

Outer Dowsing Offshore Wind

Habitats Regulations Assessment

Without Prejudice Razorbill Compensation Plan

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Acronyms & Definitions

Abbreviations / Acronym

Abbreviation / Acronym	Description
AEoI	Adverse Effect on Integrity
ANS	Artificial Nesting Structure
BESS	British Energy Security Strategy
BEIS	Business, Energy and Industrial Strategy (now the Department for Energy Security and Net Zero (DESNZ))
COWSC	Collaboration on Offshore Wind Strategic Compensation
DBSE	Dogger Bank South East
DBSW	Dogger Bank South West
DCO	Development Consent Order
DESNZ	Department for Energy Security and Net Zero, formerly Department of Business, Energy and Industrial Strategy (BEIS), which was previously Department of Energy & Climate Change (DECC)
EPP	Evidence Plan Process
ETG	Expert Technical Group
FFC	Flamborough and Filey Coast
GT R4 Ltd	The Applicant. The special project vehicle created in partnership between Corio Generation (and its affiliates), Gulf Energy Development and TotalEnergies
GULF	Gulf Energy Development
HPAI	Highly Pathogenic Avian Influenza
HRA	Habitats Regulations Assessment
IFCA	Inshore Fisheries and Conservation Authority
IROPI	Imperative Reasons of Overriding Public Interest
JNCC	Joint Nature Conservation Committee
KSIMP	Kittiwake Strategic Implementation and Monitoring Plan
KSCP	Kittiwake Strategic Compensation Plan
MMF	Mean Max Foraging
MMO	Marine Management Organisation
MPA	Marine Protected Area
MRF	Marine Recovery Fund
NSIP	Nationally Significant Infrastructure Projects
ORBA	Offshore Restricted Build Area
ORCPs	Offshore Reactive Compensation Platforms
OWF	Offshore Wind Farm
OWIC	Offshore Wind Industry Council
PEIR	Preliminary Environmental Information Report
PINS	Planning Inspectorate
RCIMP	Razorbill Compensation Implementation and Monitoring Plan
RIAA	Report to Inform Appropriate Assessment
RSPB	Royal Society for the Protection of Birds

Abbreviation / Acronym	Description
SAC	Special Areas of Conservation
SCI	Sites of Community Importance
SNCB	Statutory Nature Conservation Body
SPA	Special Protection Area
TCE	The Crown Estate

Terminology

Term	Definition
The Applicant	GTR4 Limited (a joint venture between Corio Generation (and its affiliates), TotalEnergies and Gulf Energy Development), trading as Outer Dowsing Offshore Wind
Array area	The area offshore within which the generating station (including wind turbine generators (WTG) and inter array cables), offshore accommodation platforms, offshore transformer substations and associated cabling will be positioned, including the ORBA.
Baseline	The status of the environment at the time of assessment without the development in place.
Compensatory Measures	Stage 3 of the Habitats Regulations Assessments (see Derogation) involves the development of compensation measures for any features which the report to inform appropriate assessment was unable to conclude no adverse effect on integrity on.
deemed Marine Licence (dML)	A marine licence set out in a Schedule to the Development Consent Order and deemed to have been granted under Part 4 (marine licensing) of the Marine and Coastal Access Act 2009.
Derogation	Stage 3 of the Habitats Regulations Assessments which is triggered once it is determined that you cannot avoid adversely affecting the integrity of a designated site. Involves assessing if alternative solutions are available to achieve the same goals as the project, if there are imperative reasons of overriding public interest, and if compensatory measures will be required.
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for a Nationally Significant Infrastructure Project (NSIP) from the Secretary of State (SoS) for Department for Energy Security and Net Zero (DESNZ).
Effect	Term used to express the consequence of an impact. The significance of an effect is determined by correlating the magnitude of an impact with the sensitivity of a receptor, in accordance with defined significance criteria.
Evidence Plan	A voluntary process of stakeholder consultation with appropriate Expert Topic Groups (ETGs) that discusses and, where possible, agrees the detailed approach to the Environmental Impact Assessment (EIA) and information to support Habitats Regulations Assessment (HRA) for those relevant topics included in the process, undertaken during the pre-application period.
Habitats Regulations Assessment (HRA)	A process which helps determine likely significant effects and (where appropriate) assesses adverse impacts on the integrity of European conservation sites and Ramsar sites. The process consists of up to four

Term	Definition
	stages of assessment: screening, appropriate assessment, assessment of alternative solutions and assessment of imperative reasons of over-riding public interest (IROPI) and compensatory measures.
Mitigation	Mitigation measures, or commitments, are commitments made by the Project to reduce and/or eliminate the potential for significant effects to arise as a result of the Project. Mitigation measures can be embedded (part of the project design) or secondarily added to reduce impacts in the case of potentially significant effects.
Offshore Restricted Build Area (ORBA)	The area within the array area, where no wind turbine generator, offshore transformer substation or offshore accommodation platform shall be erected.
Offshore Reactive Compensation Station (ORCP)	A structure attached to the seabed by means of a foundation, with one or more decks and a helicopter platform (including bird deterrents) housing electrical reactors and switchgear for the purpose of the efficient transfer of power in the course of HVAC transmission by providing reactive compensation
Offshore Substation (OSS)	A structure attached to the seabed by means of a foundation, with one or more decks and a helicopter platform (including bird deterrents), containing— (a) electrical equipment required to switch, transform, convert electricity generated at the wind turbine generators to a higher voltage and provide reactive power compensation; and (b) housing accommodation, storage, workshop auxiliary equipment, radar and facilities for operating, maintaining and controlling the substation or wind turbine generators
Outer Dowsing Offshore Wind (ODOW)	The Project.
Order Limits	The area subject to the application for development consent, the limits shown on the works plans within which the Project may be carried out.
Preliminary Environmental Information Report (PEIR)	The PEIR was written in the style of a draft Environmental Statement (ES) and provided information to support and inform the statutory consultation process during the pre-application phase.
The Project	Outer Dowsing Offshore Wind including proposed onshore and offshore infrastructure.
The Planning Inspectorate	The agency responsible for operating the planning process for Nationally Significant Infrastructure Projects (NSIPs).
Wind turbine generator (WTG)	A structure comprising a tower, rotor with three blades connected at the hub, nacelle and ancillary electrical and other equipment which may include J-tube(s), transition piece, access and rest platforms, access ladders, boat access systems, corrosion protection systems, fenders and maintenance equipment, helicopter landing facilities and other associated equipment, fixed to a foundation

Reference Documentation

Document Number	Title
REP5-009	Project Description
Document reference 7.1, updated at Deadline 6	Report to Inform Appropriate Assessment
REP4-033	Offshore and Intertidal Ornithology Apportioning
REP4-043	Derogation Case
REP4-053	Ornithology Compensation Strategy
APPP-254	Razorbill Compensation Implementation and Monitoring Plan
REP4-061	Artificial Nesting Structures Evidence Base and Roadmap
REP4-063	Predator Control Evidence Base and Roadmap
REP5-112	Without Prejudice Additional Measures for Guillemot and Razorbill Evidence and Road map
REP4a-048	Levels of precaution in the assessment and compensation calculations for offshore ornithology
REP4a-050	Consideration of bioseasons in the assessments of guillemot
REP4a-052	Rates of displacement in guillemot and razorbill.
Document Reference 20.17, V4 updated at D6	Guillemot and Razorbill Compensation Quanta

1 Introduction

1. GT R4 Limited (trading as Outer Dowsing Offshore Wind) hereafter referred to as the 'Applicant', is proposing to develop Outer Dowsing Offshore Wind (the Project). The Project will include both offshore and onshore infrastructure including an offshore generating station (windfarm) approximately 54km from the Lincolnshire coastline in the southern North Sea, export cables to landfall, Offshore Reactive Compensation Platforms (ORCPs), onshore cables, connection to the electricity transmission network, ancillary and associated development and areas for the delivery of up to two Artificial Nesting Structures (ANS) and the creation and recreation of a biogenic reef (if these compensation measures are deemed to be required by the Secretary of State) (see Volume 1, Chapter 3: Project Description (document reference 6.1.3) for full details).
2. As part of the Habitats Regulations Assessment (HRA) process, following the assessment of impacts, where it is concluded that despite mitigation, an adverse effect on the integrity (AEoI) of a designated site (Special Protection Areas (SPAs), Sites of Community Importance (SCIs) and Special Areas of Conservation (SACs) forming part of the 'National Site Network') cannot be excluded (beyond reasonable scientific doubt), projects can undergo a derogation process to gain approval, provided there are 'imperative reasons of overriding public interest' (IROPI), 'no alternatives' and any necessary compensatory measures are secured to ensure that the overall network coherence is protected.
3. Defra has produced best practice guidance for developing compensatory measures in relation to Marine Protected Areas (MPAs) (Defra, 2021¹) and is currently consulting on draft policies to update this guidance. The current consultation held as part of Defra's Offshore Wind Environmental Improvement Package (OWEIP) focusses on 'ecological effectiveness' and 'local circumstances' as the primary consideration when identifying compensatory measures, with measures that benefit the specific feature at risk being encouraged over measures that would benefit different qualifying features at risk but which could provide 'functional equivalence'.
4. The Flamborough and Filey Coast (FFC) SPA is approximately 93km away from the Project array area, which is within the mean-max foraging range (MMF) of breeding razorbill, and therefore there is potential connectivity between the SPA and the Project array during the breeding and non-breeding seasons. The main species considered in this document is:
 - Razorbill (*Alca torda*, hereafter razorbill).
5. Razorbill are designated features at FFC SPA and are at risk of displacement from OWFs.

¹ New guidance was published whilst this document was being finalised (https://consult.defra.gov.uk/offshore-wind-environmental-improvement-package/consultation-on-updated-guidance-for-environmental/supporting_documents/090224%20OWEIP%20Consultation%20on%20updated%20policies%20to%20inform%20guidance%20for%20MPA%20assessments.pdf). Whilst the Applicant is aware of this documentation it is noted that (1) the documentation is still out for consultation and (2) the Project delivery programme did not allow for full inclusion of the recommendations.

6. The Applicant also notes advice from Natural England that they cannot rule out the potential for AEol for the seabird assemblage feature of the FFC SPA, of which razorbill forms part. Whilst the Applicant's assessment in the RIAA concludes that there will be no AEol on the seabird assemblage feature of the FFC SPA, the Applicant has produced a 'without prejudice' derogation case for the seabird assemblage feature of the FFC SPA. In the event that the Secretary of State (SoS) concludes that an AEol of the seabird assemblage feature of the FFC SPA cannot be excluded, the compensation measures set out in this document would also compensate for impacts of the Project on the seabird assemblage feature of the FFC SPA.
7. With regard to razorbill, the RIAA (document reference 7.1, V5 updated at Deadline 6) has concluded that there is no potential for an AEol alone or in-combination. However, given the advice received from Natural England that they can not rule out the potential for AEol for this species (and for the Flamborough and Filey Coast assemblage which razorbill forms a part) and conclusions within the Habitats Regulations Assessment as part of the Hornsea Four consent decision (specifically for guillemot), there is the possibility that the Secretary of State (SoS) may conclude that the potential for an AEol on this species (or for the FFC assemblage) cannot be excluded for the Project in-combination. Consequently, the Project has produced a 'without prejudice' derogation case for this species (and for the FFC assemblage). The Derogation Case (document 7.5) provides consideration of the alternatives assessment, need for the Project and has identified that there are Imperative Reasons of Overriding Public Interest for the Project to proceed despite the potential for an AEol (if the SoS were to conclude such) in accordance with the requirements of the Habitats Regulations.
8. The RIAA provides insight into the impacts to the relevant species predicted to occur from the Project. The quantum of potential compensation delivery is identified within this document and the supporting evidence and roadmaps (documents REP4-061 Predator Control Evidence Base and Roadmap, REP4-063 Predator Control Evidence Base and Roadmap, and REP4a-071 Without Prejudice Additional Measures for Compensation of Guillemot and Razorbill) provide the evidence to support the effectiveness of the measures to deliver compensation to the requirements of the Project's findings (i.e. that no compensation is required) and Natural England's anticipated position (a range of precautionary outcomes).
9. This document has been updated following a request from Natural England and as agreed by the Applicant with the Examining Authority (ExA) to update the Habitats Regulations Assessment (HRA) related documentation for Deadline 4 to reflect changes made by the Applicant to the Project during the Examination phase. The Applicant has previously provided environmental reports for these updates throughout the Examination as appropriate (through the submission of the Habitats Regulations Assessment for the Offshore Restricted Build Area and Revision to the Offshore Export Cable Corridor (PD1-091)), confirming that no changes made altered the previously drawn conclusions within the Report to Inform an Appropriate Assessment (RIAA).
10. This current version of this report provides update to that submitted within the Application arising from the following project changes:

- The introduction of an Offshore Restricted Build Area (ORBA) over the northern section of the Project array area; and
- The removal of the northern section of the offshore Export Cable Corridor (ECC).

11. Further updates have been made at Deadline 6 to reflect changes in compensation requirements and calculation methods;

- including assemblage feature of the FFC SPA; and
updated calculation methods based on advice provided by Natural England at Deadline 5 (REP5-172 and REP5-16]).
- Updated compensation quanta as defined by Natural England's Deadline 5 advice on compensation calculation methods (REP5-167 Appendix G3 - Updated advice on seabird compensation calculations and the Applicant's response to this, in 24.2 The Applicant's Comments on Deadline 3 Submissions.

■

1.1 Purpose

12. This plan sets out how the compensation measures for impacts torazorbill at the FFC SPA can be secured at the time of the DCO being granted (should the SoS determine that compensation is required). The plan provides a suite of measures, including potential strategic measures and also resilience measures. At this stage is it important to note that the site selection, detailed design and monitoring of the proposed measures will be developed in consultation with relevant stakeholders. This document has been updated to reflect the changes to the RIAA at Deadline 4.

13. A compensation implementation and monitoring plan to deliver any required compensation for this species will be prepared based on the strategy set out in the final version of this Plan, as secured in Schedule 22 of the Development Consent Order.

1.2 Without Prejudice Derogation

14. The Applicant has concluded that the potential for an adverse effect on integrity (AEoI) to the FFC SPA from the construction, operation and decommissioning of the Project can be ruled out, when considering the detailed project design and associated mitigations which have been committed to.

15. However, the Applicant has been advised by Natural England that they may not be able to rule out the potential for a possible AEoI for the razorbill feature at FFC SPA in combination with other plans, projects and activities.

16. Therefore, whilst the Applicant is confident that a conclusion of no AEoI can be reached for the Project, in acknowledgement of the advice received from Natural England, a 'without prejudice' derogation case has been developed for razorbill at FFC SPA (and the assemblage).

17. As part of the process of developing the 'without prejudice' derogation case, the Applicant has developed a shortlist of possible compensation options based on the existing Project proposal, recent DCO decisions that have been consented on the basis of an HRA derogation, and stakeholder feedback received to date. These shortlisted options were narrowed down from a longlist following the ranking criteria assessment discussed herein.

2 Quantum of Compensation

2.1 Razorbill

18. The Applicant's position is that no potential for an adverse effect on integrity can be concluded. The predicted impact from the Project, for which compensation could be required should the SoS conclude potential for an AEol, is 10 (10.5) birds, using the Applicant's approach (as detailed within the RIAA (document 7.1)). This number is based on summed mean peak bio-seasonal occurrence. The Applicant's position is that this is appropriately conservative as presented within the Ornithology Apportioning report (document reference 7.1.1). The proportion of adults within the population is defined using adult proportions from Furness et al., (2015), with 100% of these birds apportioned to the FFC SPA. Impact is calculated using a precautionary 50% displacement rate with a 1% mortality rate. The compensation requirements calculated using the Applicant's approach and the anticipated Natural England approach are presented in Table 2.1. The differences between these two approaches are outlined in Table 2.2.
19. The Applicant has provided a guidance document on the rationale for the specific quantum of deliverable compensation for guillemot and razorbill in Guillemot and Razorbill Compensation Quanta (document reference 20.17, V4 updated at D6), this document firstly sets out the preferred method for calculating the potential impact of the Project and the subsequent required compensation for those impacts, including a non-technical discussion of how precaution is continually built into the calculations (and ultimately results in layers of precaution applied to address the same uncertainties). The document then goes on to present the calculated compensation requirements using both the Applicant's preferred approach and the approach understood to be preferred by Natural England. The Applicant considers that their approach to impact assessment is suitably precautionary, with evidence presented in REP4a-048 Levels of precaution in the assessment and compensation calculations for offshore ornithology, REP4a-050 Consideration of bioseasons in the assessment of guillemot and REP4a-052 Rates of displacement in guillemot and razorbill. Compensation calculations are based upon the method used by Hornsea Four, which was agreed by the Secretary of State, and is the only method for which relevant precedent is available for auk species.

Table 2.1. Impacts and possible Compensation requirements based on the Applicant's approach (Hornsea Four method using the mean impact) and Natural England's approach (Hornsea Four method using upper 95% confidence interval impact).

Impact (individuals)	Method	NE design requirement 1:1 (pairs)	NE design requirement 2:1 (pairs)	NE design requirement 3:1 (pairs)	NE success requirement (pairs)	Compensation capability across three measures (pairs)
10.5	Applicant (mean)	92.0	184.0	276.0	92.0	1,932
15.5	Applicant (UCL)	135.8	271.6	407.4		1,932

68.9	Natural England (mean)	603.5	1,207.0	1,810.5		1,932
108.1	Natural England (UCL)	946.9	1,893.8	2,840.7	603.5	1,932

Table 2.2. Differences between approaches used to calculate impact

	Impact level	Apportioning to SPA	Adult apportioning	Displacement	Mortality
Applicant	Mean Impact	100%	57%	50%	1%
Natural England	Upper 95% CI	100%	100%	70%	2%

20. Using the Applicant's approach to quantifying impact, the capacity to deliver the required quanta of each measure is presented in Table 2.3. Predator control, through implementation of a predator exclusion measure at the Plémont Seabird Reserve (see Predator Control Evidence Base and Roadmap, document 7.6.5), forms the primary measure for razorbill, which could deliver all of the compensation required under the Applicant's approach. Should further compensation be deemed necessary the Plémont Seabird Reserve could be supported by the suite of 'additional measures' of disturbance reduction and habitat management at sites in south-west England. Additional compensation could also or instead be provided by Artificial Nesting Structures (ANS) should that be deemed necessary. Note that in the case of the ANS, whilst the maximum capacity has not yet been determined, it is expected that this measure could be designed to accommodate the necessary numbers of breeding pairs.

Table 2.3. The potential for each measure to deliver the full capacity of required compensation

Measure	Requirement (breeding pairs)	Capacity (breeding pairs)	% of requirement delivered by measure
Predator control	92.0 (Applicant)	200	217
Additional measures	92.0 (Applicant)	257	279
ANS	92.0 (Applicant)	1,473	1,601
Total across suite	92.0 (Applicant)	1,932	2,100
Predator control	946.9 (Natural England)	200	21
Additional measures	946.9 (Natural England)	257	27
ANS	946.9 (Natural England)	1,473	155
Total across suite	946.9 (Natural England)	1,932	204

3 Development of Compensation Options

3.1 Overview

21. The following sections outline the approach taken to the development of the long-list and the short-list measures for the compensation options for razorbill. The Applicant commenced the identification and development of suitable compensation measures early on in the development process and has continued to consult on these measures through the Evidence Plan Process (EPP).

3.2 Consultation

22. Consultation on the compensation measures was commenced through the Evidence Plan Process (EPP), with the set-up of a Derogation and Compensation specific Expert Technical Group (ETG) early on in the development process. After the initial meetings, this group was split into the two relevant technical workstreams (one for benthic ecology and the other for offshore ornithology) and discussions on razorbill compensation continued through the renamed Offshore Ornithology and Compensation ETG.

23. Details of the relevant consultation, and where comments are addressed within this document or within the suite of documents in relation to the Ornithological Compensation Strategy, are provided in Table 3.1 below.

Table 3.1. Consultation for ornithology compensation measures

Date and consultation phase/type	Consultation and key issues raised	Section where comment addressed
12 July 2022, Offshore Ornithology, Derogation and Compensation Expert Topic Group	Bycatch reduction: Guillemot and Razorbill. Natural England queried whether the opportunity to buy out fisheries to reduce effort instead of trying to mitigate against effort. Applicant confirmed this is being explored but has considerable challenges.	Section 5.1
12 July 2022, Offshore Ornithology, Derogation and Compensation Expert Topic Group	Fisheries management. Natural England noted that the most appropriate measure for compensation (subject to additionality) may be improving the availability of forage fish, but recognise that may not be within the gift of an individual project level as needs Government intervention	Section 5.5

Date and consultation phase/type	Consultation and key issues raised	Section where comment addressed
28 November 2022, Offshore Ornithology, Derogation and Compensation Expert Topic Group	Natural England queried the interplay between project-specific and strategic compensation workstreams – The Project confirmed that the project was progressing both project-alone options and actively engaging in collaborative/strategic measures equally rather than solely relying on the strategic measures	Section 3.5
20 November 2023, Offshore Ornithology, Derogation and Compensation Expert Topic Group	The Applicant introduced plans for the Plémont Seabird Reserve. Natural England asked: for more information in order to understand the baseline of the area in terms of conservation initiatives and then can understand the potential benefits of the project. Also need to understand the drivers of the population declines; whether a report will cover the extent of, and community engagement with the eradication.	Details on the Plémont Seabird Reserve are presented in the Predator Control Evidence Base and Roadmap (document 7.7.5)
20 November 2023, Offshore Ornithology, Derogation and Compensation Expert Topic Group	The Applicant provided an outline plan to augment existing plans for auk compensation with disturbance reduction, habitat restoration and potentially predator removal measures at a suite of sites in south-west England. Natural England requested further details on the sites (and any designations) and nature of the measures to be implemented, evidence for the existence of pressures, and recommended searching for additional sites in Dorset.	Details on the additional measures are presented in the Additional Measures for Compensation of Guillemot and Razorbill (document 7.7.6)
9 January 2024, Ornithology Compensation Workshop With Natural England	Kittiwake compensation with ANS. The Applicant asked Natural England: To review whether a single ANS (solely for Kittiwake) would be acceptable compensation as a project alone measure ¹ ; whether there was an advised minimum distance between structures should multiple structures be deployed; and, whether the deployment of multiple structures could allow a reduced lead in time. Natural England advised that greater distance between ANS increased resilience and likelihood of success. ANS measures for both kittiwake and auks had been discussed informally before this point.	Section 3.5, with further details in the ANS Evidence Roadmap (document 7.7.4), and the KSOP (document 7.8).
9 January 2024, Ornithology Compensation	The Project asked whether Natural England would view reduction of predator pressures and reduction of recreational pressures as similarly	Details on the additional measures are presented in the

Date and consultation phase/type	Consultation and key issues raised	Section where comment addressed
Workshop With Natural England	effective? Natural England explained that a site could be in decline due to a combination of pressures, so built in adaptive management would be required.	Additional Measures for Compensation of Guillemot and Razorbill (document 7.7.6)
9 January 2024, Ornithology Compensation Workshop With Natural England	In discussion of site selection and implementation of appropriate measures, Natural England explained the need to show feasibility of the measures and then present alternative options and adaptive management if the measures are unsuccessful. The Project explained it would focus on a few key colonies and their multiple pressures, and then look at adaptive management and possible expansion to different sites.	Details on the additional measures are presented in the Additional Measures for Compensation of Guillemot and Razorbill (document 7.7.6)
9 January 2024, Ornithology Compensation Workshop With Natural England	Compensation calculation. The Project confirmed they are using Hornsea Four method for kittiwake and guillemot. Natural England explained that they prefer Hornsea three method. This is supported by a NIRAS report looking at the methods that argues the Hornsea three method is more ecologically robust for kittiwake.	Compensation quanta for Razorbill are presented in Section 2. Compensation quanta calculated using both methods are presented in the KSCP for kittiwake (document 7.8).
9 January 2024, Ornithology Compensation Workshop With Natural England	Mitigation. Natural England suggested looking back through mitigation hierarchy for additional guillemot mitigation, as the guillemot number are very high. The Project explained hot spots were considered when reducing the array. The northern and eastern boundary is where guillemot are mostly found and these areas were reduced. Natural England explained that the Project should look to provide how much the array area could be reduced further and the guillemot numbers using further mitigation.	Mitigation is set out in Section 6 of the RIAA (document reference 7.1)

1. At the point of discussion the KSCP was not finalised so discussions focussed on Project alone measures as details of the KSCP could not be shared.

3.3 Longlist

24. The first stages of the compensation strategy involved reviewing all offshore wind projects that have proposed compensation to date. A longlist of compensation options was collated based on previous offshore windfarm (OWF) derogation cases (including compensation measures provided on a 'without prejudice' basis), guidance and advice from Statutory Nature Conservation Bodies (SNCBs), and a review of peer-reviewed literature. The review focused primarily on projects that have submitted DCO applications within the southern North Sea region because these are located within the same geographic region as the Project and are likely to impact similar species and sites. Nevertheless, compensation considered elsewhere in the UK and global examples were also incorporated within the longlist where relevant. In addition, some more novel ideas, yet to be put forward by other projects were also included. The long list of compensatory measures was drawn up as appropriate to the species and habitats affected and was issued to Natural England for review.

3.4 Shortlist Ranking System

25. From the longlist, each compensation option was evaluated using a set of criteria established from principles outlined by the then current Defra guidance (Defra, 2021), and was consulted on with relevant stakeholders (Natural England and Royal Society for the Protection of Birds (RSPB)) through the EPP (Table 3.1). Five ranking criteria were developed, which aimed to fairly rate each measure and produce a shortlist of the most viable options (Table 3.2). This provided a clear, replicable, and robust method to rank compensation options relative to each other.

26. Each rating criterion was scored on a scale between 1 and 5, (5 being the maximum). The scores were summed for all five criteria for each compensation measure to provide a final score, which was used to rank the measures. For each species, a shortlist of compensation options that scored greater than 15 out of a possible 25 was created, as presented below. The key measures currently being progressed by the Project are supported by Natural England.

3.5 Strategic Options

27. Consideration was given to the delivery of compensation through strategic measures as well as the development of Project-alone options. There are currently multiple workstreams looking to develop options for strategic compensation delivery, including the Marine Recovery Fund (MRF) which the UK Government have confirmed will be available for Round 4 projects to access. Two measures specifically for ornithology strategic compensation have been accepted by the Secretary of State for inclusion within the MRF are:

- Artificial Nesting Structures (ANS) (only for Round 4 projects); and
- Predator Control.

28. Both these measures have been developed by the Project for project-alone measures and could be adapted to be strategic measures if appropriate. For razorbill, the predator control measure is appropriate, although ANS may be designed to accommodate this species as well. Previous consultation with Natural England has indicated some support for this as a measure for auk species and whilst not specific to Razorbill ANS are also included as a potential adaptive management measure for an auk species (Guillemot) in the Hornsea Four Development Consent Order (DCO)².
29. The Project understands that Natural England regard strategic compensation as highly ecologically effective and that it could provide a solution to species or habitats impacted by multiple windfarms.
30. Other strategic initiatives include the development of measures led by organisations such as the Offshore Wind Industry Council (OWIC), for which the Project is a member of the Derogation Subgroup. In addition, measures that can be developed through collaboration between multiple projects or developers are also considered to be strategic options. Consideration as to whether measures could be delivered strategically is provided throughout the report. More detail on delivery mechanisms for strategic options is provided in Section 6.

² <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010098/EN010098-002330-DCO%20Hornsea%204%20OWF%20signed.pdf>

Table 3.2: Criteria used to rank compensation options and scoring principles.

Rating	Targeted	Effectiveness	Technical delivery	Delivery lag	Scale of Impact
Definition	Following the Hierarchy Approach (Defra, 2021). Measures should focus on objectives and targets for the affected species within the National Site Network. They must clearly refer to the structural and functional aspects of the site integrity, and the related types of habitats and species populations that are affected. Higher scores given for like-for-like compensation - lower scores for non-like-for-like.	Confidence that the measure will deliver effective and sustainable compensation for the impact of the project. Ensure the overall coherence of the designated sites network is maintained.	The confidence that the measure can be delivered successfully and be monitored and managed accordingly.	How quickly compensatory measures are expected to be functioning and contributing to the network?	The scale at which the compensatory measure acts can be accurately predicted/quantified
5	Same species, same location. Measure can with certainty benefit birds at the same site (within, adjacent to, within usual foraging range of)	There is strong evidence that the measure is effective, provides a similar ecological function (e.g. where a measure provides additional breeding space for a breeding population), and does not negatively impact any other sites or features	Technical delivery of measure is well evidenced and achievable without any substantial challenges and there is certainty in the outcomes	Agreed certainty that measures will be functioning before impact occurs with timeframe <2 years	Confident that the benefit can be accurately predicted and adapted to match the required compensation

Rating	Targeted	Effectiveness	Technical delivery	Delivery lag	Scale of Impact
4	Same species, with connectivity to SPA Measure can be utilised by affected species from the affected site	There is some evidence that the measure is effective and will provide a similar ecological function	Technical delivery is evidenced but some challenges with delivery and some uncertainty in the outcomes	Some certainty that measures will be functioning prior to impact occurring < 3 years	Some uncertainty in the predicted benefit but measure can be adapted to match the required compensation
3	Same species, different location. Measure can be reached by the species and is within the biogeographic region	There is strong evidence that the measure is effective but does not directly target the same feature or site	There is some evidence of delivery and some uncertainty regarding outcomes	Some certainty that measures will be functioning prior to impact occurring <5 years	Confident that the benefit can be accurately predicted but unlikely to match the required compensation
2	Same species, different location. Measure can be reached by the species and is within the biogeographic region	There is some evidence that the measure is effective but does not directly target the same feature or site	Little to no evidence of delivery and considerable uncertainty in outcomes	Little to no certainty that measures will be functioning <10	Some uncertainty in the predicted benefit and unlikely to match the required compensation
1	Different species Measure compensates for a different species	There is little to no evidence that the measure is effective and there is considerable uncertainty in outcomes	No evidence of delivery and considerable uncertainty in outcomes	No certainty within 10-year timeframe	Large uncertainty in the predicted benefit and unlikely to match the required compensation

4 Razorbill

31. Razorbill are a member of the auk family (Alcidae) which form large, densely packed breeding colonies on cliffs during the reproductive season, typically between April and July. During this time, they forage close to the coast and generally feed on small fish and crustaceans. The rest of the year they spend at sea. Razorbill are features at only three SPAs in England, shown in Table 4.1.

Table 4.1: National Site Network SPAs in England with razorbill as a feature.

SPA	Razorbill
Flamborough & Filey Coast	Qualifying feature
Farne Islands	Un-named component of the seabird assemblage
Isles of Scilly	Un-named component of the seabird assemblage

32. Projects in the southern North Sea region that have recently made DCO applications (e.g. Hornsea Four, and Sheringham Shoal and Dudgeon Extension Projects) have submitted “without prejudice” derogation cases as part of their applications for these species, including consideration of potential compensatory measures. The Secretary of State concluded that there was no AEoI for razorbill for Hornsea Four.

33. The Project’s RIAA (Document 7.1, section 10) concludes no potential for AEoI on razorbill (and assemblage) at the FFC SPA, with low impacts predicted from displacement, amounting to an increase in baseline mortality that would make no material contribution to any changes in population or mortality rate. Notwithstanding this conclusion, compensation is being progressed on a ‘without prejudice’ basis in the event the Secretary of State disagrees with the assessment in the RIAA.

34. The primary compensation options identified for razorbill through the shortlisting process were:

- Bycatch mitigation;
- Predator control;
- Offshore artificial nesting structures;
- Onshore artificial nesting structures; and
- Reduce fisheries quota.

35. Following development of the short-list, a further measure was identified and agreed to be included within the without-prejudice compensation options for auks with the ETG members, namely:

- Human disturbance reduction and reduction of habitat loss at colonies, that could be implemented across a suite of sites in south-western England where populations of this species would benefit from this measure.

36. A detailed evaluation of options is presented in Table 4.2.

37. As described within section 2.1, predator control, through implementation of the Plémont Seabird Reserve, would deliver all of the compensation required under the Applicant's approach. Should further compensation be required, this could be delivered through disturbance management or habitat management measures, implemented across a range of appropriate sites. Further compensation capacity could also be delivered through ANS. If needed, delivering the required additional compensation (i.e. any which cannot be delivered through the Plémont Seabird Reserve alone), via an approach using different measures at different sites through different parts of the UK has the following potential advantages:

- Compensate at higher levels than a single measure at a single site;
- Be more robust to catastrophic events such as outbreaks of HPAI;
- Be less likely to fail to deliver compensation than a single measure at a single site; and
- Return birds more broadly across the national site network than measures at single sites.

4.1 Bycatch Mitigation

38. Bycatch mitigation was the highest scoring compensation option for guillemot and razorbill during the shortlisting process. High numbers of razorbill are known to be subject to bycatch mortality in fishing gear in the UK each year, with between 100 to 200 razorbill estimated to be caught annually, mostly attributed to coastal static net fisheries (and midwater trawls) (Northridge *et al.*, 2020). A variety of mitigation measures for seabird bycatch exist which have shown some success in reducing bycatch rates in various trials (Clean Catch UK, 2022). However, many of the options require further trials to evidence their effectiveness and to provide the necessary confidence in the measure. Following further consideration and evidence review, and in cognisance of the compensatory measures being developed by Hornsea Four and promoted by other OWF projects, it is not currently considered that bycatch reduction is available as a viable compensation option for the Project, due to limited availability of fisheries within which this measure could be developed that would have a meaningful contribution to the quantum which may be required for the Project. As such, this measure has not currently been progressed, however, it will be kept under review in the event that new evidence of its efficiency or alternative options to implement this measure become available.

4.2 Predator Control

39. Predation by invasive mammals is highlighted as the top global threat to seabirds (Dias *et al.*, 2019), with razorbill being among the species impacted in the UK. Eradication of predators at sites in the UK has shown to lead to large increases in productivity and subsequently population size, especially on islands (e.g. Lundy; JNCC, 2022), with razorbills benefitting among other species. Likewise, these effective eradication measures have also led to colonisation of new or historically used sites, and effective biosecurity and adaptive management plans have thus far prevented reinvasion.

40. The proposed Plémont Seabird Reserve with a small breeding population of razorbills, historically hosting a population an order of magnitude larger has been identified. Non-native predator populations have been monitored at the site, and a full feasibility study into the provision of a predator control measure has been carried out. Results show that four species of non-native predator are present at the site, and that predator proof fence construction and implementation of control measures is feasible (document reference 7.7.5 version 4).
41. Predator control may also be considered at other sites targeted for disturbance reduction and habitat management, should it become clear that populations of razorbill are being limited at the identified sites by non-native predators.
42. Predator eradication at breeding colonies is considered a feasible option for razorbill. Depending on the site, predator reduction or exclusion, as opposed to a full eradication, may be considered more appropriate. Detailed information regarding the progress of this as a compensation measure, including ecological evidence and a roadmap to implementation is provided in Predator Control Evidence and Roadmap (Document 7.7.5), see particular detail in relation to the following sections:
 - Evidence for the effectiveness of predator control (section 3 of document 7.7.5);
 - Site selection (section 2 and 3.2 of document 7.7.5);
 - Details regarding the Plémont Seabird Reserve (section 3 of document 7.7.5);
 - Monitoring and adaptive management (section 4 of document 7.7.5);
 - Scale of compensation delivery (section 3.5 of document 7.7.5);
 - Funding (section 6 of document 7.7.5); and
 - Programme for delivery (section 5.2 of document 7.7.5).

4.3 Offshore Artificial Nesting Structures

43. Offshore artificial nesting structures will aim to increase nesting space for razorbill, offering new breeding locations within range of optimal foraging habitat and preferably located at a suitable distance away from predation and anthropogenic pressures (e.g. OWFs). In comparison to kittiwake, evidence of both extensive razorbill breeding on offshore artificial structures in the UK is currently limited, albeit growing, but there is clear evidence of razorbill (and guillemot) with eggs on offshore platforms (Ørsted, 2021a; document 7.7.4). Surveys of offshore installations in the vicinity of the Project, carried out by the Applicant in 2022 and 2023, showed populations of razorbills behaving like breeding birds. Proof of breeding was not possible as the survey vessel was not high enough to see whether birds were incubating, however subsequent evidence from platform owners has shown razorbills to be breeding on platforms within 20 km of the project (document 7.7.4). Further evidence of both species breeding on offshore installations in UK waters was presented by Ørsted (Ørsted, 2021).

44. Consequently, offshore artificial structures are currently considered a feasible option for razorbill. Detailed information regarding the progress of this as a compensation measure, including ecological evidence and a roadmap to implementation is provided in Offshore Artificial Nesting Structures Ecological Evidence and Roadmap (Document 7.7.4), see particular detail in relation to the following sections:

- Evidence for the effectiveness of offshore artificial nesting (section 3 of document 7.7.4);
- Design considerations (section 4.2 of document 7.7.4);
- Site selection (section 4.3 of document 7.7.4);
- Monitoring and adaptive management (section 4.4 of document 7.7.4);
- Scale of compensation delivery (section 4.5 of document 7.7.4);
- Funding (section 4.6 of document 7.7.4); and
- Programme for delivery (section 4.7 of document 7.7.4).

45. It is likely that this measure, if taken forward, would be delivered as part of a multi-species artificial nesting structure, which would also include space for kittiwake.

4.4 Onshore Artificial Nesting Structures

46. Onshore artificial nesting structures aim to increase nesting space for guillemot and razorbill, offering new nesting locations near to productive foraging habitat, and away from predation and anthropogenic pressures (e.g. OWFs). Evidence of razorbill breeding successfully on onshore artificial structures exists (e.g. the Karlsö murre lab; Stockholm Resilience Centre, 2020), though notably this is within an existing colony and outside of the UK.

47. The Project does not consider onshore artificial nesting structures to be a preferred compensatory measure, however it has not been excluded as a potential option, if it becomes appropriate in the future.

4.5 Reduce Fisheries Quota

48. Prey availability has been evidenced as a key limiting factor suppressing the breeding success of razorbill and other seabird species. This has been particularly evidenced for guillemot populations within the North Sea, with a declining availability of key food sources, especially sandeel (Harris *et al.*, 2022; Anderson *et al.*, 2013). The most effective way this measure could be achieved would be to restrict fishing on sandeel, sprat or juvenile herring in UK waters.

49. On 31st January 2024, the UK Government announced that the sandeel fishery in English waters would be permanently closed from 1st April 2024. This was matched by an announcement by the Scottish Government to close the sandeel fishery in Scottish waters from the same date. Therefore this is not currently considered to be available as a compensation option.

4.6 Reduction of human disturbance

50. While impacts from disturbance are difficult to quantify, the Project considers the reduction of disturbance a feasible approach for contributing towards compensation. Disturbance at seabird colonies can result from noise or close approach from both visitors on foot (either along clifftop paths or through coasteering along the cliff base), or from vessels. These impacts can be addressed through education of visitors (either on site through signage, or through online campaigns), presence of wardens, or through either mandatory or voluntary access restrictions.
51. The Applicant has provided a thorough summary of evidence of the impacts of human disturbance on breeding seabirds and in particular, on razorbill. For more information on this pressure and how its reduction may benefit breeding populations of razorbill, see Additional Measures for Compensation of Guillemot and Razorbill Evidence Base and Roadmap (document 7.7.6), see particular detail in relation to the following sections:
- Evidence for the effectiveness of reduction of human disturbance (section 4.1 of document 7.7.6);
 - Design considerations (section 7.2 of document 7.7.5);
 - Site selection (section 5 of document 7.7.5);
 - Monitoring and adaptive management (section 7.4 of document 7.7.6);
 - Scale of compensation delivery (section 7.1 of document 7.7.6);
 - Funding (section 7.5 of document 7.7.6); and
 - Programme for delivery (section 4.6 of document 7.7.6).
52. The next steps will be to assess the best approaches to reduce human disturbance on a site by site basis at colonies where this measure could be implemented. This will be based on results from surveys carried out during the breeding season of 2024 at a suite of sites in Devon and Cornwall. The surveys determined the nature and scale of any disturbance across these sites as well as providing information on colony sizes and colony level productivity (where possible). The results of these surveys are presented in 7.7.6 Additional Measures for Compensation of Guillemot and Razorbill, and include evidence of anthropogenic (vessel based) disturbance across several sites, along with some evidence of disturbance from avian predators.

4.7 Reduction of habitat loss

53. Encroachment of plant species (such as tree mallow, *Lavatera maritima*) or communities into potential breeding habitat can restrict the space available to breeding birds, and as such, limit the numbers breeding at a particular location. Encroachment of vegetation can also contribute to the limiting of breeding numbers or success, by affording cover to predators. Management of encroaching vegetation is feasible at any site that can be accessed, although the approach will need to be considered on a site by site basis. Progression of this measure will begin with the identification of any short-listed sites that would benefit from vegetation management, and where habitat management is not already in place. Further detail on this measure and potential sites where it could be progress is detailed in Additional Measures for Compensation of Guillemot and Razorbill Evidence Base and Roadmap (document 7.7.6), see particular detail in relation to the following sections:

- Evidence for the effectiveness of reduction of habitat loss (section 4.1 of document 7.7.6);
- Design considerations (section 7.2 of document 7.7.5);
- Site selection (section 5 of document 7.7.5);
- Monitoring and adaptive management (section 7.4 of document 7.7.6);
- Scale of compensation delivery (section 7.1 of document 7.7.6);
- Funding (section 7.5 of document 7.7.6); and
- Programme for delivery (section 4.6 of document 7.7.6).

Table 4.2: Shortlisted compensation options for razorbill.

Compensation Measure	Targeted	Effectiveness	Technical delivery	Delivery lag	Scale of Impact	Potential to deliver at a strategic level?	Rating
Bycatch mitigation	4 This measure focuses solely on the target species but is unlikely to directly benefit species from FFC SPA due to the lack of active fisheries in that area.	3 ICES (2013), Bradbury et al. (2017) and Northridge et al., (2020) identified guillemot & razorbill as species known to be caught or sensitive to bycatch in European and UK waters. Žydelis (2013) also highlighted guillemot & razorbill as most concern for bycatch within gillnet fisheries in northern Europe. However, limited monitoring of seabird bycatch has	3 Implementing measures to prevent bycatch (such as high visibility netting, above water deterrents and changes in practice) would reduce this pressure. However, a number of these methods are not evidenced. Successful delivery has been evidenced for auks (e.g., Filey Bay) but a lack of data on bycatch numbers	4 May take some time to implement, particularly if there is a need to work with other regulatory bodies or partners. Focusing on a single and/or smaller scale fishery within the UK may reduce timescales. Overall, relatively quick to implement at a small scale.	5 The benefit can be accurately predicted or measured in retrospect and adapted to match the required compensation at a defined ratio if fisheries are willing/incentivised to use mitigation measures.	No	19

Compensation Measure	Targeted	Effectiveness	Technical delivery	Delivery lag	Scale of Impact	Potential to deliver at a strategic level?	Rating
		been done in European waters. Some evidence that mitigation measures are effective for auk species.	provides some uncertainty.				
Predator control	3 Anticipated direct benefit to auks with some direct connectivity to FFC SPA although the level of connectivity is unknown due to the proximity to the SPA. Measure will be undertaken following feasibility study to ascertain predation pressure on auks at various colonies.	4 Some evidence is available for this species in relation to predation pressure. Considerable evidence base exists for predator eradication and/ or control from seabird colonies in general. Calculations will be required to understand the extent of measure. Multiple colonies	5 Ground predator removal is well evidenced at UK seabird colonies and even more so, globally.	3 Measure will require a feasibility study to ascertain the presence of predators. This will require gathering local knowledge and potential site visits along with surveys. Eradication and/ or control scheme may also take at least 3 years. Potential	3 Some uncertainty in the predicted benefit but measure can be adapted to match the required compensation at a defined ratio.	Yes	18

Compensation Measure	Targeted	Effectiveness	Technical delivery	Delivery lag	Scale of Impact	Potential to deliver at a strategic level?	Rating
		can be targeted to increase extent.		for measure to be <5 years.			
Offshore artificial nesting structures	4 Direct benefits to guillemot and razorbill and likely to have some connectivity to FFC SPA.	3 Some evidence of both guillemot and razorbill nesting on manmade artificial nesting structures in proximity to colonies (e.g. Stora Karlsö Lab) alongside recent evidence of both species nesting on a structure in UK waters (Ørsted 2021). Evidence of this species nesting on man made structures within 20 km of the Project (document reference 7.7.4)	3 There is some evidence that offshore nesting structures are feasible but there is some uncertainty regarding outcomes.	4 Offshore likely to be deliverable in short time frame (within 3 to 5 years) and therefore before anticipated impact.	4 Structure can be designed to compensate for the desired number of birds but some uncertainty in the numbers of birds that will choose to nest there.	Yes	18
Onshore artificial	3 Directly benefits the target species but	2 Some evidence of both guillemot and	3 Technical delivery is	4 Onshore likely to be deliverable in	4 Structure can be designed to	Yes	16

Compensation Measure	Targeted	Effectiveness	Technical delivery	Delivery lag	Scale of Impact	Potential to deliver at a strategic level?	Rating
nesting structures	unlikely to be near FFC SPA.	razorbill nesting on manmade artificial nesting structures in proximity to colonies (e.g. Stora Karlsö Lab) but no solid evidence of colonisation of artificial structures away from a colony.	evidenced but it is likely to be challenging to find an appropriate location for a new nesting structure in proximity to FFC SPA.	short time frame (within 3 to 5 years) and therefore before anticipated impact.	compensate for the desired number of birds but some uncertainty in the numbers of guillemot and razorbill that will choose to nest there.		
Reduce fisheries quota	4 Can have direct connectivity for guillemot and razorbill at FFC SPA and the wider bio-geographic region	4 Prey availability is a key limiting factor in guillemot and razorbill breeding success. Excluding fisheries from a large area may increase prey availability. Climate change is also a limiting factor related to prey availability.	2 Feasible if delivered by government through the common fisheries policy. Only relevant bodies such as IFCAs and MMO have powers to implement closed areas to fishing in UK	1 As the sandeel fishery has been closed indefinitely, options for implementing further fisheries closures as measures for compensation are likely not available.	4 Sufficient change in quota would likely provide benefit to guillemot and razorbill. Scale likely to be large and therefore compensate a significant margin above numbers of birds potentially impacted by the project. Measure	Yes	15

Compensation Measure	Targeted	Effectiveness	Technical delivery	Delivery lag	Scale of Impact	Potential to deliver at a strategic level?	Rating
			waters. As the sandeel fishery has been closed indefinitely, options for implementing further fisheries closures as measures for compensation are likely not available.		would require calculations in relation to prey biomass and the requirements of breeding guillemot and razorbill in order to quantify any impact.		
Reduction of human disturbance	3 Direct benefit to auks with some direct connectivity to the SPA, although with exact levels of connectivity unknown due to the distance between the measure and the SPA.	4 Some evidence the auk productivity is impacted by human disturbance, and likelihood that disturbance is a factor at sites identified.	3 Delivery of these measures can be evidenced, but positive outcomes lack certainty, and would be difficult to quantify.	3 Measures should in theory provide additional adult birds into the breeding population after 5 years.	2 Some uncertainty that benefits will be measurable, and benefits will be difficult to quantify	Yes	15
Reduction of habitat loss	3 Direct benefit to auks with some	3 Evidence that the measure could be	4 Evidence that this measure is	3 Measures should provide	3 Benefits are predictable and	Yes	16

Compensation Measure	Targeted	Effectiveness	Technical delivery	Delivery lag	Scale of Impact	Potential to deliver at a strategic level?	Rating
	direct connectivity to the SPA, although with exact levels of connectivity unknown due to the distance between the measure and the SPA.	effective, but uncertainty as to the applicability of the measure at short-listed sites.	effective provision of additional habitat.	in additional adult birds into the breeding population (and potentially into the national site network) after 5 years.	measurable, but unlikely to deliver the required compensation at a single site.		

5 Further Considerations

54. The Applicant is confident that compensation could be provided for any AEoI from the construction and operation of the Project in-combination, if it is identified as necessary by the Secretary of State. The Applicant is continuing to develop the measures prior to, and will continue to do so throughout, Examination.
55. Although a variety of options have been identified for razorbill, it is acknowledged that there are currently further considerations to be progressed to achieve successful implementation. For example the inability for the Project to implement wide-scale measures across the UK and influence other industries to alter their practices. This means that some of the potentially most effective compensation options, such as fisheries management measures, would need to be strategically led by government (see Section 6). The Project is a member of the Offshore Wind Industry Council (OWIC), a senior Government and industry forum, which may provide a mechanism to aid collaboration across the industry. Strategic collaboration between developers will be supported by the Project where these have the potential to deliver effective compensation measures within the timeframe required.

5.1 Highly Pathogenic Avian Influenza (HPAI)

56. The recent outbreak of HPAI among seabirds has the potential to influence populations for a considerable time. If seabird populations have reduced in size and there are insufficient numbers of non-breeders in the population to occupy available nesting spaces, then compensation measures aiming to provide additional nesting sites may not be so effective in the short term because nesting site availability may not currently be a limiting factor on population growth. Currently, there is uncertainty in the size of the non-breeding pool of adults and it is helpful to develop this understanding to support the use of artificial nesting as a compensation measure. The monitoring of artificial nesting structures currently being developed and monitoring of colonies that have suffered from the effects of HPAI are expected to provide evidence in this respect. Although there is limited data available to date, initial responses at colonies impacted by HPAI indicate populations are increasing in number post infection. As such consideration of HPAI in the context of limited available nesting space may not be necessary. The Applicant notes that enhancing colonies at a range of locations and creation of a new, geographically discreet colony at a North Sea ANS can only provide resilience to the wider razorbill population in the event of any future HPAI outbreak.

6 Strategic delivery

6.1 Overview

57. To date, it has been the responsibility of individual developers to develop and provide compensation. This has been driven predominantly by the differences in timings of individual projects coming forwards which has created challenges for strategic/collaborative approaches, but also because there has been a lack of a strategic framework in the regulatory process and with clear Government support. Individual projects developing compensation can also create challenges, for example, competition for preferred compensation sites, differences in approaches to evidence, design and/or monitoring, limitations in the ability to share information and learning, issues around success liability, and importantly, having to evidence small scale (project-level) results.
58. An alternative solution is to adopt a coordinated large-scale, strategic-level approach to compensation delivery for OWFs in the UK. There are numerous benefits to delivering at scale, including delivering compensation on a collaborative basis, which in turn will help reduce ecological risk and provide confidence in achieving the required population level (e.g. by spreading the risk over multiple measures) resulting in a substantially enhanced outcome. Furthermore, developing small scale measures tends to be very expensive, with unknown future liabilities which can cause commercial issues which whilst not a consideration within Habitats Regulations Assessment (HRA) decision making, are central to the operational success of delivering an OWF project, and consequently the compensation measure. A co-ordinated approach can also avoid the need for individual projects to overcompensate which subsequently reduces the range of options for subsequent projects (i.e. multiple developers could benefit from one measure), as well as providing a mechanism to deliver compensation measures that cannot be delivered by developers e.g. measures that require Government such as fisheries management.
59. A key target within the British Energy Security Strategy (BESS) is to reduce the time taken to consent offshore wind projects, with the development of ecological compensation flagged as time critical. Likewise, a Cross-government Nationally Significant Infrastructure Projects (NSIP) Action Plan 2023 (DLUHC, 2023), and a "Nature Recovery Green Paper: Protected Sites and Species" have been published with the aim to reduce consenting times (Defra, 2022). These measures include the Marine Recovery Fund to enable an accelerated build out of projects, by delivering compensation strategically ahead of project operation.

6.2 Round Four Plan-Level HRA

60. As part of the Plan-Level HRA for the Round Four projects, The Crown Estate (the competent authority) concluded an AEoI in-combination for the Round Four Plan for kittiwake at FFC SPA. The Plan-Level HRA proceeded on the basis of a derogation, with compensation required in the form of a Kittiwake Strategic Compensation Plan (KSCP). The KSCP is a forum through which the strategic delivery of compensation for the Round Four Plan will be delivered. The Project, as part of the Round Four Plan and one of the three projects contributing to an AEoI, is committed to supporting The Crown Estate in its delivery of the KSCP to enable strategic compensation for kittiwake.
61. The KSCP has been produced (document 7.8) and the primary measure proposed for the delivery of the required compensation is offshore ANS. The Project will continue to engage with the KSCP throughout the post-application phase as nesting space for other species could be included within the same structure. Although the KSCP focusses entirely on compensation delivery for kittiwake, nesting space for other species has not been precluded from the ANS design.

6.3 OWIC

62. The Applicant is an active member of OWIC and has contributed towards the delivery of various strategic compensation case studies that have been completed to date. The OWIC group is currently developing four topics as strategic compensation for a pilot approach, two of which are relevant to seabirds, and both of which have been included in the library of measures by the Secretary of State:
- Artificial nesting structures (for Round 4 projects only); and
 - Predator control or eradication.
63. For razorbill, the predator control measure is appropriate and although the ANS measure has been proposed primarily for kittiwake, such structures may be designed to accommodate this species as well. Previous consultation with Natural England has indicated some support for this as a measure for auk species. Whilst not for razorbill specifically, ANS are also included as a potential adaptive management measure for and auk species (guillemot) in the Hornsea Four DCO.
64. The Project also has members contributing towards the Collaboration on Offshore Wind Strategic Compensation (COWSC) Expert and Delivery groups.
65. The Applicant will continue to engage actively in the OWIC workstreams and support the development of the strategic delivery of compensation measures for the relevant sites/features through this collaborative initiative. The two measures listed above have recently been accepted by the Secretary of State for inclusion within the MRF as collaborative compensation options.

6.4 Marine Recovery Fund (MRF)

66. The creation of the MRF is a clear step forward in establishing a mechanism through which multiple projects can secure access to suitable compensatory measures that are delivered at a strategic level. The Applicant believes this mechanism has the potential to enable the greatest ecological benefit to the National Site Network, whilst also enabling the timely delivery of required measures and as a result accelerating the deployment of offshore wind in line with Government policy.
67. The Applicant understands that the MRF will be in place prior to the end of 2025 and will be available to rely upon for the purpose of delivering compensation if required as described in the Strategic compensation measures for offshore wind activities: Marine Recovery Fund interim guidance issued by DESNZ on the 29/01/2025 (DESNZ, 2025)

68. The DESNZ guidance states:

“24. When preparing their draft DCO, applicants may also wish to include a provision allowing for a contribution to be made into the MRF in substitution for delivering the ANS or predator control compensation measure(s) themselves. Any such provision should usually restrict works which give rise to the adverse effect for which compensation is required until evidence has been provided that:

- an appropriate level of compensation has been secured through the MRF,
- the amount of any such contribution into the MRF has been agreed between Defra/the MRF Operator and the applicant, and
- payment has been made for the compensation measure.

25. This provision does not guarantee that such measures, which form part of the MRF, will be available and the relevant SNCB will be consulted regarding any such provisions. Note that this formulation alone cannot be relied upon for consent at this time, and must be provided alongside project-specific ornithological compensation measures.

26. Applicants whose approved DCO includes strategic compensation measures will, once the MRF is operational, be required to provide evidence to DESNZ Secretary of State that payment has been agreed with and made to the MRF Operator. Works which give rise to the adverse effect for which strategic compensation is required will usually not be permitted to take place until these provisions have been made and the strategic compensation has been in place for a timeframe determined by the DESNZ Secretary of State. The Secretary of State may consider circumstances where the adverse effect can occur before compensation is in place, however this would need to be considered against other factors.”

69. Defra have advised that two measures for ornithology compensation will be available through the MRF, both of which are included in the library of measures by the Secretary of State:

- Offshore artificial nesting structures (Round Four projects only); and
- Predator control.

70. For both these measures, the evidence collated for the respective project-alone measures are equally valid for the purposes of the strategic delivery of these measures.

7 Conclusion

71. This document presents the strategy which has been followed by the Applicant in the development of the compensatory measures currently considered to be most appropriate, and proposed for the Project for the without-prejudice case for razorbill (and the assemblage) at the FFC SPA. It has detailed the approach to the development of the long-list and short-list of measures to be explored, as well as the reasoning for the subsequent progression or rejection of measures. Background as to the relevant strategic workstreams which the Project has engaged in has also been provided.
72. A compensation implementation and monitoring plan to deliver any required compensation through measures currently considered to be most appropriate for this species will be prepared based on the strategy set out in the final version of this Plan, as secured in Schedule 22 of the Development Consent Order. The final decision on which measures to implement will be presented for approval pursuant to Schedule 22 and may include one of or a combination of measures set out in the final version of this Plan (including if appropriate measures to be delivered collaboratively; contribution to measures being delivered by another party; or a contribution to the MRF).
73. The most appropriate measures identified through this process and for which the evidence base and roadmaps have been developed include:
 - Predator control (document 7.7.5);
 - Management of human disturbance and habitat improvement (document 7.7.6); and
 - Offshore artificial nesting structure (document 7.7.4).
74. Predator control, through implementation of the Plémont Seabird Reserve, forms the primary measure for razorbill which would deliver all of the compensation required under the Applicants approach. Should further compensation be required, this could be delivered through the disturbance management or habitat management measures, implemented across a range of appropriate sites. Further compensation capacity could also be delivered through ANS if required.
75. Each of the evidence base and roadmaps for these measures have been developed to demonstrate that each measure is robust, will contribute to the maintenance of the National Site Network if implemented, and can deliver the necessary quantum of compensation for the range of predicted impacts.

8 References

- Anderson, O. R., Small, C. J., Croxall, J. P., Dunn, E. K., Sullivan, B. J., Yates, O. and Black, A. (2011), 'Global seabird bycatch in longline fisheries. Endangered Species Research', 14/2: 91-106.
- Anderson, H. B., Evans, P. G. H., Potts, J. M., Harris, M. P. and Wanless, S. (2013), 'The diet of Common Guillemot *Uria aalge* chicks provides evidence of changing prey communities in the North Sea', IBIS, 156/1: 22-34.
- Bradbury, G., Shackshaft, M., Scott-Hayward, L., Rextad, E., Miller, D. and Edwards, D. (2017), 'Risk assessment of seabird bycatch in UK waters', Report to Defra. Defra Project: MB0126.
- Clean Catch UK, (2021), 'The Bycatch Mitigation Hub - Clean Catch UK'. <https://www.cleancatchuk.com/hub> [Accessed September 2022].
- Defra. (2021). Best practice guidance for developing compensatory measures in relation to Marine Protected Areas. https://consult.defra.gov.uk/marine-planning-licensing-team/mpa-compensation-guidance-consultation/supporting_documents/mpacompensatorymeasuresbestpracticeguidance.pdf
- Defra. (2022). Nature Recovery Green Paper: Protected Sites and Species. <https://consult.defra.gov.uk/nature-recovery-green-paper/nature-recovery-green-paper/>
- Defra. (2023). Consultation on Spatial Management Measures for Industrial Sandeel Fishing. <https://consult.defra.gov.uk/wg-management-measures-for-industrial-sandeel-fishing/consultation-on-spatial-management-measures-for-in/>
- DLUHC. (2023). Nationally Significant Infrastructure: action plan for reforms to the planning process. Policy Paper. Department for Levelling Up, Housing & Communities. <https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-nsip-reforms-action-plan/nationally-significant-infrastructure-action-plan-for-reforms-to-the-planning-process>
- Dias, M. P., Martin, R., Pearmain, E. J., Burfield, I. J., Small, C., Phillips, R. A., Yates, O., Lascelles, B., Borboroglu, P. G. and Croxall, J. P. (2019), 'Threats to seabirds: a global assessment', Biological Conservation, 237: 525-537.
- Furness, R. (2015). Non-breeding season populations of seabirds in UK waters: Population sizes for Biologically Defined Minimum Population Scales (BDMPS). Natural England Commissioned Report. 164.
- Harris, M. P., Albon, S. D., Newell, M. A., Gunn, C., Daunt, F. and Wanless, S. (2022), 'Long-term within-season changes in the diet of Common Guillemot (*Uria aalge*) chicks at a North Sea colony: implications for dietary monitoring'. IBIS, 164/4: 1243-1251.
- ICES. (2013), 'Report of the Workshop to Review and Advise on Seabird Bycatch (WKBYCS)', ICES CM 2013/ACOM:77, Copenhagen, Denmark.

JNCC (2022), 'Seabird Monitoring Programme', Available at: <https://jncc.gov.uk/our-work/seabird-monitoring/> [Accessed July 2022]

Mitchell, I., Daunt, F., Frederiksen, M. and Wade, K. (2020), 'Impacts of climate change on seabirds, relevant to the coastal and marine environment around the UK'.

Natural England. (2015), Site Improvement Plan Flamborough and Filey Coast. Available at: [REDACTED] (Accessed April, 2023)

Natural England. (2022a). 'Natural England's End of Examination Position on the Applicant's Proposed Compensatory Measures'. <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010098/EN010098-001970-Natural%20England%20-%20Comments%20on%20any%20submissions%20received%20at%20Deadline%206%201.pdf>

Natural England. (2022b). Natural England review of G3.4 Compensation measures for FFC SPA: Compensation Connectivity Note. <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010098/EN010098-001479-Natural%20England%20-%20Comments%20on%20any%20submissions%20received%20at%20Deadline%203%201.pdf>

Northridge, S., Kingston, A. and Coram, A. (2020), 'Preliminary estimates of seabird bycatch by UK vessels in UK and adjacent waters', DEFRA Report ME6024. Scottish Ocean Institute, University of St Andrews.

Ørsted. (2020), 'Response to the Secretary of State's Minded to Approve Letter. Appendix 2: Kittiwake Compensation Plan'. [https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010080/EN010080-003246-HOW03-30Sep_Appendix%20%20Kittiwake%20Compensation%20Plan%20\(06543754_A\).pdf](https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010080/EN010080-003246-HOW03-30Sep_Appendix%20%20Kittiwake%20Compensation%20Plan%20(06543754_A).pdf)

Ørsted. (2021a), 'Compensation measures for FFC SPA Offshore Artificial Nesting Ecological Evidence', Planning Inspectorate. <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010098/EN010098-000504-B2.7.1%20RP%20Volume%20B2%20Annex%207.1%20Compensation%20measures%20for%20FFC%20SPA%20Offshore%20Artificial%20Nesting%20Ecological%20Evidence.pdf>

Ørsted. (2021b), 'Compensation measures for FFC SPA: Bycatch Reduction: Ecological Evidence', Planning Inspectorate. <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010098/EN010098-000511-B2.8.1%20RP%20Volume%20B2%20Annex%208.1%20Compensation%20measures%20for%20FFC%20SPA%20Bycatch%20Reduction%20Ecological%20Evidence.pdf>

Stockholm Resilience Centre. (2021), 'Artificial breeding site offers perfect platform for seabird observations', University of Stockholm. [REDACTED]

The Karlsö murre lab. Stockholm University. <https://www.stockholmresilience.org/research/research-news/2020-11-16-artificial-breeding-site-offers-perfect-platform-for-seabird-observations.html>

UK Government. [British energy security strategy – GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/british-energy-security-strategy). Accessed February 2024

Žydelis, R., Small, C. and French, G. (2013), 'The incidental catch of seabirds in gillnet fisheries: a global review', *Biological Conservation*, 162: 76-88.