




F I V E 
ESTUARIES
OFFSHORE WIND FARM

FIVE ESTUARIES OFFSHORE WIND FARM

VOLUME 5, REPORT 5.4: KITTIWAKE
COMPENSATION – EVIDENCE, SITE
SELECTION AND ROADMAP – (TRACKED)

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DEFINITION OF ACRONYMS

Term	Definition
AEoI	Adverse Effect on Integrity
ANS	Artificial Nesting Structure
DBS	Dogger Bank South
DCO	Development Consent Order
ES	Environmental Statement
FFC	Flamborough and Filey Coast
HRA	Habitats Regulations Assessment
IROPI	Imperative Reasons of Overriding Public Interest
JNCC	Joint Nature Conservation Committee
MCZ	Marine Conservation Zone
MMF	Mean-Max Foraging Range
MRF	Marine Recovery Fund
NE	Natural England
OOEG	Offshore Ornithology Engagement Group
OWF	Offshore Wind Farm
RAG	Red, Amber, Green
RIAA	Report to Inform Appropriate Assessment
RSPB	Royal Society for the Protection of Birds
SAC	Special Areas of Conservation
SD	Standard Deviation
SMP	Seabird Monitoring Programme
SNCB	Statutory Nature Conservation Bodies
SPA	Special Protection Area
VE	Five Estuaries Offshore Wind Farm
VE OWFL	Five Estuaries Offshore Wind Farm Limited



GLOSSARY OF TERMS

Term	Definition
The Project	Refers to the Five Estuaries Offshore Wind Project
Array area	The area offshore within the order limits within which the generating stations will be situated (including wind turbine generators (WTG), offshore platforms and Inter-array cables).
Baseline	The status of the environment at the time of assessment without the development in place.
Habitats Regulations Assessment (HRA)	Habitats Regulations Assessment. 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 stages of assessment: screening, appropriate assessment, assessment of alternative solutions and assessment of imperative reasons of over-riding public interest (IROPI) and compensatory measures.
Impact	An impact to the receiving environment is defined as any change to its baseline condition, either adverse or beneficial.
Wind turbine generator (WTG)	All the components of a wind turbine, including the tower, nacelle, and rotor.



1 INTRODUCTION

1.1 BACKGROUND

FIVE ESTUARIES OFFSHORE WIND FARM

- 1.1.1 Five Estuaries Offshore Wind Farm (VE - hereafter referred to as the 'Applicant') is a proposed extension to the operational Galloper Offshore Wind Farm (OWF). VE would be located approximately 37 kilometres (km) off the coast of Suffolk, England (at its closest point).
- 1.1.2 As part of the Development Consent Order (DCO) application, Five Estuaries Offshore Windfarm Ltd (VE OWFL) is required to produce a Report to Inform Appropriate Assessment (RIAA) to provide the information required by the Competent Authority in order to undertake its Habitats Regulation Assessment (HRA) and Appropriate Assessment. If the HRA process concludes that Adverse Effects on Integrity (AEoI) cannot be excluded, a derogations process is followed. In the event that no alternative solutions can be found, and if there are imperative reasons of overriding public interest (IROPI), the final stage of the derogations process is to secure measures to compensate for adverse effects on a site.
- 1.1.3 This document introduces the without prejudice compensation measures that have been identified for kittiwake (*Rissa tridactyla*) and provides the key evidence to support artificial nesting structures. The Applicant presented these measures to Natural England during the ETG in September 2023 and it was agreed that the kittiwake tower constructed by RWE at Gateshead would be a suitable option given the low level of impact on kittiwake by the Project.
- 1.1.4 Another option being considered as an alternative to the RWE/Dogger Bank South (DBS) artificial nesting structure (ANS) is participating in the DEFRA strategic compensation scheme and the associated Marine Recovery Fund (MRF). The Secretary of State has approved offshore ANS for kittiwake in English Waters as strategic compensation and as such the Applicant deems this to be an alternative viable strategic compensation option.

'WITHOUT PREJUDICE' DEROGATION PREPARATION AND CONSULTATION

- 1.1.5 Stakeholder engagement with Natural England, RSPB and Defra has continued throughout the derogation process, primarily through the Section 42 comments and the subsequent ETG in September 2023. The full list of meetings/feedback can be found below:
- > Section 42 comments: June 2023;
 - > NE compensation meetings: 22 August 2023, 5 October 2023, 27 November 2023, 15 December 2023, 16 January 2024 and 19th February 2024;
 - > Offshore Ornithology ETG: 4 September 2023 (Natural England and RSPB in attendance);
 - > DEFRA meetings: 26 September 2023, 15 November 2023, 17 January 2024;
 - > Meetings with RSPB in attendance: 15 December 2023, 17 January 2024, 2 February 2024.
- 1.1.6 Table 1.1 presents the most recent consultation responses of relevance to this measure, some of the historic advice has been superseded by the latest developments and advice.



- 1.1.7 In addition, in principle letters of agreement from Dogger Bank South with regards to potential use of their Artificial Nesting Structures is provided in Appendix B (Section 6) with the previous Kittiwake roadmap consulted on at PEIR provided in Appendix A (Section 5).



Table 1.14.4 Consultation responses in relation to kittiwake compensation.

Consultee	Comment	The Project Response
<p>Natural Meeting, England, February 2024</p>	<p>Natural England highlighted that it would be appropriate to include two options for kittiwake compensation i.e. the DBS kittiwake tower or participating in the Defra strategic compensation/Marine Recovery Fund, should the SoS deem that compensation is required for VE.</p>	<p>The Applicant has taken this advice on board from Natural England and has included both the option to use the DBS kittiwake tower and the option participating in the Defra strategic compensation/Marine Recovery Fund within this roadmap.</p>
<p>NE, DAS Advice Letter, December 2023 (DAS/27347/456745)</p>	<p>Kittiwake Compensation – Ecological Evidence and Roadmap In principle, we agree with the proposed approach, subject to a detailed account of the collaboration sought with Dogger Bank South OWF and what that entails.</p>	<p>The Applicant has taken on board the advice from Natural England and has provided more details on the collaboration with DBS (Appendix B: In principle letter of agreement from dogger bank south).</p>
<p>PINS Section 51 advice regarding draft application documents submitted by Five Estuaries Offshore Wind Farm Ltd, November 2023</p>	<p>Kittiwake Compensation – Ecological Evidence and Roadmap Reference is made to agreement reached with Natural England that kittiwake would only be considered for non-breeding connectivity. The Inspectorate advises that supporting evidence should be provided in the RIAA.</p>	<p>The Applicant has noted this and more information is in the RIAA.</p>



Consultee	Comment	The Project Response
<p>PINS Section 51 advice regarding draft application documents submitted by Five Estuaries Offshore Wind Farm Ltd, November 2023</p>	<p>Kittiwake Compensation – Ecological Evidence and Roadmap</p> <p>Paragraph 1.2.2 explains how the compensation quantum has been estimated. The Inspectorate suggests that the Applicant seek to agree this with Natural England through the Evidence Plan.</p>	<p>The Applicant has agreed with Natural England with regards to how to calculate the compensation quantum.</p>
<p>PINS Section 51 advice regarding draft application documents submitted by Five Estuaries Offshore Wind Farm Ltd, November 2023</p>	<p>Kittiwake Compensation – Ecological Evidence and Roadmap</p> <p>Given the compensation measure uses an existing artificial nesting structure, the Inspectorate recommends further explanation is provided as to how the Proposed Development’s contribution would be additional to the ecological function provided at the current RWE Gateshead tower.</p>	<p>The Applicant has noted this, the tower is not yet functioning (it has only been in place for one breeding season) and has only been developed for the use of DBS and other RWE projects - without offshore wind development it would not exist. Natural England are in agreement that the tower could service multiple projects. The Applicant has also included the option to use DEFRA strategic compensation/ the MRF.</p>
<p>PINS Section 51 advice regarding draft application documents submitted by Five Estuaries Offshore Wind Farm Ltd, November 2023</p>	<p>Kittiwake Compensation – Ecological Evidence and Roadmap</p> <p>As above, the Inspectorate would expect the report to be complete at the point of DCO application submission, including:</p> <ul style="list-style-type: none"> > a full description of the measure proposed, including location, footprint and design; 	<p>The Applicant has noted this advice and the DCO application will include the described information:</p> <p>Appendix B: In principle letter of agreement from dogger bank south & Volume 5, Report 5.7: Kittiwake Implementation and Monitoring Plan.</p>



Consultee	Comment	The Project Response
	<ul style="list-style-type: none"> > what arrangements would be required to deliver the measure, for example third party agreements or separate consents, and the status of these; > evidence to demonstrate how the option would fully compensate for the adverse effects of the Proposed Development such that the coherence of the national site network is maintained and the timescales involved in reaching this; and > a fuller description of the adaptive management that might be required as to relevant to the options being considered. It should be noted that the weight that the ExA places on any proposals for compensatory measures will depend on the extent and detail of the information available to them during examination 	
<p>NE Section 42 comments regarding draft application documents submitted by Five Estuaries Offshore Wind Farm Ltd, November 2023</p>	<p>4.10 to 4.13 - Breeding kittiwake population from Lowestoft is not included in the EIA, but VE array lies within the mean-max foraging range of the species. NE advise adding this population to the list IOFs and include it in the CEA.</p>	<p>This is relevant to Volume 5, Report 4: RIAA and is addressed there. For EIA the appropriate population scale is the BDMPS which has been used in this assessment.</p> <p>Parker et al. (2022c) states that “All plans and projects within the relevant spatial scale should be screened into the cumulative / in-combination assessments. The relevant spatial scale will vary between species and should be based on a suitable evidence base, such as the relevant BDMPS”.</p>

- 1.1.8 The table below (Table 1.2) sets out how the Applicant is addressing each of the elements of the Natural England (NE) checklist. It should be noted that this document and its contents do not prejudice the outcome of the ongoing HRA process.
- 1.1.9 One of the species of potential derogation risk for the Applicant is kittiwake at Flamborough and Filey Coast (FFC) Special Protection Area (SPA).
- 1.1.10 FFC SPA is 275.5 km away from VE, within mean-max foraging (MMF) range + 1 Standard Deviation (SD) for kittiwake (300.6 km; Woodward et al., 2019), and therefore there is potential connectivity between FFC SPA and VE. Following a review of tracking data and with agreement from Natural England, it was decided that kittiwake was only considered for the non-breeding connectivity, and recent decisions on other offshore wind projects (e.g. Hornsea Three, East Anglia One North, East Anglia Two, Norfolk Vanguard and Norfolk Boreas) concluded that AEoI could not be ruled out for kittiwake at FFC SPA when considered in-combination with other projects. As a precedent for concern around AEoI has been established on other projects, the species is thus of in-principal derogation concern for the Applicant.
- 1.1.11 VE OWFL has identified potential compensation measures for kittiwake and created a 'longlist' of all possible compensation options at FFC SPA (and other high-risk sites for other species potentially requiring compensation). The longlisted options were based on the existing VE project proposal, experience with HRA derogation matters in the UK and stakeholder feedback received to date. These longlisted options are discussed in 'Five Estuaries Offshore Wind Farm: Potential compensation measures longlist report' (VE OWFL, 2022a).
- 1.1.12 The longlist options were narrowed down to a shortlist following a ranking exercise (otherwise known as a Red-Amber-Green (RAG) assessment), presented in 'Five Estuaries Offshore Wind Farm: Compensation measures shortlist technical note' (VE OWFL, 2022b). The ranking approach is provided in 'Five Estuaries Offshore Wind Farm: Compensation measures ranking approach note' (VE OWFL, 2022c). In short, longlisted measures were scored against a number of categories (Defra, 2021), with scores for each category summed to provide a total score. The measures were then allocated to "red", "amber" and "green" groups based on their total score, and "green" measures taken forward to the shortlist of compensation options.
- 1.1.13 Following shortlisting, and subsequent stakeholder feedback from Natural England and the RSPB, it was deemed that the provision of artificial nesting structures is the most feasible measure for providing compensation of kittiwake for the Applicant. Based on the recent DEFRA announcement regarding the MRF and offshore ANS for kittiwakes, the Applicant is also looking at the option of buying into the MRF. Consequently, the Applicant considers both options suitable and therefore both are discussed in this document.

1.1.14 Based on collision risk analysis of the potential impact of VE on kittiwake, the estimated compensation requirement is low, with 0.82 (2.35 UCI) kittiwake mortalities. As such, the Applicant is seeking a formal agreement with DBS OWF to contribute towards, and have a defined share of, the kittiwake tower that DBS constructed at Gateshead. Following discussions with Natural England at the ETG in September 2023 it was agreed that the onshore ANS constructed by DBS OWF at Gateshead was a suitable compensation measure for VE OWFL. As mentioned in paragraph 1.1.11, another option for compensation considered to be viable is the use of the MRF in regards to strategic compensation for offshore ANS for kittiwakes, as per the recent DEFRA announcement . The Applicant considers either of these options to a viable compensation measure.

Table 1.24.2 Natural England compensation checklist and the Applicants project status for kittiwake compensation measures.

NE Compensation Checklist		Project Status – DBS kittiwake tower
a	What, where, when: clear and detailed statements regarding the location and design of the proposal.	The DBS kittiwake tower, built by RWE, at Gateshead has been chosen as the preferred location. This location has been agreed with Natural England.
b	Why and how: ecological evidence to demonstrate compensation for the impacted site feature is deliverable in the proposed locations	Kittiwake towers are well established to be successful at attracting breeding kittiwakes (Section 2.3). The proposed location already has a purpose built ANS and is adjacent to an existing ANS (Saltmeadows) that holds over 100 pairs.
c	For measures on land, demonstrate that on ground construction deliverability is secured and not just the requirement to deliver in the DCO e.g., landowner agreement is in place. For measures at sea, demonstrate that measures have been secured e.g. agreements with other sea or seabed users.	The ANS at Gateshead has already been constructed. A signed letter of intent with DBS has been secured (Appendix B: In principle letter of agreement from dogger bank south).
d	Policy/legislative mechanism for delivering the compensation (where needed).	The mechanism is laid out in the derogation case (Volume 5, Report 5: Habitat Regulations Derogation case).
e	Agreed DCO/DML conditions.	Draft conditions are not provided with the application is this is a without prejudice submission and it is understood that NE, DEFRA and DESNZ are working to produce drafting to enable use of strategic compensation and this will likely be produced during the examination process.

NE Compensation Checklist		Project Status – DBS kittiwake tower
f	Clear aims and objectives of the compensation.	At the Gateshead Tower the Applicant aims to utilize the required space required for 6-16 pairs of kittiwake on the ANS. Alternatively, the Applicant aims to buy in to the Defra strategic compensation measures/ MRF with regards to strategic compensation measures for offshore ANS for kittiwakes. The quantum of compensation required can be found in Table 1.3.
g	Mechanism for further commitments if the original compensation objectives are not met – i.e., adaptive management.	The Kittiwake Implementation and Monitoring Plan (Volume 5, Report 5.7) outlines proposed adaptive management measures.
h	Clear governance proposals for the post-consent phase – we do not consider simply proposing a steering group is sufficient.	The Applicant has sought to progress and secure the measure as much as possible prior to the submission of the application and details for implementation and monitoring are set out in Volume 5, Report 5.7: Kittiwake Implementation and Monitoring Plan. This includes detailed evidence of the feasibility of the measure and proves that it is securable (Appendix B: In principle letter of agreement from dogger bank south). Should consent for the project be granted, and compensation be required for kittiwake, a steering group, to be termed the “Offshore Ornithology Engagement Group” (OOEG) will be convened by the Applicant. This group will help steer the delivery of any compensation measure implementation and maintenance, monitoring, reporting, and any other relevant matters as determined by the Applicant in discussion with the OOEG participants.
i	Ensure development of compensatory measures is open and transparent as a matter of public interest, including how information on the compensation would be publicly available.	Evidence and roadmap documents, including the implementation plans have been submitted to PINS as part of the application and are publicly available. Initial road maps have also been consulted on as part of the RIAA consultation.
j	Timescales for implementation especially where compensation is part of a strategic project, including how timescales relate to the ecological impacts from the development.	The Applicant has secured a letter of intent from DBS to utilise space at the Gateshead Tower (Appendix B: In principle letter of agreement from dogger bank south). With the tower already constructed the compensation

NE Compensation Checklist		Project Status – DBS kittiwake tower
		programme will begin as needed if consent is granted.
k	Commitments to ongoing monitoring of measure performance against specified success criteria.	The Applicant will conduct annual monitoring of the breeding colony within the compensation site to assess the success of the compensation measure.
l	Proposals for ongoing ‘sign off’ procedure for implementing compensation measures throughout the lifetime of the project, including implementing feedback loops from monitoring.	An adaptive management plan will be further developed in due course in line with the implementation and monitoring plan. This will be progressed via the OOEG and meetings with Natural England and other stakeholders.
m	Continued annual management of the compensation area including to ensure other factors are not hindering the success of the compensation e.g., changes in habitat, increased disturbance as a result of subsequent plans/projects”.	Management of the compensation area will be ongoing throughout the lifetime of the OWF where needed, including maintenance of the ANS. Where there is room for improvements the management strategy will be updated to help maximize the potential of the site.

1.2 AIMS AND OBJECTIVES

1.2.1 This document collates and presents the ecological evidence for artificial nesting for kittiwake and provides a roadmap (Section 3: Roadmap) for compensation development and implementation.

ESTIMATED COMPENSATION QUANTUM

1.2.1 The predicted magnitude of collision mortality for which compensation is required by the Applicant is 0.8² individuals (see Volume 5, Report 5: RIAA; Volume 6, Part 2, Chapter 4: Offshore Ornithology and Volume 6, Part 5, Annex: 4.14: Apportioning Note). To calculate the number of additional breeding pairs required to achieve a compensation quantum of 1 (0.8) kittiwake, the Hornsea Three methodology was used¹.

1.2.2 The methods used to calculate the number of nests required the number of birds needed to survive to the recruitment age, and generate the necessary surplus was then calculated for each age class between fledging and recruitment. These were then summed, with the total multiplied by the predicted productivity rate. In addition to this the natal philopatry rate has been considered.

¹ [EN010080-003246-HOW03-30Sep_Appendix 2 Kittiwake Compensation Plan \(06543754_A\).pdf \(planninginspectorate.gov.uk\)](#)

- 1.2.3 There is also a second stage to the calculations, a preferred option by Natural England for Hornsea 3. Stage 2 considers the number of birds with potential to recruit to different colonies. To achieve this, 0.8 is subtracted from the productivity rate, as these birds will remain at the colony to maintain numbers. Any residual productivity above 0.8 will provide birds for different colonies. Both stages are presented in Table 1.2.
- 1.2.4 A range of compensation ratios have been calculated, in previous examples for the sites that have close connectivity with the FFC SPA a compensation ratio of 2:1 has been used, although up to 3:1 ratio has also been calculated reflecting the ratio adopted for other ANS compensation examples.
- ~~1.2.5~~ Therefore, to compensate for 0.8 birds an additional 5.31 breeding pairs are required following the methods described above. This increases to 10.62 pairs using a 2:1 ratio, and 15.93 pairs using a 3:1 ratio. The full range of compensation quantum can be found in .
- ~~1.2.6~~ ~~Table 1.3 Compensation quantum calculations for Stage 1 and Stage 2 of the Hornsea Three and Four methodology up to 3:1 ratio~~

Table 1.3 Compensation quantum calculations for Stage 1 and Stage 2 of the Hornsea Three and Four methodology up to 3:1 ratio.

Kittiwake compensation quantum (Pairs required)						
Methods	HOW4		HOW3 stage 1		HOW3 stage 2	
	Mean (0.82)	UCI (2.35)	Mean (0.82)	UCI (2.35)	Mean (0.82)	UCI (2.35)
1:1	2.2	6.3	2.5	7.1	5.3	15.2
2:1	4.4	12.6	4.9	14.2	10.6	30.4
3:1	6.6	18.9	7.4	21.2	15.9	45.7

1.2.5 The Applicant believes that the HOW4 methods for calculating the compensation quantum are the most appropriate for determining compensation levels of kittiwake, with a 3:1 ratio using the mean numbers. The compensation quantum using these parameters would be 7 pairs, the equivalent to using the UCI at a 1:1 ratio.

2 ECOLOGICAL EVIDENCE

2.1 KITTIWAKE ECOLOGY

2.1.1 Kittiwake are small (38-40cm) (del Hoyo *et al.*, 1996), surface feeding gulls (Robinson, 2005; Coulson, 2011). Their diet consists of predominantly energy-rich prey like sandeels (*Ammodytes sp*) (JNCC, 2021), especially during their breeding season, as well as other gadoids, clupeids, and discards from fishing vessels (Harris and Wanless, 1997; Bull *et al.*, 2004; Swann *et al.*, 2008; Chivers *et al.*, 2012). The species are long-lived with an average life span of 12 years (Robinson, 2005) and reach maturity at approximately 4 years (3.97 years male and 4.7 years female) (Coulson, 2011). There are approximately 380,000 breeding pairs in the UK ~20% of which (76,000 pairs) within England (JNCC, 2021). During the UK breeding season (March – August) kittiwake nest on narrow ledges along steep cliffs (Coulson, 2019), ranging from the North Atlantic (from Spain) to the Arctic Ocean (Furness, 2015). During the non-breeding season kittiwake are largely pelagic and disperse across the North Atlantic and North Sea during the winter (Bogdanova *et al.*, 2011; Frederiksen *et al.* 2012). Kittiwakes undertake two migrations during the non-breeding season; autumn or post breeding migration (August to December) and spring or return migration (January to April) (Furness, 2015).

2.2 NEST SITE AVAILABILITY

2.2.1 Between the late 1960s and mid-1980s, the UK kittiwake population increased rapidly, concurrently kittiwakes began breeding on artificial structures in coastal urban environments (Coulson, 2011; JNCC, 2021). However, from 1995 the UK population declined rapidly and despite an overall increase since then, UK kittiwake populations remain ~50% under the 1986 baseline (JNCC, 2021). Regardless of population declines this species continues to urbanise, with kittiwakes increasingly colonising on buildings and piers (Coulson 2011; Christensen-Dalsgaard *et al.*, 2020). These man-made structures provide similar and at times better (e.g., positioning can be created to maximise use and success, i.e., north facing etc.) nesting requirements than the species natural sites (i.e., narrow ledges on steep cliffs near water) and refuge to kittiwakes as natural populations decline (Coulson, 2011 Christensen-Dalsgaard *et al.*, 2020).

2.3 ARTIFICIAL NESTING

2.3.1 Kittiwake have been recorded colonising and breeding on man-made offshore structures since the early 90s, across the Norwegian and North Seas (Christensen-Dalsgaard *et al.*, 2020). In 2019, 1,164 breeding pairs were recorded across four offshore oil rigs, on the Norwegian shelf (Christensen-Dalsgaard *et al.*, 2020). In the UK, the first known successful breeding on a UK offshore platform occurred in 1998 at Morecambe Gas Platform (Irish Sea) (Unwin, 1999). According to a recent survey 1,394 breeding pairs were recorded across a handful of offshore platforms in the UK southern North Sea (Orsted, 2021). The number of offshore breeding colonies are also thought to be increasing, with kittiwake colonising new structures as recently as 2016 (Christensen-Dalsgaard *et al.*, 2020).

- 2.3.2 Kittiwake have also been colonising artificial structures inland; since 1994 this species has successfully bred on various man-made structures along the River Tyne, Newcastle (Turner, 2010). The most notable colony nests on the Tyne Bridge (17 km inland) which was first colonised in 1996 with 2 successful nests (raised 1 'well grown' chick) (Turner, 2010). The Tyne Bridge colony then grew to 150 pairs the next year (1997) and in recent years there are ~1000 pairs recorded within the colony (Turner, 2010). Kittiwake have colonised other structures along the Tyne including the Baltic Centre for Contemporary Art (201 pairs in 2022), North shields lifeboat house (36 successful pairs between 1994-97), and Newcastle Quayside buildings (26 pairs in 2009) (Turner, 2010). Kittiwake nesting in UK on man-made structures appear to be stable or in some cases increasing (JNCC, 2021; Turner, 2010 & 2018).
- 2.3.3 The Gateshead Kittiwake Tower was built by the Gateshead council in 1997-1998 to compensate for kittiwakes displaced after the Baltic Flour Mill was developed into an Arts centre (Turner, 2010). The tower was a three-sided metal structure with 24 wooden nesting ledges, starting from 8 m above the ground and as of 2015 there were 90 pairs (Turner, 2010; JNCC SMP database). Similarly, artificial nesting structures (ANS) have been proposed as part of the compensation for the Hornsea Project Four (Orsted, 2022) and Outer Dowsing (ODOW), also DBS have constructed an ANS at Gateshead.
- 2.3.4 Kittiwake nests can also be added at natural breeding sites, for example in 2019 the RSPB carved out 50 new ledges into the cliffs on Coquet Island (England) (RSPB, 2022) creating more suitable nesting sites on the cliffs. The following year (2020) all the new ledges were occupied by nesting kittiwake, thereby increasing the colony to 453 pairs, over 100 more pairs than in 2016 (RSPB, 2022; JNCC SMP database). The method of carving the cliff to create ledges was considered too time consuming, therefore instead the RSPB decided to install stainless steel hammocks around Coquet Island, on which kittiwake immediately began to nest and have since successfully raised chicks (RSPB, 2022).
- 2.3.5 The Applicant considers the existing ANS created by DBS at the River Tyne, Gateshead to be a suitable compensation measure to compensate for the loss of 0.8 kittiwakes. Natural England have also agreed that due to the small impact of VE on the kittiwake population that this measure is compatible with the size of the impact. The Applicant is looking to secure room on the structure for ~~six seven~~ pairs based on a ~~like for like 3:1~~ compensation ~~ratio or up to 16 pairs if a 3:1 ratio is decided for the compensation~~. The structure has the maximum capacity to hold up to ~~240~~ pairs.
- 2.3.6 Due to the minimal size of the impact the compensation measures of creating a new offshore ANS or repurposing an existing structure, such as an oil or gas platform, have been dismissed as a measure on their own as being disproportionate and a strategic approach as above with DBS is considered to be one of the best approaches for the Applicant. The other option for compensation considered to be viable is the use of the MRF in regards to strategic compensation for offshore ANS for kittiwakes, as per the recent DEFRA announcement.

3 ROADMAP

3.1.1 In the sections below, a roadmap of the key steps for kittiwake compensation delivery is provided, focusing on particular on-site selection, stakeholder engagement and consultation, monitoring plans, and adaptive management.

3.2 SITE SELECTION

3.2.1 The delivery of artificial nesting for kittiwake may be undertaken using the following proposed measures:

- > Use of an existing structure built by RWE to support compensatory measures for its projects, with an initial focus on the compensation needs for the Dogger Bank South project.
- > If the RWE tower at Gateshead is not deemed appropriate by the Applicant or the regulators then the DEFRA strategic compensation / MRF scheme is an alternative robust option.

3.2.2 VE OWFL believe that the onshore ANS built at Gateshead is an appropriate site as there is evidence of man-made structures being utilized in the area already (Turner, 2010) and the population using man-made structures is in some cases increasing. The east coast of England kittiwake population is mainly found on the stretch of coast between Humberside and Northumberland, so the location of the site has great connectivity with existing colonies and feeding areas. The structure is built to allow for reconfiguration until the required breeding success is achieved (FLI Structures, 2023). The design of the structure is aimed to enable the kittiwake to maintain the ideal nesting microclimate by mitigating against solar heat or wind related cold stress (FLI Structures, 2023), thus providing the perfect nesting location for the compensation measure.

3.2.3 The optimal location for a new structure will involve having connectivity with existing kittiwake colonies. With the FFC SPA being the only SPA designated for kittiwake in English waters, and consequently having almost all impacts from OWFs apportioned to it, the compensation measure will aim to deliver breeding birds back into the biogeographical region within the North Sea.

3.2.4 In addition, the Project will be pursuing options to contribute to the DEFRA strategic compensation/ MRF following the announcement from the Secretary of State to approve offshore ANS for kittiwake in English Waters as a strategic compensation measure.

3.3 MONITORING AND ADAPTIVE MANAGEMENT

3.3.1 As part of the roadmap a kittiwake implementation and monitoring plan (KIMP) has been produced to outline the monitoring plan and adaptive management measures. As part of the KIMP an Offshore Ornithology Engagement Group (OOEG) will be created post consent to inform the delivery of the kittiwake compensation measures and ongoing monitoring and adaptive management measures set out in the DCO.

3.4 NEXT STEPS

3.4.1 Following the discussions at the ETG, the Applicant is in discussions to share this strategic measure between the relevant RWE projects and keeping up to date with the progress on the MRF.

3.4.2 VE have engaged with DBS on 2 October 2024 regarding the proposed apportioning of the DBS kittiwake tower. Whilst this is subject to ongoing discussion and agreement, the proposed arrangements are:

- > VE will secure an equal share of the DBS tower with four other projects (20%).
- > This will secure approximately 480 nesting spaces out of the total of approximately 240 available spaces on the tower. This provides a quantum far in excess of the Applicant's compensation numbers.
- > Nesting spaces will be nominal, without any fixed locations on the tower.
- > Accordingly, apportioning of occupied nesting spaces will be split equally between the projects.
- > Monitoring and reporting will be agreed between the parties and will be undertaken by DBS on behalf of all parties or as otherwise agreed.

3.4.13.4.3 The next steps are:

- > ~~Pursue-Continue to pursue~~ mechanisms by which to share responsibility for the compensation requirements on the Gateshead structure.
- > Create a steering group (OOEG) with relevant stakeholders to help plan and advise on the next steps;
- > To iterate and update the implantation and monitoring plan which has been submitted at application;
- > Keep up to date with progress on the MRF and contribute to delivery groups where possible;
- > It will also be important factor in the success, or otherwise, of the RWE/DBS in the 2024 nesting season.

3.5 CONCLUSIONS

3.5.1 One of the Applicant's suggested options for compensation is to utilise space in the ANS already constructed by DBS, a measure that has been agreed by Natural England at the ETG. In the event of derogation being required, it would be necessary to enter into a formal agreement regarding the Gateshead tower for a defined share of the ANS that will cover the required compensation quantum (~~a minimum of 6 pairs, up to a maximum of 16 pairs~~)-7 pairs). The other option for compensation considered to be viable is the use of the MRF in regards to strategic compensation for offshore ANS for kittiwakes, as per the recent DEFRA announcement.

3.5.2 Table 1.2 illustrates where the Project is in regard to the Natural England checklist for compensation measures in regard to the Gateshead tower. Considering the current uncertainties regarding the status of the MRF and given that its implementation is not fully under the Projects control, the MRF has not been included in the table at this stage.

3.5.3 It should be noted that the schedule for the implementation may change as further relevant information might become available for the final versions, with the Outer Dowsing OWF and North Falls OWF applications, updates on the MRF and breeding data from the Gateshead Tower for the 2024 season. The Applicant will use all the most up to date information available at the time to inform the final iterations of the KIMP.

4 REFERENCES

- Bogdanova, M.I., Daunt, F., Newell, M., Phillips, R.A., Harris, M.P., and Wanless, S. (2011), 'Seasonal interactions in the black-legged kittiwake, *Rissa tridactyla*: links between breeding performance and winter distribution', *Proc. R. Soc. B*.278: 2412–2418.
- Bull, J., Wanless, S., Elston, D. A., Daunt, F., Lewis, S. and Harris, M. P. (2004), 'Local-scale variability in the diet of black-legged kittiwakes *Rissa tridactyla*', *Ardea*, 92: 43–52.
- Chivers, L. S., Lundy, M. G., Colhoun, K., Newton, S. F., Houghton, J. D. and Reid, N. (2012), 'Foraging trip time-activity budgets and reproductive success in the black-legged kittiwake', *Marine Ecology Progress Series*, 456: 269-277.
- Christensen-Dalsgaard, S., Langset, M. and Anker-Nilssen, T. (2020), 'Offshore oil rigs—a breeding refuge for Norwegian Black-legged Kittiwakes *Rissa tridactyla*?', *Seabird*, 32: 20-32.
- Coulson, J. (2011), 'The kittiwake', (A&C Black).
- Coulson, J. C. (2019), 'Black-legged Kittiwake', in *Gulls* (p. 843), (London: Collins New Naturalist).
- Defra. (2021), Best practice guidance for developing compensatory measures in relation to Marine Protected Areas
- del Hoyo, J., Elliott, A. and Sargatal, J. (1996), 'Handbook of the Birds of the World', Volume 3. Hoatzin to Auks, (Barcelona: Lynx Edicions).
- FLI Structures, 2023 Kittiwake Nesting Tower <https://gaga2023.galvanizing.org.uk/fli-structures>
- Frederiksen, M., Moe, B., Daunt, F., Phillips, R. A., Barrett, R. T., Bogdanova, M. I., Boulinier, T., Chardine, J. W., Chastel, O., Chivers, L. S. and Christensen-Dalsgaard, S. (2012), 'Multicolony tracking reveals the winter distribution of a pelagic seabird on an ocean basin scale', *Diversity and distributions*, 18(6): 530-542.
- Furness, R. W. (2015), 'Non-breeding season populations of seabirds in UK waters: Population sizes for Biologically Defined Minimum Population Scales (BDMPS)', Natural England Commissioned Reports, Number 164.
- Harris, M. P., and Wanless, S. (1997), 'Breeding success, diet, and brood neglect in the kittiwake (*Rissa tridactyla*) over an 11-year period', *ICES Journal of Marine Science*, 54(4): 615-623.
- JNCC (2021), 'Black-legged kittiwake (*Rissa tridactyla*)', <https://jncc.gov.uk/our-work/black-legged-kittiwake-rissa-tridactyla/#annual-abundance-and-productivity-by-geographical-area-england> [Accessed: February 2023].

- JNCC SMP database, 'Data', <https://app.bto.org/seabirds/public/data.jsp> [Accessed: February 2023].
- Ørsted (2021), 'Compensation measures for FFC SPA Offshore Artificial Nesting Ecological Evidence', Planning Inspectorate.
- Ørsted (2022), 'Compensation measures for FFC SPA: Kittiwake Offshore Artificial Nesting Roadmap'. Deadline 1, Date 8 March 2022 Document reference: B2.7.2.
- Robinson, R. A. (2005), 'BirdFacts: profiles of birds occurring in Britain & Ireland' <http://www.bto.org/birdfacts> [Accessed: February 2023].
- RSPB (2022), 'Hang hammocks for seabirds', <https://www.rspb.org.uk/get-involved/activities/so-many-ways/explore-more-ways/seabird-hammocks/> [Accessed: February 2023].
- Swann, R. L., Harris, M. P., and Aiton, D. G. (2008), 'The diet of European Shag *Phalacrocorax aristotelis*, Black-legged Kittiwake *Rissa tridactyla* and Common Guillemot *Uria aalge* on Canna during the chick-rearing period 1981 – 2007', *Seabird*, 21: 44–54.
- Turner, D. M. (2010), 'Counts and breeding success of Black-legged Kittiwakes *Rissa tridactyla* nesting on man-made structures along the River Tyne, northeast England, 1994-2009', *Seabird*, 23: 111-126.
- Turner, D.M. (2018), 'Summary of Black-legged Kittiwake *Rissa tridactyla* breeding data recorded on the River Tyne, northeast England, during 2010–2019.' Available at: <https://www.nhsn.org.uk/> [Accessed: February 2023]
- Unwin, B. (1999), 'Birds breed on gas platforms.' *The Independent*. Available at: <https://www.independent.co.uk/news/birds-breed-on-gas-platform-1073077.7.html> [Accessed: February 2023].
- Woodward, I., Thaxter, C.B., Owen, E., and Cook, A.S.C.P. (2019), 'Desk-based revision of seabird foraging ranges used for HRA screening', BTO research report number 724.
- VE OWFL (2022a), 'Five Estuaries Offshore Wind Farm: Potential compensation measures longlist report'.
- VE OWFL (2022b), 'Five Estuaries Offshore Wind Farm: Compensation measures shortlist technical note'.
- VE OWFL (2022c), 'Five Estuaries Offshore Wind Farm: Compensation measures ranking approach note'.
- VE OWFL (2023), 'Five Estuaries Offshore Wind Farm: Environment Statement: Volume 6, Part , Chapter 4.15: Apportioning Note'.

VE OWFL (2024), 'Five Estuaries Offshore Wind Farm: Environmental Statement: Report to Inform Appropriate Assessment'.

**5 APPENDIX A: KITTIWAKE – ECOLOGICAL EVIDENCE AND ROADMAP-
DRAFT SUBMITTED TO PINS AND NATURAL ENGLAND**

6 APPENDIX B: IN PRINCIPLE LETTER OF AGREEMENT FROM DOGGER BANK SOUTH (EAST AND WEST)



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F I V E 
ESTUARIES
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FIVE ESTUARIES
OFFSHORE WIND FARM
KITTIWAKE COMPENSATION -
ECOLOGICAL EVIDENCE AND ROADMAP

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DEFINITION OF ACRONYMS

Term	Definition
AEoI	Adverse Effect on Integrity
ANS	Artificial Nesting Structure
DBS	Dogger Bank South
DCO	Development Consent Order
ES	Environmental Statement
FFC	Flamborough and Filey Coast
HRA	Habitats Regulations Assessment
IROPI	Imperative Reasons of Overriding Public Interest
JNCC	Joint Nature Conservation Committee
MCZ	Marine Conservation Zone
MMF	Mean-Max Foraging Range
MoU	Memorandum of Understanding
NE	Natural England
OOEG	Offshore Ornithology Engagement Group
OWF	Offshore Wind Farm
RAG	Red, Amber, Green
RIAA	Report to Inform Appropriate Assessment
RSPB	Royal Society for the Protection of Birds
SAC	Special Areas of Conservation
SD	Standard Deviation
SMP	Seabird Monitoring Programme
SNCB	Statutory Nature Conservation Bodies
SPA	Special Protection Area
VE	Five Estuaries Offshore Wind Farm
VE OWFL	Five Estuaries Offshore Wind Farm Limited



1 INTRODUCTION

1.1 BACKGROUND

FIVE ESTUARIES OFFSHORE WIND FARM

- 1.1.1 Five Estuaries Offshore Wind Farm (VE) is a proposed extension to the operational Galloper Offshore Wind Farm. VE will be situated approximately 37 km off the coast of Suffolk, England (at its closest point).
- 1.1.2 As part of the Development Consent Order (DCO) application, Five Estuaries Offshore Windfarm Ltd (VE OWFL) is required to produce a Report to Inform Appropriate Assessment (RIAA) to provide the information required by the Competent Authority in order to undertake its Habitats Regulation Assessment (HRA) and Appropriate Assessment. If the HRA process deems that Adverse Effects on Integrity (AEol) cannot be excluded, a derogations process is followed. In the event that no alternative solutions can be found, and if there are imperative reasons of overriding public interest (IROPI), the final stage of the derogations process is to develop measures to compensate for adverse effects on a site.
- 1.1.3 This document introduces the without prejudice compensation measures that have been identified for kittiwake (*Rissa tridactyla*) and provides the key evidence to support artificial nesting structures. VE OWFL presented these measures to Natural England during the ETG in August 2023 and it was agreed that the kittiwake tower constructed by RWE at Gateshead would be the most suitable option given the low level of impact on kittiwake by the Project.

DEROGATION PREPARATION

- 1.1.4 To allow for sufficient time to engage with stakeholders and develop compensation plans, VE OWFL is investigating compensation options, for species deemed at risk of requiring compensation, at this early stage in the pre-application period, however it should be noted that this does not prejudice the outcome of the ongoing HRA process.
- 1.1.5 One of the species of potential derogation risk for VE is kittiwake at Flamborough and Filey Coast (FFC) Special Protection Area (SPA).
- 1.1.6 FFC SPA is 275.5 km away from VE, within mean-max foraging (MMF) range + 1 Standard Deviation (SD) for kittiwake (300.6 km; Woodward *et al.*, 2019), and therefore there is potential connectivity between FFC SPA and VE. Following a review of tracking data and with agreement from Natural England, it was decided that kittiwake was only considered for the non-breeding connectivity, and recent decisions on other offshore wind projects (e.g. Hornsea Three, East Anglia One North, East Anglia Two, Norfolk Vanguard and Norfolk Boreas) concluded that AEol could not be ruled out for kittiwake at FFC SPA when considered in-combination with other projects. As a precedent for concern around AEol has been established on other projects, the species is thus of in-principal derogation concern for VE.



- 1.1.7 VE OWFL has identified potential compensation measures for kittiwake and created a 'longlist' of all possible compensation options at FFC SPA (and other high-risk sites for other species potentially requiring compensation). The longlisted options were based on the existing VE project proposal, experience with HRA derogation matters in the UK and stakeholder feedback received to date. These longlisted options are discussed in 'Five Estuaries Offshore Wind Farm: Potential compensation measures longlist report' (VE OWFL, 2022a).
- 1.1.8 The longlist options were narrowed down to a shortlist following a ranking exercise (otherwise known as a Red-Amber-Green (RAG) assessment), presented in 'Five Estuaries Offshore Wind Farm: Compensation measures shortlist technical note' (VE OWFL, 2022b). The ranking approach is provided in 'Five Estuaries Offshore Wind Farm: Compensation measures ranking approach note' (VE OWFL, 2022c). In short, longlisted measures were scored against a number of categories (Defra, 2021), with scores for each category summed to provide a total score. The measures were then allocated to “red”, “amber” and “green” groups based on their total score, and “green” measures taken forward to the shortlist of compensation options.
- 1.1.9 Following shortlisting, and subsequent stakeholder feedback from Natural England and the RSPB, it was deemed that the provision of artificial nesting structures is the most feasible measure for providing compensation of kittiwake for VE.
- 1.1.10 Based on preliminary analysis of the potential impact of VE on kittiwake, the estimated compensation requirement is low, with 1.1 kittiwake mortalities. As such, VE are seeking a formal agreement with Dogger Bank South (DBS) OWF to contribute towards, and have a defined share of, the kittiwake tower that RWE constructed at Gateshead. Following discussions with Natural England at the ETG in August 2023 it was agreed that the onshore ANS constructed by RWE at Gateshead was a suitable compensation measure for VE OWFL. Other potential options to provide compensation include carving nesting ledges or installing metal hammocks near existing breeding sites. This may be delivered through strategic partnerships with nature conservation organisations or other OWF developers, offering financial contributions, or the expansion of existing artificial nest sites. Alternatively, VE OWFL could lead on identifying and installing new nesting structures independently.

1.2 AIMS AND OBJECTIVES

- 1.2.1 This document collates and presents the ecological evidence for artificial nesting for kittiwake (Section 2: Ecological evidence) and provides a roadmap (Section 3: Roadmap) for compensation development and implementation.



ESTIMATED COMPENSATION QUANTUM

- 1.2.2 The predicted magnitude of collision mortality for which compensation is required by VE is 1.1 individuals. To calculate the number of additional breeding pairs required to achieve a compensation quantum of 1 (1.1) kittiwake, the Hornsea Three methodology was used¹. The methods used to calculate the number of nests required the number of birds needed to survive to the recruitment age, and generate the necessary surplus was then calculated for each age class between fledging and recruitment. These were then summed, with the total multiplied by the predicted productivity rate. In addition to this the natal philopatry rate is considered.
- 1.2.3 For the sites that have connectivity with the FFC SPA a compensation ratio of 2:1 has been used (3:1 ratio also calculated reflecting the ratio adopted for other ANS compensation examples).
- 1.2.4 Therefore, to compensate for 1.1 birds an additional 3.31 breeding pairs are required following the methods described above. This increases to 6.62 pairs using a 2:1 ratio, and 9.93 pairs using a 3:1 ratio. The final compensation quantum will be recalculated based on the finalised project assessment within the Environmental Statement (ES).

¹ [EN010080-003246-HOW03-30Sep_Appendix 2 Kittiwake Compensation Plan \(06543754_A\).pdf \(planninginspectorate.gov.uk\)](#)



2 ECOLOGICAL EVIDENCE

2.1 KITTIWAKE ECOLOGY

2.1.1 Kittiwake are small (38-40cm) (del Hoyo *et al.*, 1996), surface feeding gulls (Robinson, 2005; Coulson, 2011). Their diet consists of predominantly energy-rich prey like sandeels (*Ammodytes sp*) (JNCC, 2021), especially during their breeding season, as well as other gadoids, clupeids, and discards from fishing vessels (Harris and Wanless, 1997; Bull *et al.*, 2004; Swann *et al.*, 2008; Chivers *et al.*, 2012). The species are long-lived with an average life span of 12 years (Robinson, 2005) and reach maturity at approximately 4 years (3.97 years male and 4.7 years female) (Coulson, 2011). There are approximately 380,000 breeding pairs in the UK ~20% of which (76,000 pairs) within England (JNCC, 2021). During the UK breeding season (March – August) kittiwake nest on narrow ledges along steep cliffs (Coulson, 2019), ranging from the North Atlantic (from Spain) to the Arctic Ocean (Furness, 2015). During the non-breeding season kittiwake are largely pelagic and disperse across the North Atlantic and North Sea during the winter (Bogdanova *et al.*, 2011; Frederiksen *et al.* 2012). Kittiwakes undertake two migrations during the non-breeding season; autumn or post breeding migration (August to December) and spring or return migration (January to April) (Furness, 2015).

2.2 NEST SITE AVAILABILITY

2.2.1 Between the late 1960s and mid-1980s, the UK kittiwake population increased rapidly, concurrently kittiwakes began breeding on artificial structures in coastal urban environments (Coulson, 2011; JNCC, 2021). However, from 1995 the UK population declined rapidly and despite an overall increase since then, UK kittiwake populations remain ~50% under the 1986 baseline (JNCC, 2021). Regardless of population declines this species continues to urbanise, with kittiwakes increasingly colonising on buildings and piers (Coulson 2011; Christensen-Dalsgaard *et al.*, 2020). These man-made structures provide similar and at times better (e.g., positioning can be created to maximise use and success, i.e., north facing etc.) nesting requirements than the species natural sites (i.e., narrow ledges on steep cliffs near water) and refuge to kittiwakes as natural populations decline (Coulson, 2011 Christensen-Dalsgaard *et al.*, 2020).

2.3 ARTIFICIAL NESTING

2.3.1 Kittiwake have been recorded colonising and breeding on man-made offshore structures since the early 90s, across the Norwegian and North Seas (Christensen-Dalsgaard *et al.*, 2020). In 2019, 1,164 breeding pairs were recorded across four offshore oil rigs, on the Norwegian shelf (Christensen-Dalsgaard *et al.*, 2020). In the UK, the first known successful breeding on a UK offshore platform occurred in 1998 at Morecambe Gas Platform (Irish Sea) (Unwin, 1999). According to a recent survey 1,394 breeding pairs were recorded across a handful of offshore platforms in the UK southern North Sea (Orsted, 2021). The number of offshore breeding colonies are also thought to be increasing, with kittiwake colonising new structures as recently as 2016 (Christensen-Dalsgaard *et al.*, 2020).



- 2.3.2 Kittiwake have also been colonising artificial structures inland; since 1994 this species has successfully bred on various man-made structures along the River Tyne, Newcastle (Turner, 2010). The most notable colony nests on the Tyne Bridge (17 km inland) which was first colonised in 1996 with 2 successful nests (raised 1 'well grown' chick) (Turner, 2010). The Tyne Bridge colony then grew to 150 pairs the next year (1997) and in recent years there are ~1000 pairs recorded within the colony (Turner, 2010). Kittiwake have colonised other structures along the Tyne including the Baltic Centre for Contemporary Art (201 pairs in 2022), North Shields lifeboat house (36 successful pairs between 1994-97), and Newcastle Quayside buildings (26 pairs in 2009) (Turner, 2010). Kittiwake nesting in UK on man-made structures appear to be stable or in some cases increasing (JNCC, 2021; Turner, 2010 & 2018).
- 2.3.3 The Gateshead Kittiwake Tower was built by the Gateshead council in 1997-1998 to compensate for kittiwakes displaced after the Baltic Flour Mill was developed into an Arts centre (Turner, 2010). The tower was a three-sided metal structure with 24 wooden nesting ledges, starting from 8 m above the ground and as of 2015 there were 90 pairs (Turner, 2010; JNCC SMP database). Similarly, artificial nesting structures (ANS) have been proposed as part of the compensation for the Hornsea Project Four (Orsted, 2022) and RWE have constructed an ANS at Gateshead.
- 2.3.4 Kittiwake nests can also be added at natural breeding sites, for example in 2019 the RSPB carved out 50 new ledges into the cliffs on Coquet Island (England) (RSPB, 2022) creating more suitable nesting sites on the cliffs. The following year (2020) all the new ledges were occupied by nesting kittiwake, thereby increasing the colony to 453 pairs, over 100 more pairs than in 2016 (RSPB, 2022; JNCC SMP database). The method of carving the cliff to create ledges was considered too time consuming, therefore instead the RSPB decided to install stainless steel hammocks around Coquet Island, on which kittiwake immediately began to nest and have since successfully raised chicks (RSPB, 2022).
- 2.3.5 VE considers the existing ANS created by RWE at the River Tyne, Gateshead to be the most suitable compensation measure to compensate for the loss of 1.1 kittiwakes. Natural England have also agreed that due to the small impact of VE on the kittiwake population that this measure is compatible with the size of the impact. VE are looking to secure room on the structure for 4 pairs based on a like for like compensation or up to 10 pairs if a 3:1 ratio is decided for the compensation. The structure has the maximum capacity to hold 200 pairs.
- 2.3.6 Due to the minimal size of the impact the compensation measures of creating a new ANS or repurposing an existing structure, such as an oil or gas platform, have been dismissed as a measure on their own as being disproportionate and a strategic approach as above with RWE is considered to be the best approach for VE.



3 ROADMAP

3.1.1 In the sections below, a roadmap of the key steps for kittiwake compensation delivery is provided, focusing on particular on-site selection, stakeholder engagement and consultation, monitoring plans, and adaptive management.

3.2 SITE SELECTION

3.2.1 The delivery of artificial nesting for kittiwake may be undertaken using the following proposed measure:

- > Use of an existing structure built by RWE to support compensatory measures for its projects, with an initial focus on the compensation needs for the Dogger Bank South project.

3.2.2 VE OWFL believe that the onshore ANS built at Gateshead is an appropriate site as there is evidence of man-made structures being utilized in the area already (Turner, 2010) and the population using man-made structures is in some cases increasing. The east coast of England kittiwake population is mainly found on the stretch of coast between Humberside and Northumberland, so the location of the site has great connectivity with existing colonies and feeding areas. The structure is built to allow for reconfiguration until the required breeding success is achieved (FLI Structures, 2023). The design of the structure is aimed to enable the kittiwake to maintain the ideal nesting microclimate by mitigating against solar heat or wind related cold stress (FLU Structures, 2023), thus providing the perfect nesting location for the compensation measure.

3.2.3 To identify key foraging areas within the area outlined above, a mapping exercise will be undertaken to identify kittiwake key prey distribution. Mapping will also be undertaken to identify important areas to avoid, including designated sites (marine conservation zones (MCZs), special areas of conservation (SACs) and SPAs, offshore wind developments, protected wrecks, oil and gas platforms, mines and aggregates, and protected wrecks. This site selection will then be discussed with stakeholders including Natural England.



3.3 MONITORING PLAN

- 3.3.1 Monitoring will be required for all stages of the proposed artificial nesting program. The details of monitoring proposals will be discussed with the OOEG, with key details to be agreed upon including the frequency, duration and nature of monitoring methodology, as well as data analysis and reporting requirements.
- 3.3.2 Pre-implementation monitoring will be undertaken during the initial stages of the artificial nesting program, including monitoring of prospective sites to inform the site selection process, and monitoring of existing colonies with connectivity to the proposed structure(s) to determine the impact of a new structure on the colonies if the VE OWFL preferred measure of using the RWE ANS is not used.
- 3.3.3 Throughout the monitoring process, the same environmental variables will be recorded to make clear comparisons to baseline conditions following the construction and colonisation of the structure. Following construction and colonisation, additional data, such as productivity and diet, may be collected to make further comparisons between birds nesting on the artificial structure and natural colonies. It is expected that monitoring will be undertaken throughout the operational lifetime of VE. The final monitoring programme required will be discussed with the OOEG.

3.4 ADAPTIVE MANAGEMENT

- 3.4.1 Should post-implementation monitoring reveal that the artificial nesting program is unsuccessful, or less successful than anticipated, an assessment will be undertaken to determine the reasons underlying the lack of success, and to inform the next steps. Notably, the next steps will consist of identifying potential improvements (or extensions) to the implemented measure, based on potential issues discovered during the assessment. Should the assessment determine that the measure cannot be improved or extended sufficiently, then alternatives, such as contribution to the Marine Recovery Fund (or equivalent), may be considered in consultation with the OOEG. Factors that may affect the success of the ANS programme that are out with the control of VE OWFL (e.g., climate change, reduction in prey availability) should not be committed to the adaptive management plan.

3.5 NEXT STEPS

- 3.5.1 Following the discussions at the ETG, VE OWFL are in discussions for sharing this strategic measure between the relevant RWE projects.

3.6 CONCLUSIONS

- 3.6.1 The VE OWFL preferred option for compensation is to utilise space in the ANS already constructed by RWE, a measure that has been agreed by Natural England at the ETG. The next steps are for VE OWFL to get a formal agreement for a defined share of the ANS that will cover the required compensation quantum (a minimum of 4 pairs, up to a maximum of 11 pairs).



4 REFERENCES

- Bogdanova, M.I., Daunt, F., Newell, M., Phillips, R.A., Harris, M.P., and Wanless, S. (2011), 'Seasonal interactions in the black-legged kittiwake, *Rissa tridactyla*: links between breeding performance and winter distribution', *Proc. R. Soc. B*.278: 2412–2418.
- Bull, J., Wanless, S., Elston, D. A., Daunt, F., Lewis, S. and Harris, M. P. (2004), 'Local-scale variability in the diet of black-legged kittiwakes *Rissa tridactyla*', *Ardea*, 92: 43–52.
- Chivers, L. S., Lundy, M. G., Colhoun, K., Newton, S. F., Houghton, J. D. and Reid, N. (2012), 'Foraging trip time-activity budgets and reproductive success in the black-legged kittiwake', *Marine Ecology Progress Series*, 456: 269-277.
- Christensen-Dalsgaard, S., Langset, M. and Anker-Nilssen, T. (2020), 'Offshore oil rigs—a breeding refuge for Norwegian Black-legged Kittiwakes *Rissa tridactyla*?'', *Seabird*, 32: 20-32.
- Coulson, J. (2011), 'The kittiwake', (A&C Black).
- Coulson, J. C. (2019), 'Black-legged Kittiwake', in *Gulls* (p. 843), (London: Collins New Naturalist).
- Defra. (2021), Best practice guidance for developing compensatory measures in relation to Marine Protected Areas
- del Hoyo, J., Elliott, A. and Sargatal, J. (1996), 'Handbook of the Birds of the World', Volume 3. Hoatzin to Auks, (Barcelona: Lynx Edicions).
- FLI Structures, 2023 Kittiwake Nesting Tower <https://gaga2023.galvanizing.org.uk/fli-structures>
- Frederiksen, M., Moe, B., Daunt, F., Phillips, R. A., Barrett, R. T., Bogdanova, M. I., Boulinier, T., Chardine, J. W., Chastel, O., Chivers, L. S. and Christensen-Dalsgaard, S. (2012), 'Multicolony tracking reveals the winter distribution of a pelagic seabird on an ocean basin scale', *Diversity and distributions*, 18(6): 530-542.
- Furness, R. W. (2015), 'Non-breeding season populations of seabirds in UK waters: Population sizes for Biologically Defined Minimum Population Scales (BDMPS)', *Natural England Commissioned Reports*, Number 164.
- Harris, M. P., and Wanless, S. (1997), 'Breeding success, diet, and brood neglect in the kittiwake (*Rissa tridactyla*) over an 11-year period', *ICES Journal of Marine Science*, 54(4): 615-623.
- JNCC (2021), 'Black-legged kittiwake (*Rissa tridactyla*)', <https://jncc.gov.uk/our-work/black-legged-kittiwake-rissa-tridactyla/#annual-abundance-and-productivity-by-geographical-area-england> [Accessed: February 2023].



JNCC SMP database, 'Data', <https://app.bto.org/seabirds/public/data.jsp> [Accessed: February 2023].

Ørsted (2021), 'Compensation measures for FFC SPA Offshore Artificial Nesting Ecological Evidence', Planning Inspectorate.

Ørsted (2022), 'Compensation measures for FFC SPA: Kittiwake Offshore Artificial Nesting Roadmap'. Deadline 1, Date 8 March 2022 Document reference: B2.7.2.

Robinson, R. A. (2005), 'BirdFacts: profiles of birds occurring in Britain & Ireland' <http://www.bto.org/birdfacts> [Accessed: February 2023].

RSPB (2022), 'Hang hammocks for seabirds', <https://www.rspb.org.uk/get-involved/activities/so-many-ways/explore-more-ways/seabird-hammocks/> [Accessed: February 2023].

Swann, R. L., Harris, M. P., and Aiton, D. G. (2008), 'The diet of European Shag *Phalacrocorax aristotelis*, Black-legged Kittiwake *Rissa tridactyla* and Common Guillemot *Uria aalge* on Canna during the chick-rearing period 1981 – 2007', *Seabird*, 21: 44–54.

Turner, D. M. (2010), 'Counts and breeding success of Black-legged Kittiwakes *Rissa tridactyla* nesting on man-made structures along the River Tyne, northeast England, 1994-2009', *Seabird*, 23: 111-126.

Turner, D.M. (2018), 'Summary of Black-legged Kittiwake *Rissa tridactyla* breeding data recorded on the River Tyne, northeast England, during 2010–2019.' Available at: <https://www.nhsn.org.uk/> [Accessed: February 2023]

Unwin, B. (1999), 'Birds breed on gas platforms.' *The Independent*. Available at: <https://www.independent.co.uk/news/birds-breed-on-gas-platform-1073077.7.html> [Accessed: February 2023].

Woodward, I., Thaxter, C.B., Owen, E., and Cook, A.S.C.P. (2019), 'Desk-based revision of seabird foraging ranges used for HRA screening', BTO research report number 724.

VE OWFL (2022a), 'Five Estuaries Offshore Wind Farm: Potential compensation measures longlist report'.

VE OWFL (2022b), 'Five Estuaries Offshore Wind Farm: Compensation measures shortlist technical note'.

VE OWFL (2022c), 'Five Estuaries Offshore Wind Farm: Compensation measures ranking approach note'.

6 APPENDIX B: IN PRINCIPLE LETTER OF AGREEMENT FROM DOGGER BANK SOUTH (EAST AND WEST)

Five Estuaries Offshore Wind Farm Limited
Windmill Hill Business Park
Whitehill Way
Swindon
Wiltshire
SN5 6PB

07/03/24 _____ 2024

Dear Sirs

Potential kittiwake compensatory measures in respect of the Five Estuaries offshore wind farm

We refer to our recent discussions regarding the application for development consent for the proposed Five Estuaries offshore wind farm ("**Five Estuaries**") which is being prepared by Five Estuaries Offshore Wind Farm Limited ("**FEOWFL**") for submission to the Planning Inspectorate.

It is our understanding that the Five Estuaries application will include a "without prejudice" derogation case in respect of impacts on the kittiwake population which forms a qualifying interest feature of the Flamborough and Filey Coast Special Protection Area (SPA). This derogation case includes proposed compensation measures based on an assessment conclusion of the worst case collision risk mortality rate for kittiwake of two birds per annum.

In the event that the Secretary of State concludes that a derogation is required, we further understand that the compensatory measures being considered by FEOWFL comprise several potential options which include, *inter alia*, the provision of nesting platforms on an artificial kittiwake nesting structure. However, due to the limited nature of the contribution to any in-combination effect on the kittiwake population attributable to Five Estuaries, should nesting platforms on an artificial nesting structure be required, the Five Estuaries project would look to partner with another developer or strategic compensation provider in order to deliver its proposed compensation.

Dogger Bank South East Limited and Dogger Bank South West Limited (hereafter referred to collectively as "Dogger Bank South") have interests in an existing onshore artificial nesting structure on land within its control at South Shore Road, Gateshead adjacent to the River Tyne and may propose further artificial nesting structure(s) as part of the Dogger Bank South projects.

In the event that the Secretary of State decides that the Five Estuaries project can only be consented in reliance upon a derogation case then Dogger Bank South confirms that it would be willing to allocate nesting platforms at its existing onshore artificial nesting structure, or any other artificial nesting structure that may be provided as part of the Dogger Bank South projects to Five Estuaries in the event that FEOWFL elects to provide compensation measures at any such structure.

Dogger Bank South acknowledges that it may be necessary for it and FEOWFL to enter into further legal and commercial arrangements in due course to secure these measures and confirms that it would enter negotiations to do so on the basis of good faith.

Dogger Bank South confirms that FEOWFL may provide a copy of this letter to the Planning Inspectorate as part of the consenting process for the Five Estuaries project.

Yours sincerely

Director

Company Secretary

Simon Stanton

Penny Sainsbury

For and on behalf of
RWE Renewables UK Dogger Bank South (East) Limited

Five Estuaries Offshore Wind Farm Limited
Windmill Hill Business Park
Whitehill Way
Swindon
Wiltshire
SN5 6PB

07/03/24 _____ 2024

Dear Sirs

Potential kittiwake compensatory measures in respect of the Five Estuaries offshore wind farm

We refer to our recent discussions regarding the application for development consent for the proposed Five Estuaries offshore wind farm ("**Five Estuaries**") which is being prepared by Five Estuaries Offshore Wind Farm Limited ("**FEOWFL**") for submission to the Planning Inspectorate.

It is our understanding that the Five Estuaries application will include a "without prejudice" derogation case in respect of impacts on the kittiwake population which forms a qualifying interest feature of the Flamborough and Filey Coast Special Protection Area (SPA). This derogation case includes proposed compensation measures based on an assessment conclusion of the worst case collision risk mortality rate for kittiwake of two birds per annum.

In the event that the Secretary of State concludes that a derogation is required, we further understand that the compensatory measures being considered by FEOWFL comprise several potential options which include, *inter alia*, the provision of nesting platforms on an artificial kittiwake nesting structure. However, due to the limited nature of the contribution to any in-combination effect on the kittiwake population attributable to Five Estuaries, should nesting platforms on an artificial nesting structure be required, the Five Estuaries project would look to partner with another developer or strategic compensation provider in order to deliver its proposed compensation.

Dogger Bank South East Limited and Dogger Bank South West Limited (hereafter referred to collectively as "Dogger Bank South") have interests in an existing onshore artificial nesting structure on land within its control at South Shore Road, Gateshead adjacent to the River Tyne and may propose further artificial nesting structure(s) as part of the Dogger Bank South projects.

In the event that the Secretary of State decides that the Five Estuaries project can only be consented in reliance upon a derogation case then Dogger Bank South confirms that it would be willing to allocate nesting platforms at its existing onshore artificial nesting structure, or any other artificial nesting structure that may be provided as part of the Dogger Bank South projects to Five Estuaries in the event that FEOWFL elects to provide compensation measures at any such structure.

Dogger Bank South acknowledges that it may be necessary for it and FEOWFL to enter into further legal and commercial arrangements in due course to secure these measures and confirms that it would enter negotiations to do so on the basis of good faith.

Dogger Bank South confirms that FEOWFL may provide a copy of this letter to the Planning Inspectorate as part of the consenting process for the Five Estuaries project.

Yours sincerely

Director

Company Secretary

Simon Stanton

Penny Sainsbury

For and on behalf of
RWE Renewables UK Dogger Bank South (East) Limited



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