail with comparisons

made against known trends for predicted impacts on the qualifying features of the FFC SPA, suggesting that only the CGR was relied upon (BEIS 2022b).

2.5 Hornsea Project Three

- 2.5.1.1 At the time Hornsea Project Three was running its PVA modelling the Seabird PVA Tool was not available to use, therefore the developer instead ran a 'matched runs' approach, which is similar to the Seabird PVA Tool, as it compares unimpacted and impacted populations producing a CPS and CGR (Hornsea Project Three 2018). The developer presented both the CPS and CGR but provided no commentary on the applicability of either result for informing predicted populations effects.
- 2.5.1.2 Natural England's position (Natural England 2019) in relation to Hornsea Project Three impacts alone and cumulatively/ in-combination with other projects relied upon Hornsea Project Three's 'matched runs' PVA results (Hornsea Three 2018). Although within Natural England's position statement both the CPS and CGR are both presented, the CGR was the focus for informing Natural England's position (Natural England 2019).
- 2.5.1.3 As presented within the SoS HRA assessment (BEIS 2020) for the predicted consequent population level effects from predicted impacts for Hornsea Project Three alone or in-combination with other projects both the CPS and CGR were presented. Although for informing the final conclusions there is little detail given on how either counterfactual has been used to inform the consequent population effects on the qualifying features of the FFC SPA (BEIS 2020).

2.6 East Anglia Three (EA3)

- 2.6.1.1 For EA3, PVA modelling was undertaken by the developer for EIA level Kittiwake analysis only (EATL 2015b), which was not modelled using the Seabird PVA Tool as it was not available to use at the time. With the exception of gannet which utilised the PVA undertaken by WWT (2012) for informing EIA population effects from predicted OWF impacts, the remaining assessments relied upon Potential Biological Removal (PBR), as an alternative to PVA for informing the threshold at which a predicted impact would lead to a significant adverse effect in a population.
- 2.6.1.2 As presented within the SoS HRA assessment (BEIS 2017) for the predicted consequent population level effects from predicted impacts for East Anglia Three alone or in-combination with other projects, no specific information is provided on how PVA or PBR results were used to inform the SoS final decisions in relation to the FFC SPA qualifying features.

3 Double Counting

- 3.1.1.1 Natural England have stated in their response to the Rule 17 Letter ([REP8-027](#)):
- 3.1.1.2 *"Natural England are advising the use of three seasons rather than two for guillemot. The seasonal definitions for our advised approach are: - Breeding: March to July inclusive - Chick rearing/moult: August and September - Non-breeding: October to February inclusive There is*

no overlap between these seasons, and therefore data for August and September are only assessed once. Hence, there is no duplication of data."

- 3.1.1.3 The Applicant considers that there may have been some confusion in relation to the point the Applicant was making in relation to Natural England's approach to apportionment. The Applicant agrees with Natural England that there is no duplication in relation to data but as stated, Natural England have chosen to create two assessments for the non-breeding season, whereas conventional assessments have always relied upon one assessment for the non-breeding season. This therefore results in double the number of impact assessments for the non-breeding season compared to that assessed for all other projects consented to date. Splitting of the entire non-breeding season (August – February) into the two separate seasons, as advocated by Natural England, means that one assessment for the non-breeding season is based on assessment against the mean peak across the two years of site-specific survey data for the months of August and September, then a second assessment is made against the mean peak across the two years of site-specific survey data for the months of October and February. These two mean peaks are then effectively added together to conclude a predicted impact for the non-breeding season, which leads to a significantly higher predicted abundance included for assessment when compared to the SNCB standard approach of using a single mean peak across the two years of site-specific survey data for the months of August to February. Applying Natural England's approach to any OWF, not just Hornsea Four, would lead to a significant increase in the level of predicted impacts comparatively to the SNCB standard approach for assessing non-breeding predicted impacts.
- 3.1.1.4 The Applicant strongly disagrees with Natural England's approach of splitting the non-breeding bio-season for the reasons detailed in [G5.34 Applicant's response to Natural England's additional guidance on apportioning of seabirds to FFC SPA for Hornsea Project Four \(REP5a-018\)](#), [G7.4 Applicants Ornithology Position Paper \(REP7-085\)](#) and [G8.3 Applicant's Comments on Deadline 6 Ornithology Submissions \(REP8- 012\)](#).

4 Compensation

- 4.1.1.1 At section 2.6 of [G8.8 Applicant's comments on Natural England's Deadline 7 Ornithology Submissions REP8-017](#), the Applicant considered the implications of Natural England's advice on auk displacement parameters for the delivery of compensatory measures, should the Secretary of State find that compensatory measures were required, contrary to the Applicant's position of no AEol.
- 4.1.1.2 The Applicant confirmed that impact values up to 70% displacement and 5% mortality based on NE's parameters (utilising SNCB standard apportioning) could be accommodated within the compensation package, as the Applicant could return to its long list of sites to identify further locations for predator eradication and the measure is scalable. The Applicant wishes to clarify that "70% displacement and 5% mortality based on NE's parameters (utilising SNCB standard apportioning)" is not a cap on the quantum of compensation the Applicant is able to deliver by way of predator eradication, and that higher values, i.e. based on NE's bespoke approach to apportioning could be accommodated. Nevertheless, for the reasons set out in that response, the Applicant

considers it is clear there is no risk of an AEol and that compensatory measures are not required.

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