Written Representation

for the

Royal Society for the Protection of Birds

Submitted for Deadline 1

20 February 2023

Planning Act 2008 (as amended)

In the matter of:

Application by Equinor for an Order

Granting Development Consent for the Sheringham and Dudgeon Extension Projects

Planning Inspectorate Ref: EN010109

RSPB Registration Identification Ref: 20033327

Contents

1. Introduction

The RSPB

1.1. The Royal Society for the Protection of Birds (the RSPB) was set up in 1889. It is a registered charity incorporated by Royal Charter and is Europe's largest wildlife conservation organisation, with a membership of over 1.1 million[1]. The principal objective of the RSPB is the conservation of wild birds and their habitats. The RSPB therefore attaches great importance to all international, EU and national law, policy and guidance that assist in the attainment of this objective. It campaigns throughout the UK and internationally for the development, strengthening and enforcement of such law and policy. In so doing, it also plays an active role in the domestic processes by which development plans and proposals are scrutinised and considered, offering ornithological and other wider environmental expertise. This includes making representations to, and appearing at, public inquiries and hearings during the examination of applications for development consents.

The RSPB's interest in offshore wind development

1.2. Faced with the threats of climate change to the natural world the RSPB considers that a low-carbon energy revolution to reach net zero is essential to safeguard biodiversity. However, inappropriately designed and/or sited developments can also cause serious and irreparable harm to biodiversity and damage the public acceptability of the necessary low-carbon energy transition technologies.

1.3. The RSPB recognises the significant role that offshore wind will play in decarbonising our energy systems and the renewed urgency with which this must happen. Installing this technology at the scale and pace needed is no easy task: there are significant challenges rooted in the planning frameworks and the state of our seas which threaten both nature *and* our ability to reach net zero.

1.4. The UK is of outstanding international importance for its breeding seabirds, including northern gannet for which the UK supports over 50% of the world population and around 10% of the world populations of kittiwake and Sandwich tern. The UK is also of international importance for its non-breeding seabirds and waterbirds. As with all Annex I and regularly migratory species, the UK has particular responsibility under the Birds Directive[2] and the Conservation of Habitats and Species Regulations 2017[3] (the Habitats Regulations, as amended) (see section 3 below) to secure the conservation of these birds.

1.5. The available evidence suggests that the main risks of offshore wind farms for birds are collision, disturbance/displacement, barriers to movement (e.g. migrating birds, or disruption of access between the breeding areas and feeding areas), and habitat change

[1] [redacted] Accessed 29 March 2022.
[2] Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (codified version) (the Birds Directive).
[3] The Conservation of Habitats and Species Regulations 2017: https://www.legislation.gov.uk/uksi/2017/1012/contents. The Conservation of Offshore Marine Habitats and Species Regulations 2017 are also relevant - https://www.legislation.gov.uk/uksi/2017/1013/contents but unfortunately Legislation.gov.uk has not been updated to reflect the changes made due to Brexit.

particularly with associated changes in food availability and the cumulative and in-combination effects of these across multiple wind farms.

1.6. Such impacts are avoidable, and the RSPB has spent considerable time working with stakeholders in the UK offshore wind industry to ensure that decisions about deployment of renewable energy infrastructure take account of environmental constraints and seek to avoid or minimise impacts wherever possible. The RSPB therefore strongly advocates the use of rigorous, participative environmental assessments to inform the development of projects.

Scope of written submission

1.7. This Written Submission covers the following:

- The nature conservation importance of the seabirds affected by the Sheringham and Dudgeon Extension Projects
- Legislation and policy background
- Offshore ornithology
- Derogation case: the RSPB's approach to evaluating compensation measures under the Conservation of Habitats and Species Regulations 2017 (as amended)
- RSPB detailed comments on the Applicant's specific compensation proposals

1.8. In compiling this Written Representation, the RSPB has considered the application documents, including in particular the following:

Section 6 (offshore ornithology) and Section 5.4 Report to Inform Appropriate Assessment

- APP-097 6.1.11 Environmental Statement - Chapter 11 - Offshore Ornithology
- APP-123 6.2.11 Environmental Statement Chapter 11 Figures - Offshore Ornithology
- APP-195 6.3.11.1 Environmental Statement - Appendix 11.1 - Offshore Ornithology Technical Report
- APP-196 6.3.11.2 Environmental Statement - Appendix 11.2 - Information to Inform the Offshore Ornithology Cumulative Impact Assessment
- APP-282 6.5 Environmental Statement - Schedule of Mitigation and Mitigation Routemap
- APP-059 5.4 Report to Inform Appropriate Assessment (RIAA)
- APP-060 5.4.1 Appendix 1 - Habitats Regulations Assessment Screening Report
- APP-061 5.4.2 Appendix 2 - Habitats Regulations Assessment Screening Matrices
- APP-062 5.4.3 Appendix 3 - Habitats Regulations Assessment Integrity Matrices

Section 5.5: Derogation case – compensatory measures

- APP-063 5.5 Habitats Regulations Derogation - Provision Evidence
- APP-064 5.5.1 Appendix 1 - Compensatory Measures Overview
- APP-065 5.5.1.1 Annex 1A - Initial Review of Compensatory Measures for Sandwich Tern and Kittiwake
- APP-066 5.5.1.2 Annex 1B - Sandwich Tern and Kittiwake Ecological Evidence

- APP-067 5.5.1.3 Annex 1C - Initial Review of Compensatory Measures for Gannet Guillemot and Razorbill
- APP-068 5.5.1.4 Annex 1D - Record of HRA Derogation Consultation
- APP-069 5.5.2 Appendix 2 - Sandwich Tern Compensation Document
- APP-070 5.5.2.1 Annex 2A - Outline Sandwich Tern Compensation Implementation and Monitoring Plan
- APP-071 5.5.2.2 Annex 2B - Sandwich Tern Nesting Habitat Improvements Site Selection
- APP-072 5.5.3 Appendix 3 - Kittiwake Compensation Document
- APP-073 5.5.3.1 Annex 3A - Outline Kittiwake Compensation Implementation and Monitoring Plan
- APP-074 5.5.4 Appendix 4 - Gannet Guillemot and Razorbill Compensation Document
- APP-075 5.5.4.1 Annex 4A - Outline Gannet, Guillemot and Razorbill Compensation Implementation and Monitoring Plan
- APP-076 5.5.5 Appendix 5 Derogation Funding Statement (Habitats Regulations and Marine and Coastal Access Act)

2. The nature conservation importance of the seabirds affected by the Sheringham and Dudgeon Extension Projects

Introduction

2.1. The UK is of outstanding international importance for its breeding seabirds, including northern gannet for which the UK supports over 50% of the world population and around 10% of the world population of black-legged kittiwake (Table 1). As with all Annex I and regularly occurring migratory species, the UK has particular responsibility under the Birds Directive[4] to secure the conservation of these important seabird populations.

2.2. The RSPB considers the project has the potential to impact several Special Protection Areas (SPAs), classified under the EU Birds Directive. Below we provide a summary of each affected SPA and the relevant qualifying features.

The RSPB's position regarding the impact of Highly Pathogenic Avian Influenza on seabird colonies and implications for Sheringham and Dudgeon Extensions

2.3. Highly Pathogenic Avian Influenza (HPAI) was first detected in UK seabirds in late summer 2021 when there were reports of great skuas dying or abandoning nests in Shetland, Orkney, the Flannan Isles and St Kilda. Cases were confirmed in various gull species through the winter of 2021/22 and, as seabirds returned to their breeding colonies, other species began to be affected. Reports from the Netherlands and France in May 2022 indicated that the Sandwich tern population there was being hit hard (including Scolt Head Island on the North Norfolk Coast and the Farne Islands in Northumberland), and it was not surprising when the UK colonies also began to suffer significant losses and abandonment. Thousands of seabirds died and the species which seemed to be worst affected in the UK were:

- great skuas,
- Sandwich terns,
- roseate terns and,
- northern gannets,

2.4. It is currently unclear what the population scale impacts of the outbreak will be, but it is likely that they will be severe. We will, however, not have a full picture of the scale of the losses during 2022 until we can see how many birds return for the 2023 breeding season. Seabirds are long-lived and reproduce slowly, so adult mortality on the scale seen during 2022 presents an existential threat to some populations. Therefore, this scale of impact means that seabird populations will be much less robust to any additional mortality arising from offshore wind farm developments. It also means that there may need to be a reassessment of whether SPA populations are in Favourable Conservation Status. With such uncertainty as to the future of these populations, there is the need for a high level of precaution to be included in examination of impacts arising from the proposed development.

[4] Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (codified version) (the Birds Directive).

The Flamborough and Filey Coast SPA

2.5. The Flamborough Head and Bempton Cliffs Special Protection Area (SPA) was designated under Article 4(2) of the Birds Directive as an SPA in 1993 due to the presence of 83,700 pairs of black-legged kittiwake (*Rissa tridactyla*), representing 4% of the Eastern Atlantic breeding population. In 2001, the UK SPA Review[5] found that it also qualified under Article 4(2) as a site regularly supporting at least 20,000 seabirds, as at the time of designation the site regularly supported 305,784 individual seabirds including: Atlantic puffin (*Fratercula arctica*), razorbill (*Alca torda*), guillemot (*Uria aalge*), European herring gull (*Larus argentatus*), gannet (*Morus bassanus*), and kittiwake. Kittiwake and the seabird assemblage are therefore the qualifying features of this SPA.

Table 1: Summary of ornithological interest of the SPAs taken from the Flamborough and Filey Coast SPA 2018 citation.[6] The population trends have changed since designation took place and this is addressed in paragraphs 2.7 and 2.8 below.

Feature	Count (period)	% of subspecies or population (pairs)	Interest Type
Flamborough Head and Bempton Cliffs SPA			
Black-legged kittiwake *Rissa tridactyla*	83,700 pairs (1987)	4% Western Europe	Migratory
Flamborough and Filey Coast SPA			
Black legged kittiwake *Rissa tridactyla*	44,520 pairs 89,041 breeding adults (2008-2011)	2% North Atlantic	Migratory
Northern gannet *Morus bassanus*	8,469 pairs 16,938 breeding adults (2008-2012)	2.6% North Atlantic	Migratory
Common guillemot *Uria aalge*	41,607 pairs 83,214 breeding adults (2008-2011)	15.6% (*Uria aalge albionis*)	Migratory
Razorbill *Alca torda*	10,570 pairs 21,140 breeding adults (2008-2011)	2.3% (*Alca torda islandica*)	Migratory
	Count period	***Average number of individuals***	
Seabird assemblage	***2008-2012***	***215,750***	

2.6. In January 2014, Natural England held a consultation on proposals to change the SPA. The proposals comprised changes to the designated site boundary including extending it to cover part of the Filey Coast (hence the change in its name to Flamborough and Filey Coast SPA)

[5] Stroud, DA, Chambers, D, Cook, S, Buxton, N, Fraser, B, Clement, P, Lewis, P, McLean, I, Baker, H & Whitehead, S (eds). 2001. The UK SPA network: its scope and content. JNCC, Peterborough.

[6] Flamborough and Filey Coast SPA citation, updated August 2018 http://publications.naturalengland.org.uk/file/4690761199386624 Accessed 29 March 2022.

and changes to the numbers of qualifying species. This new site was formally designated in August 2018[7], incorporating the Flamborough Head and Bempton Cliffs SPA (Table 1).

2.7. Natural England has set out conservation advice for the Flamborough and Filey Coast SPA, including Conservation Objectives[8] and Supplementary Advice on Conservation Objectives[9]. Below, we summarise the key aspects of that conservation advice.

Conservation objectives

2.8. The Conservation Objectives for the Flamborough and Filey Coast SPA are as follows:

"*…to ensure that, subject to natural change, the integrity of the site is maintained or restored as appropriate, and that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;*

- *The extent and distribution of the habitats of the qualifying features*
- *The structure and function of the habitats of the qualifying features*
- *The supporting processes on which the habitats of the qualifying features rely*
- *The populations of each of the qualifying features*
- *The distribution of the qualifying features within the site*."

2.9. Since this site was originally designated as an SPA in 1993, the national populations of both kittiwake and some assemblage species have suffered substantial declines. For example, the UK breeding kittiwake population has reduced by 65% since 1986 (State of the UK's Birds, 2020[10]). Within the SPA there has been an approximate 40-50% reduction in the kittiwake population from the original 83,700 breeding pairs (designation population, 1987) to an average of 44,520 breeding pairs between 2008 and 2011. A single year full colony count in 2017 indicated 51,535 pairs across the FFC SPA.[11]

2.10. The current SPA citation does not reflect this substantial decline in the population of breeding kittiwake or other seabird species included under the assemblage feature (see below for more detail on the recent kittiwake population trends including productivity).

Supplementary Advice on Conservation Objectives (dated 13 March 2020)

2.11. Natural England's Supplementary Advice on the Conservation Objectives for the Flamborough and Filey Coast SPA[12] identifies, for each SPA feature, key attributes and

[7] Flamborough and Filey Coast SPA citation, updated August 2018 http://publications.naturalengland.org.uk/file/4690761199386624 Accessed 29 March 2022.
[8] Natural England Conservation Advice for Marine Protected Areas: Flamborough and Filey Coast SPA (dated 13 March 2020). Accessed 18 March 2022.
[9] Natural England: Flamborough and Filey Coast SPA: Supplementary Advice on Conservation Objectives (updated 13 March 2020). Accessed 18 March 2022.
[10] Burns F, Eaton MA, Balmer DE, Banks A, Caldow R, Donelan JL, Douse A, Duigan C, Foster S, Frost T, Grice PV, Hall C, Hanmer HJ, Harris SJ, Johnstone I, Lindley P, McCulloch N, Noble DG, Risely K, Robinson RA, Wotton S (2020) The state of the UK's birds 2020. The RSPB, BTO, WWT, DAERA, JNCC, NatureScot, NE and NRW, Sandy, Bedfordshire
[11] Natural England: Flamborough and Filey Coast SPA: Supplementary Advice on Conservation Objectives (updated 13 March 2020). Accessed 18 March 2022.
[12] Natural England: Flamborough and Filey Coast SPA: Supplementary Advice on Conservation Objectives (updated 13 March 2020). Accessed 18 March 2022.

targets. Attributes[13] are the ecological characteristics or requirements of the classified features within the SPA and deemed to best describe the site's ecological integrity. If safeguarded this will enable achievement of the Conservation Objectives and favourable conservation status for all the designation features, including the assemblage.

2.12. Table 2 below sets out, for each qualifying feature, the targets in respect of the following attributes:

- Breeding population: abundance;
- Connectivity with supporting habitats;
- Disturbance caused by human activity;
- Extent and distribution of supporting habitat for the breeding season; and
- Food availability.

2.13. The RSPB considers these attributes and targets are particularly relevant to consideration of the Sheringham Shoal Extension and Dudgeon Shoal Extension projects as they respectively relate to:

- the population levels at which the features should be maintained or restored to;
- the need to:
    - maintain or restore safe passage of birds moving between their nesting and feeding areas;
    - reduce/avoid disturbance to foraging, feeding, moulting and/or loafing birds;
    - maintain the extent, distribution and availability of suitable breeding habitat which supports the feature for all necessary stages of its breeding cycle; and
    - maintain or restore the distribution, abundance and availability of key food and prey items.

Table 2: Flamborough and Filey Coast SPA: supplementary advice on conservation objectives – breeding population (abundance) and connectivity with supporting habitats.

SPA feature	Attribute	Target	Season	Site specific comments
Kittiwake (breeding)	Breeding population: abundance	Restore the size of the breeding population at a level which is above 83,700 breeding pairs, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	Breeding (summer season)	Current population figures indicate major decline since designation population count (1987). Ongoing trend of low breeding productivity.
	Connectivity with supporting habitats	Restore safe passage of birds moving between nesting and feeding areas	Year-round	NE has advised regulators that predicted in-combination collision mortality from consented or proposed offshore wind farms could adversely affect the integrity of the SPA.

[13] Natural England: Flamborough and Filey Coast SPA: Supplementary Advice on Conservation Objectives (updated 13 March 2020). Accessed 18 March 2022.

SPA feature	Attribute	Target	Season	Site specific comments
	Disturbance caused by human activity	Restrict the frequency, duration and / or intensity of disturbance affecting roosting, nesting, foraging, feeding, moulting and/or loafing birds so that they are not significantly disturbed	Breeding (summer season)	This species may be vulnerable to impacts of habitat loss, displacement and collision from offshore activities.
	Supporting habitat: extent and distribution of supporting habitat for the breeding season	Maintain the extent, distribution and availability of suitable breeding habitat which supports the feature for all necessary stages of its breeding cycle (courtship, nesting, feeding) at existing level.	Year round – to ensure the habitat remains suitable for when the feature is present	Colony reliant on chalk and limestone ledges, water column out to 2km for feeding and loafing, and the offshore environment for feeding.
	Supporting habitat: food availability	Restore the distribution, abundance and availability of key food and prey items (e.g. sandeel, sprat, cod, squid, shrimps) at preferred sizes.	Year-round	Kittiwake feed mainly on small shoaling fish near the sea surface. Evidence for the wider North Sea indicates that availability of sandeels is likely to be a factor in kittiwake decline. Recent evidence suggests that the decline in sandeel in the area around Flamborough may be attributable to fishing activity. Sea surface temperate rise (related to climate change) may be an additional factor in reduction in sandeel availability.
Gannet (breeding)	Breeding population: abundance	Maintain the size of the breeding population at a level which is above 8,469 pairs, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	Breeding (summer season)	Latest colony count (2017) showed increase to 13,392 Apparently Occupied Nests (AON).
	Connectivity with supporting habitats	Maintain safe passage of birds moving between nesting and feeding areas.	Year-round	Evidence that gannet may be vulnerable to collision with offshore turbines. They are also sensitive to displacement effects.
	Disturbance caused by human activity	Restrict the frequency, duration and / or intensity of disturbance affecting roosting, nesting, foraging, feeding, moulting and/or loafing birds so that they are not significantly disturbed	Breeding (summer season)	This species may be vulnerable to impacts of habitat loss, displacement and collision from offshore activities.
	Supporting habitat: extent and distribution of supporting	Maintain the extent, distribution and availability of suitable breeding habitat which supports the feature for all necessary stages of its breeding cycle	Year round – to ensure the habitat remains suitable for	Colony reliant on 5km of high cliffs at Bempton, water column out to 2km for feeding and

SPA feature	Attribute	Target	Season	Site specific comments
	habitat for the breeding season	(courtship, nesting, feeding) at: current extent.	when the feature is present	loafing, and the offshore environment for feeding.
	Supporting habitat: food availability	Maintain the distribution, abundance and availability of key food and prey items (e.g. Herring, mackerel, sprat, sandeel) at preferred sizes.	Year-round	
Guillemot (breeding)	Breeding population: abundance	Maintain the size of the breeding population at a level which is above 41,607 breeding pairs, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	Breeding (summer season)	[No post-designation colony count noted.]
	Connectivity with supporting habitats	Maintain safe passage of birds moving between nesting and feeding areas.	Year-round	Cumulative effect of habitat loss and displacement due to offshore developments may result in reduced breeding productivity and/or lower adult fitness and survival.
	Disturbance caused by human activity	Restrict the frequency, duration and / or intensity of disturbance affecting roosting, nesting, foraging, feeding, moulting and/or loafing birds so that they are not significantly disturbed	Breeding (summer season)	This species may be vulnerable to impacts of habitat loss, displacement and collision from offshore activities.
	Supporting habitat: extent and distribution of supporting habitat for the breeding season	Maintain the extent, distribution and availability of suitable breeding habitat which supports the feature for all necessary stages of its breeding cycle (courtship, nesting, feeding).	Year round – to ensure the habitat remains suitable for when the feature is present	Colony reliant on chalk and limestone ledges, water column out to 2km for feeding and loafing, and the offshore environment for feeding.
	Supporting habitat: food availability	Maintain the distribution, abundance and availability of key food and prey items (e.g. sandeel, herring, sprat) at preferred sizes.	Year-round	Recent studies at Flamborough Head indicate that clupeid species (most likely sprats) form 91.5% of guillemot chick diet. They have also been recorded to forage for sandeels and gadoid species.
Razorbill (breeding)	Breeding population: abundance	Maintain the size of the breeding population at a level which is above 10,570 breeding pairs whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	Breeding (summer season)	The 2017 colony count indicated approximately 20,253 pairs across the site.

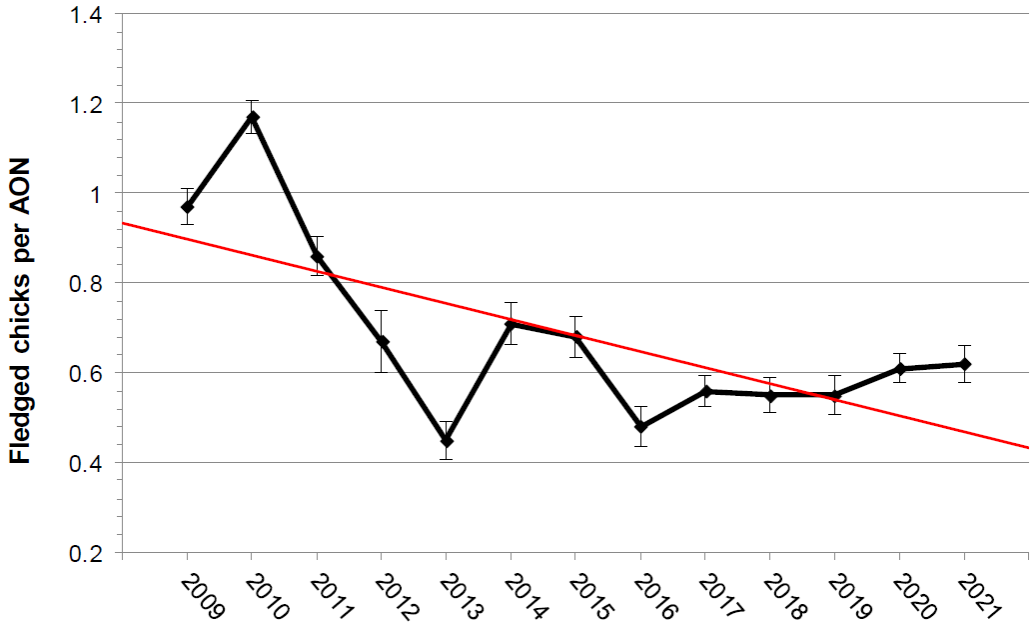
SPA feature	Attribute	Target	Season	Site specific comments
	Connectivity with supporting habitats	Maintain safe passage of birds moving between nesting and feeding areas.	Year-round	Cumulative effect of habitat loss and displacement due to offshore developments may result in reduced breeding productivity and/or lower adult fitness and survival.
	Disturbance caused by human activity	Restrict the frequency, duration and / or intensity of disturbance affecting roosting, nesting, foraging, feeding, moulting and/or loafing birds so that they are not significantly disturbed	Breeding (summer season)	This species may be vulnerable to impacts of habitat loss, displacement and collision from offshore activities.
	Supporting habitat: extent and distribution of supporting habitat for the breeding season	Maintain the extent, distribution and availability of suitable breeding habitat which supports the feature for all necessary stages of its breeding cycle (courtship, nesting, feeding).	Year round – to ensure the habitat remains suitable for when the feature is present	Colony reliant on chalk and limestone ledges, water column out to 2km for feeding and loafing, and the offshore environment for feeding.
	Supporting habitat: food availability	Maintain the distribution, abundance and availability of key food and prey items (e.g. sandeel, sprat, krill) at preferred sizes.	Year-round	Recent studies at Flamborough Head indicate that almost 90% of razorbill chick diet was sandeels, with a smaller proportion of clupeid species (most likely sprats).
Seabird assemblage (breeding)	Assemblage of species: abundance	Maintain the overall abundance of the assemblage at a level which is above 216,730 individuals whilst avoiding deterioration from its current level as indicated by the latest peak mean count or equivalent.	Breeding (summer season)	[No post-designation colony count noted.]
	Disturbance caused by human activity	Restrict the frequency, duration and / or intensity of disturbance affecting roosting, nesting, foraging, feeding, moulting and/or loafing birds so that they are not significantly disturbed	Breeding (summer season)	Offshore: some species may be vulnerable to impacts of habitat loss, displacement and collision from offshore activities.
	Supporting habitat: extent and distribution of supporting habitat for the breeding season	Maintain the extent, distribution and availability of suitable breeding habitat which supports the feature for all necessary stages of its breeding cycle (courtship, nesting, feeding) current extent - (water column; vegetated sea cliffs of the Atlantic and Baltic coast; intertidal rock).	Year round – to ensure the habitat remains suitable for when the feature is present	

2.14. The RSPB considers these attributes and targets are directly relevant to the consideration of whether the SPA's conservation objective to maintain or restore site integrity can be met and the SPA achieve favourable conservation status for all its features, including the seabird assemblage throughout the lifetime of the development and any subsequent period where its impacts continue to affect the SPA features.

Kittiwakes

2.15. With particular reference to the SPA kittiwake population, we note that Natural England's Supplementary Advice refers to Aitken *et al.*, 2017[14] as a source of census data showing that kittiwake productivity has declined rapidly at the SPA. More recent data from Cope *et al.* (2021)[15] confirms this trend and productivity has remained low (see Figure 1 below). As a long-lived species, such lowering in productivity will take some time before it becomes apparent in population numbers. However, if this trend continues it will have severe long-term impacts on the population growth.

Figure 1: Reproduction of Fig.4 from Cope *et al*. (2021). Flamborough/Bempton black-legged Kittiwake productivity 2009-2021, mean of plot results plus/minus standard error.



2.16. The JNCC (2018a)[16] discusses the rapid decline in the UK kittiwake population observed since the early 1990s and links this to declining productivity and adult survival, with declines in sandeel prey and the effects of climate change on sea surface temperatures noted as likely contributory factors. Frederiksen *et al*. (2004)[17] also demonstrated the vulnerability of kittiwake populations to human activities through a study based on the Isle of May. Their

[14] Aitken, D., Babcock, M., Barratt, A., Clarkson, C. and Prettyman, S. (2017). Flamborough and Filey Coast pSPA Seabird Monitoring Programme: RSPB.
[15] Cope, R., Aitken, D., and O'Hara, D. (2021) Flamborough and Filey Coast SPA Seabird Monitoring Programme 2019 Report. RSPB and Natural England. Pp 44.
[16] JNCC (2018a) Latest population trends: black-legged kittiwake.
[17] Frederiksen, M., Harris, M.P., Daunt, F., Rothery, P. and Wanless, S. 2004. The role of industrial fisheries and oceanographic change in the decline of North Sea black-legged kittiwakes. Journal of Applied Ecology 41: 1129-1139.

population modelling showed that this population was unlikely to increase should the local sandeel fishery remain active and would be likely to decline further if sea surface temperature also increased, due to effects on both productivity and adult survival.

2.17. Given this context of continued declines in the UK kittiwake population since the early 1990s and the effect of anthropogenic impacts on adult survival and productivity, the RSPB considers that offshore windfarm mortality could add significantly to the multiple stressors affecting this population and reduce the likelihood of population recovery.

Summary of the impact of HPAI on Flamborough and Filey Coast SPA populations of kittiwakes, gannets, guillemots and razorbills and the seabird assemblage

2.18. The RSPB has staff at the Flamborough and Filey Coast SPA as both the reserve team at Bempton Reserve and as the tagging and post consent monitoring team in the reserve and wider SPA. These seabird experts reported in 2022 that HPAI had spread through the gannets and other seabirds in all areas monitored and that the spread had accelerated in some areas of the gannet colony in the latter part of the breeding season. Gannets seem to be particularly affected, potentially through their ecology and the long length of breeding season increasing the likelihood of exposure to infection. There were reported multiple carcass clusters on the beaches under the breeding cliffs, some with up to 50 gannet carcasses present. The situation with HPAI is rapidly evolving, and while in 2022 auks had all left the cliffs and kittiwakes had mostly left before significant impacts had been observed in these species, we have grave concerns for next season. The extent of the HPAI spread through the populations will not be known until birds return for the 2023 breeding season.

Summary

2.19. The Flamborough and Filey Coast SPA is a vital site for nationally and internationally important seabird populations. Kittiwakes, gannets, guillemots, razorbills and the seabird assemblage are qualifying features of this SPA. Despite the Conservation Objectives, "*to ensure that … the integrity of the site is maintained or restored as appropriate*", since this site was designated in 1993 the national populations of both kittiwake and some assemblage species have suffered substantial declines.

2.20. It is vital to consider whether the SPA and its qualifying features meet the attributes and targets set by Natural England when considering whether the SPA's conservation objectives to maintain or restore site integrity can be met and the SPA achieve favourable conservation status throughout the lifetime of the development and any subsequent period where its impacts continue to affect the SPA features.

The North Norfolk Coast SPA

2.21. The main feature of the North Norfolk Coast Special Protection Area (SPA) affected by the application is the breeding sandwich tern population. The SPA was classified in 1996[18] and supports internationally and nationally important numbers of breeding and wintering birds,

[18] North Norfolk Coast SPA citation, dated 30 January 1996. Accessed 2 December 2022

including 4500 pairs of sandwich terns (*Sterna sandvicensis*) (12% of the EC breeding population and one-third of the British breeding population).

2.22. Natural England has set out conservation advice for the North Norfolk Coast SPA, including Conservation Objectives[19] and Supplementary Advice on Conservation Objectives[20]. Below, we summarise the key aspects of that conservation advice.

Conservation objectives

2.23. The Conservation Objectives for the North Norfolk Coast SPA are as follows:

"*…to ensure that, subject to natural change, the integrity of the site is maintained or restored as appropriate, and that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;*

- *The extent and distribution of the habitats of the qualifying features*
- *The structure and function of the habitats of the qualifying features*
- *The supporting processes on which the habitats of the qualifying features rely*
- *The populations of each of the qualifying features*
- *The distribution of the qualifying features within the site*."

Supplementary Advice on Conservation Objectives (updated 17 September 2021)

2.24. Natural England's Supplementary Advice on the Conservation Objectives for the North Norfolk Coast SPA[21] identifies, for each SPA feature, key attributes and targets. Attributes[22] are the ecological characteristics or requirements of the classified features within the SPA and deemed to best describe the site's ecological integrity. If safeguarded this will enable achievement of the Conservation Objectives and favourable conservation status for all the designation features, including the assemblage.

2.25. Table 3 below sets out, for each qualifying feature, the targets in respect of the following attributes:

- Breeding population: abundance;
- Connectivity with supporting habitats;
- Disturbance caused by human activity;
- Extent and distribution of supporting habitat for the breeding season; and
- Food availability.

2.26. The RSPB considers these attributes and targets are particularly relevant to consideration of the scheme as they respectively relate to:

the population levels at which the features should be maintained or restored to;

[19] Natural England Conservation Advice for Marine Protected Areas: North Norfolk Coast SPA (updated 17 September 2021). Accessed 2 December 2022.
[20] Natural England: North Norfolk Coast SPA: Supplementary Advice on Conservation Objectives (updated 17 September 2021). Accessed 2 December 2022.
[21] Natural England: North Norfolk Coast SPA: Supplementary Advice on Conservation Objectives (updated 17 September 2021). Accessed 2 December 2022.
[22] Natural England: North Norfolk Coast SPA: Supplementary Advice on Conservation Objectives (updated 17 September 2021). Accessed 2 December 2022.

the need to:

- maintain or restore safe passage of birds moving between their nesting and feeding areas;
- reduce/avoid disturbance to foraging, feeding, moulting and/or loafing birds;
- maintain the extent, distribution and availability of suitable breeding habitat which supports the feature for all necessary stages of its breeding cycle; and
- maintain or restore the distribution, abundance and availability of key food and prey items.

Table 3: North Norfolk Coast SPA: supplementary advice on conservation objectives[23] – breeding population (abundance) and connectivity with supporting habitats.

SPA feature	Attribute	Target	Season	Site specific comments
Sandwich tern (breeding)	Breeding population: abundance	Restore the size of the breeding population to a level which is above 4,500 pairs, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	Breeding (summer season)	At classification in 1989, the citation states that the SPA's breeding population of sandwich tern was 4,500 pairs, which at the time represented 12% of the EC breeding population and one third of the British breeding population. Lowest annual count during this period was 2552 (1989). Data from the Seabird Monitoring Project shows that 5 year average 2010-2014 is 3851.
	Connectivity with supporting habitats	Maintain safe passage of birds moving between nesting and feeding areas.	Year-round	None set
	Disturbance caused by human activity	Reduce the frequency, duration and / or intensity of disturbance affecting roosting, nesting, foraging, feeding, moulting and/or loafing birds so that they are not significantly disturbed	Breeding (summer season)	The Borough of Kings Lynn and West Norfolk Tourism Development and Management Strategy includes key principles aimed to reduce disturbance to the SPA such as; • Ensuring marketing, development and visitor management are appropriate for the environment, • Increasing visitor awareness of conservation

23 https://designatedsites.naturalengland.org.uk/Marine/SupAdvice.aspx?SiteCode=UK9009031&SiteName=north%20norfolk&SiteNameDisplay=North+Norfolk+Coast+SPA&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=&NumMarineSeasonality=11

SPA feature	Attribute	Target	Season	Site specific comments
				and land management issues through interpretation, • Continue to welcome quiet recreation that respects the places where wildlife, geology and the landscape come first and encouraging people to control their dogs on sites with vulnerable features.
	Predation - all habitats	Restrict predation and disturbance caused by native and non-native predators	Breeding (summer) season	
	Supporting habitat: conservation measures	Maintain the structure, function and supporting processes associated with the feature and its supporting habitat through management or other measures (whether within and/or outside the site boundary as appropriate) and ensure these measures are not being undermined or compromised.	Year round – to ensure the habitat remains suitable for when the feature is present	The Visitor Management Strategy developed through the Norfolk Coast Project aims to address the issues that may result from large numbers of visitors. The Shoreline Management Strategy for Hunstanton to Kelling aims to address the issues resulting from sea level rise, storm surges and erosion. There are also many sites along the coastline that are managed in order to achieve their conservation objectives including; • Holkham National Nature Reserve (NNR)- managed by Natural England and the Holkam Estate, • Scolt Head Island NNR- Owned jointly by the National Trust and Norfolk Wildlife Trust and managed under lease by Natural England, • Holme Dunes NNR and Cley Marshes Nature Reserve – managed by the Norfolk Wildlife Trust, • Blakeney Point NNR- managed by the National Trust, • Titchwell Marsh- managed by the RSPB

SPA feature	Attribute	Target	Season	Site specific comments
	Supporting habitat: extent and distribution of supporting habitat for the breeding season	Maintain the extent, distribution and availability of suitable habitat (either within or outside the site boundary) which supports the feature for all necessary stages of its breeding cycle (courtship, nesting, feeding) at levels decribed [sic] in site specific supporting notes	Year round – to ensure the habitat remains suitable for when the feature is present	Area of the supporting habitat is currently understood to be: • Intertidal coarse sediment (143 ha), • Intertidal mixed sediments (unknown), • Intertidal sand and muddy sand (2486 ha), • Coastal lagoons (53 ha), • Saltmarsh (2959 ha), which is not feature specific but is an aggregation of the following saltmarsh features: • Atlantic salt meadows (Glauco-puccinellietalia maritimae), • Mediterranean and thermo-Atlantic halophilous scrubs This target may apply to supporting habitat which lies outside the site boundary. Generally, birds will not be nesting on habitat regularly flooded by the tide but they will be found in intertidal habitats above the Mean High Water Mark (which may not have been mapped).
	Supporting habitat: food availability (Bird)	Maintain the distribution, abundance and availability of key food and prey items (eg. sandeel, sprat) at preferred sizes.	Year round	None set.
	Supporting habitat: landform	Maintain the availability of shallow sloping nesting sites, grading to <30 cm above water level, restricting the probability that they will flood.	Year round – to ensure the habitat remains suitable for when the feature is present	None set.
	Supporting habitat: vegetation characteristics for nesting	Maintain vegetation cover which should be <10% throughout areas used for nesting, providing sufficient bare ground for the colony as a whole	Year round – to ensure the habitat remains suitable for when the	Primary breeding areas within the site include Blakeney Point and Scolt Head, however no active management occurs on this vegetation type within the site.

SPA feature	Attribute	Target	Season	Site specific comments
			feature is present	
	Supporting habitat: water quality - contaminants	Reduce aqueous contaminants to levels equating to High Status according to Annex VIII and Good Status according to Annex X of the Water Framework Directive, avoiding deterioration from existing levels.	Year round	This target has been set according to Water Framework Directive (WFD) chemical status of overlapping water bodies. Burn, Norfolk North, Stiffkey and Glaven, and Wash Outer WFD water bodies together overlap >99% of this SPA. These water bodies failed WFD chemical status in the 2019 classification due to measured/assumed elevated levels of polybrominated diphenyl ether (PBDE) and mercury and its compounds. These two chemicals are persistent, bioaccumulative and toxic substances, which present risks to wildlife. In 2013, the EU Priority Substances Directive specified biota (concentrations in whole fish) Environmental Quality Standards (EQS) for these substances rather than water column EQSs, to better represent risks to wildlife. Sampling has only occurred in a subset of water bodies, but in all instances, these chemicals were found at levels above the EQSs, and therefore in the absence of additional data, the classification has been extrapolated across non-monitored waterbodies. These new standards have been used in the 2019 WFD classification for the first time, and therefore show failures where a water body may previously have been classified as good chemical status. This does not represent a decline in water quality, but rather, a result of the new, more stringent standards. (Environment Agency (EA), 2019) The target has been set at 'reduce' due to the high levels

SPA feature	Attribute	Target	Season	Site specific comments
				of PBDE and mercury and its compounds present.
	Supporting habitat: water quality - nutrients	Maintain water quality at mean winter dissolved inorganic nitrogen levels where biological indicators of eutrophication (opportunistic macroalgal and phytoplankton blooms) do not affect the integrity of the site and features, avoiding deterioration from existing levels.	Year round	The risk of eutrophication across the site has been assessed as low using the Environment Agency's Weight of Evidence approach. This takes into account assessments of the Water Framework Directive opportunistic macroalgae and phytoplankton quality elements using the respective assessment tools. Adverse effects to integrity should be avoided. Therefore opportunistic macroalgal levels should be maintained so there is no adverse effect to the feature through limited algal cover (<15%) and low biomass (< 500 g m2) of macroalgal blooms in the available intertidal habitat, with area of available intertidal habitat affected by opportunistic macroalgae less than 15 %. There should also be limited (<5%) entrainment of algae in the underlying sediment (all accounting for seasonal variations and fluctuations in growth). Phytoplankton levels should be maintained above a WFD assessment tool score of 0.6, where there is only a minor (a) decline in species richness, and (b) disturbance to the diatom-dinoflagellate succession in the spring bloom compared to reference conditions.

2.27. The RSPB considers these attributes and targets are directly relevant to the consideration of whether the SPA's conservation objective to maintain or restore site integrity can be met and the SPA achieve favourable conservation status for all its features including the seabird assemblage throughout the lifetime of the development and any subsequent period where its impacts continue to affect the SPA features.

Summary of the impact of HPAI on North Norfolk Coast SPA populations of Sandwich terns

2.28. The Sandwich tern colony at Scolt Head Island saw significant numbers of birds affected by HPAI in 2022. Whilst some chicks did successfully fledge from the colony, the full impact on the breeding population will not be known until birds return in 2023.

Summary

2.29. The North Norfolk SPA is a vital site for an internationally important Sandwich tern population. Either Scolt Head or Blakeney Point has held the largest population of Sandwich terns in the UK, for every one of the last 14 years that the Seabird Monitoring Programme holds comprehensive data (2006-2019). As the North Norfolk sites hosts a single metapopulation, the combined number of pairs, which averages at just under 4000 over this period, makes this the most important area in the country for Sandwich terns. We note the colony data corrections provided by Natural England in their Relevant Representations (RR-063). It is essential that the Conservation Objective, "to ensure that … the integrity of the site is maintained or restored as appropriate", since this site was designated in 1996 remains achievable despite the proposed increase in offshore wind turbines.

2.30. It is vital to consider whether the SPA and its qualifying features meet the attributes and targets set by Natural England when considering whether the SPA's conservation objectives to maintain or restore site integrity can be met and the SPA achieve favourable conservation status throughout the lifetime of the development and any subsequent period where its impacts continue to affect the SPA features.

The Greater Wash SPA

2.31. The main features of the Greater Wash Special Protection Area (SPA) affected by the application are the breeding sandwich tern population and the non-breeding red-throated diver population. The SPA was classified in 2018[24] and qualifies under Article 4.1 of the Birds Directive by supporting nationally important numbers of red throated diver (*Gavia stellata*) (8.3% of the British non-breeding population), sandwich tern (*Sterna sandvicensis*) (35% of the British breeding population), non-breeding Little gull (*Hydrocoloeus minutus*), breeding Common tern (*Sterna hirundo*), breeding Little tern (*Sternula albifrons*). In addition, the site qualifies under Article 4.2 of the Birds Directive by supporting internationally important numbers of: non-breeding Common scoter (*Melanitta nigra*).

2.32. Natural England has set out Conservation Objectives[25] for the Greater Wash SPA. Below, we summarise the key aspects of that conservation advice.

Conservation objectives

2.33. The Conservation Objectives for the Greater Wash SPA are as follows:

[24] Greater Wash SPA citation, dated 28 March 2018. Accessed 22 December 2022

[25] Natural England Conservation Advice for Marine Protected Areas: Greater Wash SPA (updated 21 February 2019). Accessed 22 December 2022.

"…to ensure that, the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

- The extent and distribution of the habitats of the qualifying features
- The structure and function of the habitats of the qualifying features
- The supporting processes on which the habitats of the qualifying features rely
- The populations of each of the qualifying features
    - The distribution of the qualifying features within the site."

Summary

2.34. The Greater Wash SPA is a vital site for internationally important sandwich tern and nationally important red-throated diver populations. Despite the Conservation Objectives, "to ensure that … the integrity of the site is maintained or restored as appropriate", since this site was designated in 2018 .

2.35. It is vital to consider whether the SPA and its qualifying features meet the attributes and targets set by Natural England when considering whether the SPA's conservation objectives to maintain or restore site integrity can be met and the SPA achieve favourable conservation status throughout the lifetime of the development and any subsequent period where its impacts continue to affect the SPA features.

3. Legislation and policy background

Introduction

3.1. The suite of Energy National Policy Statements (NPSs) set out the Government's approach to ensuring the security of energy supplies and the policy framework within which new energy infrastructure proposals are to be considered. The presumption in favour of granting consent, as identified in NPS EN-1, *Overarching National Policy Statement for Energy*[26], is subject to the tests set out below in section 104 of the Planning Act 2008[27] (see NPS EN-1 paragraphs 4.1.2 and 1.1.2).

3.2. Section 104 of the Planning Act provides that an application for development consent for energy infrastructure must be decided in accordance with the relevant NPS except where in doing so it would lead to the UK:

- being in breach of its international obligations;
- being in breach of any statutory duty that applies to the Secretary of State; or would
- be unlawful;
- result in adverse impacts which would outweigh the benefits; or
- be contrary to regulations about how decisions are to be taken.

3.3. The statutory duties include the Conservation of Habitats and Species Regulations 2017[28] (the Habitats Regulations, as amended) (NPS EN-1 paragraph 4.3.1) and the wider objective of protecting the most important biodiversity conservation interests (see NPS EN-1 section 5.3 generally). It notes the Habitats Regulations' statutory protection for important sites including Ramsar sites, listed under the Ramsar Convention[29], SPAs designated under the Birds Directive and Special Areas of Conservation (SACs) designated under the Habitats Directive[30].

3.4. NPS EN-3, *National Policy Statement for Renewable Energy Infrastructure*, specifically identifies birds as a biodiversity concern to be taken into account (paragraph 2.6.59 and 2.6.68). Whilst it is stated that the designation of an area as a protected European site does not necessarily restrict the construction or operation of offshore wind farms (paragraph 2.6.69), the legislative requirements identified above are still to be met. The protection afforded by legislation, to which the 2008 Act and the NPSs refer, are addressed briefly below.

[26] Overarching National Planning Policy Statement for Energy (EN-1): https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf

[27] Planning Act, 2008: http://www.legislation.gov.uk/ukpga/2008/29/contents

[28] The Conservation of Habitats and Species Regulations 2017: https://www.legislation.gov.uk/uksi/2017/1012/contents. The Conservation of Offshore Marine Habitats and Species Regulations 2017 are also relevant - https://www.legislation.gov.uk/uksi/2017/1013/contents but unfortunately Legislation.gov.uk has not been updated to reflect the changes made due to Brexit.

[29] The Convention on Wetlands of International Importance 1971. Para 5.3.9 of the NPS EN-1 confirms that for the purposes of considering development proposals affecting them, listed Ramsar sites should also, as a matter of policy, receive the same protection.

[30] Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.

The Conservation of Habitats and Species Regulations 2017 and the Conservation of Offshore Marine Habitats and Species Regulations 2017

3.5. SACs and SPAs are protected as "European sites" in inshore waters (up to 12 nautical miles from the baselines) under provisions within the Conservation of Habitats and Species Regulations 2017 (Habitats Regulations)(as amended); and in offshore waters (i.e. from 12-200 nautical miles) under provisions within the Conservation of Offshore Marine Habitats and Species Regulations 2017 (Offshore Habitats Regulations)(as amended)[31].

3.6. The Habitats & Offshore Habitats Regulations set out the sequence of steps to be taken by the competent authority (here the Secretary of State for Energy Security and Net Zero) when considering authorisation for a project *likely to have an effect* on a European site and its species before deciding to authorise that project. These are as follows (with references to just the Habitats Regulations):

- Step 1: consider whether the project is directly connected with or necessary to the management of the SPA and its species (regulation 63 (1)). If not –
- Step 2: consider, on a precautionary basis, whether the project is likely to have a significant effect on the SPA and its species, either alone or in combination with other plans or projects (the Likely Significance Test) (regulation 63 (1)).
- Step 3: make an appropriate assessment of the implications for the SPA and its species in view of its conservation objectives with the aims and objectives of the requirements including the National Sites Network management objectives (reg 16A) to also be considered. There is no requirement or ability at this stage to consider extraneous (non-conservation e.g. economics, renewable targets, public safety etc) matters in the appropriate assessment (regulation 63 (1)).
- Step 4: consider whether it can be ascertained that the project will not, alone or in combination with other plans or projects, adversely affect the integrity of the SPA and its species, having regard to the manner in which it is proposed to be carried out, and any conditions or restrictions subject to which that authorisation might be given (the Integrity Test) (regulation 63 (6)).
- Step 5: In light of the conclusions of the assessment, the competent authority shall agree to the project only after having ascertained that it will not adversely affect the integrity of the SPA, alone or in combination with other plans or projects (regulation 63 (5)).
- Step 6: only if the competent authority is satisfied that, there being no alternative solutions and the plan or project must be carried out for imperative reasons of overriding public interest (which, subject to (regulation 64(2)), may be of a social or economic nature), they may agree to the plan or project notwithstanding a negative assessment of the implications for the European site (regulation 64 (1)).
- Step 7: in the event of the no alternative solutions and imperative reasons of overriding public interest tests being satisfied, the Secretary of State must secure that any and all necessary compensatory measures are taken to ensure that the overall coherence of the

[31] The Conservation of Habitats and Species Regulations 2017: https://www.legislation.gov.uk/uksi/2017/1012/contents. The Conservation of Offshore Marine Habitats and Species Regulations 2017 are also relevant - https://www.legislation.gov.uk/uksi/2017/1013/contents but unfortunately Legislation.gov.uk has not been updated to reflect the changes made due to Brexit.

National Site Network is protected (regulation 68) taking account of the National Site Network management objectives (reg 16A, as set out below).

3.7. It is important to add that in addition to the requirements set out above, in relation to both inshore marine area and the offshore marine area, any competent authority must exercise its functions so as to secure compliance with the requirements of the Habitats Directive and the Birds Directive as set out in regulations 9 and 10, Habitats Regulations; and in particular to take such steps as it considers appropriate to secure the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds[32], having regard to the requirements of Article 2 of the Birds Directive.[33] And for offshore SPAs and SACs regulation 26, Offshore Habitats Regulations requires competent authorities to exercise their functions (as far as possible) to secure steps to avoid the disturbance of species and the deterioration of habitats or habitats of species within those sites.

SPA and SAC Conservation Objectives

3.8. Under the Habitats Regulations, a site's Conservation Objectives are intrinsic to the Integrity Test when considering whether to grant consent for a plan or project – see Habitats Regulations 63(1).

3.9. In order to understand the Conservation Objectives and the Supplementary Advice in the context of Regulation 63(1) it is important to remind oneself of the role of SPAs within these legislative requirements. These protected sites are part of the requirement for special conservation measures in order to ensure that their contribution to national and international "conservation status" of the species[34] is maximised, as set out in the headline words at the start of all Conservation Objectives:

"Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring…"[35]

3.10. The Conservation Objectives are to be an articulation of the contribution that it is appropriate for the SPA to make in an enduring way. It would be inconsistent with the purposes of the protection and the role of SPAs to have SPA Conservation Objectives (or the interpretation of them) aiming for lower populations particularly since so many sites were designated at a time when populations were not in favourable condition.

Appropriate assessment

3.11. As part of the assessment requirements, regulation 63, Habitats Regulations (regulation 28, Offshore Habitats Regulations) require the application of the precautionary principle.

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[32] As required by Article 3, Birds Directive

[33] See regulation 9(1) and 10(1)(2)(3) and (8) of the Habitats Regulations and regulation 6 of the Offshore Regulations. Article 2 Birds Directive imposes a requirement on Member States to maintain all wild bird populations at a level which corresponds in particular to ecological, scientific and cultural requirements, while taking account of economic and recreational requirements, or if necessary, to restore the population of these species to that level (Article 2).

[34] Please see points below on the management objectives of the National Sites Network and the requirements for SPAs to ensure that the species are maintained and/or restored across their natural range.

[35] The SPA generic Conservation Objectives http://publications.naturalengland.org.uk/publication/5400434877399040 Accessed 29 March 2022

Meaning that if it cannot be excluded, on the basis of objective scientific information, that it is likely to have a significant effect on an SPA or SAC and its species an appropriate assessment will be required: see *Waddenzee*.[36]

3.12. Following that appropriate assessment, a project may only be granted consent if the competent authority is convinced that it will not have an adverse effect on the integrity of the European site(s) and their species of concern, having applied the precautionary principle and taken account of the conservation objectives for those European sites and their habitats and species. *Waddenzee* confirmed that where doubt remains as to the absence of adverse effects on the integrity of the European site, approval should be refused[37] (subject to the considerations of alternative solutions, imperative reasons of overriding public interest and the provision of compensatory measures as set out in regulations 64 and 68).

3.13. An appropriate assessment requires all aspects of the project which could affect the European site, its species and its conservation objectives to be identified in the light of the best scientific knowledge in the field.[38] The competent authority,

"taking account of the conclusions of the appropriate assessment of the implications…for the site concerned, in the light of the conservation objectives, are to authorise such activity only if they have made certain that it will not adversely affect the integrity of the site. That is the case where no reasonable scientific doubt remains as to the absence of such effects"[39].

3.14. Defra Circular 01/2005 states at page 20, that the 'integrity of the site' should be defined as 'the coherence of the site's ecological structure and function, across its whole area, or the habitats, complex of habitats and/or populations of species for which the site is or will be classified'.[40] An European site can be described as having a high degree of integrity where the inherent potential for meeting site conservation objectives is realised, the capacity for self-repair and self-renewal under dynamic conditions is maintained, and a minimum of external management support is required. When looking at the 'integrity of the site', it is therefore important to take into account a range of factors, including the possibility of effects manifesting themselves in the short, medium and long-term".[41]

3.15. As is clear from the requirements of the Habitats and Offshore Habitats Regulations, the assessment of integrity is to be considered by reference to the impact of the project alone and in-combination with other plans and projects, taking account of the European site(s) conservation objectives. As clearly set out in *Waddenzee*, para 61:

> 61 In view of the foregoing, the answer to the fourth question must be that, under Article 6(3) of the Habitats Directive, an appropriate assessment of the implications for the site concerned of the plan or project implies that, prior to its approval, all the aspects of the plan or project which can, by themselves or in combination with other plans or projects, affect the site's conservation objectives must be identified in the

[36] CJEU Case-127/02; [2004] ECR-7405 at [45].
[37] [56]-[57].
[38] [61].
[39] [59].
[40] Please note the Defra Circular 01/2005 is also titled ODPM Circular 6/2005.
[41] See too the European Commission Guidance; Wind Energy Developments and Natura 2000, 2011, page 82-83, paragraph 5.5.3.

light of the best scientific knowledge in the field. The competent national authorities, taking account of the appropriate assessment of the implications of mechanical cockle fishing for the site concerned in the light of the site's conservation objectives, are to authorise such an activity only if they have made certain that it will not adversely affect the integrity of that site. That is the case where no reasonable scientific doubt remains as to the absence of such effects.

Habitats Regulations General Duties

3.16. We would like to also highlight, in particular, the requirements in regulation 9(3)[42]:

9.— Duties relating to compliance with the Directives

(1) The appropriate authority, the nature conservation bodies and, in relation to the marine area, a competent authority must exercise their functions which are relevant to nature conservation, including marine conservation, so as to secure compliance with the requirements of the Directives.

…

(3) Without prejudice to the preceding provisions, a competent authority, in exercising any of its functions, must have regard to the requirements of the [Birds and Habitats] Directives so far as they may be affected by the exercise of those functions.[43]

3.17. And the further duties in Regulation 10[44]:

10.— Duties in relation to wild bird habitat

(1) Without prejudice to regulation 9(1), the appropriate authority, the nature conservation bodies and, in relation to the marine area, a competent authority must take such steps in the exercise of their functions as they consider appropriate to secure the objective in paragraph (3), so far as lies within their powers.

…

(3) The objective is the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the United Kingdom including by means of the upkeep, management and creation of such habitat, as appropriate), having regard to the requirements of Article 2 of the new Birds Directive (measures to maintain the population of bird species).

…

[42] https://www.legislation.gov.uk/uksi/2017/1012/regulation/9

[43] The terms of regulation 9(3) are not amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations although it needs to be read with the amended definitions of the relevant Directives and with the new regulation 9(4A) – regard must be had to any Secretary of State guidance – currently we do not believe this has been fully produced

[44] https://www.legislation.gov.uk/uksi/2017/1012/regulation/10

(7) In considering which measures may be appropriate for the purpose of securing or contributing to the objective in paragraph (3), appropriate account must be taken of economic and recreational requirements.

…

(8) So far as lies within its powers, a competent authority in exercising any function in or in relation to the United Kingdom must use all reasonable endeavours to avoid any pollution or deterioration of habitats of wild birds"[45]

3.18. As mentioned above following the UK's departure from the EU these regulations have been changed to include (amongst other changes) management objectives for the National Sites Network. Although these requirements already existed, it is helpful to have them clearly within our domestic legislation.

3.19. In summary regulation 16A[46], Habitats Regulations sets out the requirements for the Network jointly and separately recognising the differences between SPAs and SACs (as set out above).

3.20. Authorities with relevant responsibilities must manage the National Site Network with a view to contributing to the achievement of the management objectives of it, namely (focusing just on SPAs):

3.21. **For SPAs** to contribute, in their area of distribution, to ensuring the survival and reproduction of:

- the species of birds listed in Annex I to the new Wild Birds Directive;
- regularly occurring migratory species of birds; and
- to contribute, to securing compliance with regulation 9(1) (as set out above).

3.22. **Overall**, take account of:

- the importance of SACs and SPAs;
- the importance of the sites for the coherence of National Site Network;
- the threats of degradation or destruction (including deterioration and disturbance of protected features) to which the sites are exposed; and
- in the case of migratory bird species, the importance of their breeding, moulting and wintering areas and staging points along their migration routes.

3.23. The RSPB believes it is essential both during the appropriate assessment and consideration of compensation measures stages for these management objectives to be taken into account.

[45] Again the terms of regulation 10 are not amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations although it needs to be read with the amended definitions of the relevant Directives

[46] https://www.legislation.gov.uk/uksi/2017/1012/regulation/16A Accessed 29 March 2022

Environmental Impact Assessment

3.24. The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017[47] state that development consent cannot be granted for Environmental Impact Assessment (EIA) development unless the decision-maker has taken into account environmental information including an environmental statement which describes the significant effects, including cumulative effects, of the development on the environment. This will include effects on all wild bird species whether SPA species or not.

3.25. Offshore wind farms have the potential to impact on birds through collision with rotating blades, direct habitat loss, disturbance from construction activities, displacement during the operational phase (resulting in loss of foraging/roosting area) and impact on bird flight lines (i.e. barrier effect) and associated increased energy use by birds for commuting flights between roosting and foraging areas. This is acknowledged in NPS EN-3[48]. These potential impacts have been taken into account by the RSPB and its remaining concerns with the applications are set out below, in the context of the legislative provisions summarised above, in particular those relating to appropriate assessment.

Summary

3.26. Energy National Policy Statements (NPSs) set out the Government's approach to considering new energy infrastructure. Consent for energy infrastructure is subject to tests set out in Section 104 of the Planning Act. NPS EN-3, National Policy Statement for Renewable Energy Infrastructure, specifically identifies birds as a biodiversity concern to be taken into account (paragraph 2.6.59 and 2.6.68).

3.27. There is a statutory duty to comply with the Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations, as amended) which offer protection for protected sites (Ramsar, SPA, SAC) and the Conservation of Offshore Marine Habitats and Species Regulations 2017 (Offshore Regulations) (as amended). The Habitats and Offshore Regulations set out a sequence of steps to be taken by the competent authority (here the Secretary of State for Energy Security and Net Zero) when considering authorisation for a project *likely to have an effect* on a European site and its species before deciding to authorise that project.

3.28. We set out a series of related matters to be considered in this context, including:

- SPA and SAC Conservation Objectives;
- Appropriate assessment;
- Habitats Regulations General Duties;
- Environmental Impact Assessment.

[47] The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017: http://www.legislation.gov.uk/uksi/2017/572/contents/made Accessed 29 March 2022

[48] Paragraph 2.6.101; see paragraphs 2.6.100-110 and 2.6.58-71 generally. Effects on foraging areas outside a SPA are to be taken into account when assessing the effects on bird populations of the SPA: see *Hargreaves v Secretary of State for Communities and Local Government* [2011] EWHC 1999 (Admin), which concerned effects on pink-footed geese which commuted inland from their roosting sites in the SPA to feed on grain and winter cereal crops on fields adjacent to the proposed development site.

4. Offshore ornithology

Introduction

4.1. The RSPB supports the deployment of renewable energy projects, providing that they are sited in appropriate places and designed to avoid potential adverse impacts on wildlife. We are grateful for the constructive pre-application discussions that have taken place with Equinor in respect of this proposal, particularly through the Evidence Plan process.

4.2. While methodological concerns remain, progress towards resolving a number of issues was made during the pre-application discussions for this project. We continue to have significant concerns relating to the project's in-combination and cumulative collision risk and displacement impacts including their assessment. In respect of the Applicant's derogation case, there is particular concern regarding the compensation measure proposals.

Offshore ornithology impacts - summary of RSPB position

4.3. We have significant concerns regarding the findings of some of the impact assessments and as such consider that an adverse effect on the integrity (AEOI) on qualifying features of the Flamborough and Filey Coast Special Protection Area (SPA), North Norfolk Coast SPA or Greater Wash SPA cannot be ruled out.

Project in combination with other plans and projects – RSPB AEOI conclusions

4.4. In-combination impacts on the following features of the Flamborough and Filey Coast (FFC) SPA, North Norfolk Coast (NNC) SPA or Greater Wash (GW) SPA:

- **Kittiwake**: cannot rule out adverse effect on site integrity due to the impact of collision mortality on the Flamborough and Filey Coast SPA population
- **Gannet**: cannot rule out adverse effect on site integrity due to the impact of combined collision and displacement mortality on the Flamborough and Filey Coast SPA population
- **Guillemot**: cannot rule out adverse effect on site integrity due to the impact of displacement mortality on the Flamborough and Filey Coast SPA population
- **Razorbill**: cannot rule out adverse effect on site integrity due to the impact of displacement mortality on the Flamborough and Filey Coast SPA population
- **Sandwich tern**: cannot rule out adverse effect on site integrity due the impact of collision and displacement mortality on the North Norfolk Coast and Greater Wash SPA populations
- **Red-throated diver**: cannot rule out adverse effect on site integrity due the impact of displacement on the Greater Wash SPA population

4.5. Whilst we recognise that the individual contributions from the two extension projects alone may be less than some of the other OWF located nearby, this does not make their cumulative and in combination impacts any less significant. We welcome that a derogation case has been submitted with the DCO application, and this will form the focus of our comments through the examination. We still have some outstanding methodological concerns regarding the assessments, notably for gannet and red-throated diver, and will expand on these at further stages of the Examination.

Population Viability Analysis

4.6. We welcome that the Applicant has presented Population Viability Analysis (PVA) outputs showing both the Counterfactual of Population Growth Rate (CPGR) and the Counterfactual of Population Size (CPS). The two metrics are best presented in combination as recommended in a review of output metrics, following work by the RSPB[49] commissioned by the Joint Nature Conservation Committee (JNCC) and carried out by the British Trust for Ornithology (BTO)[50]. That review recommended the ratio of growth rates are presented to quantify the consequence of impacts at a population level and the ratio of population sizes to present these impacts in an easily understandable context. A further review was commissioned by Marine Scotland Science and carried out by the Centre for Ecology and Hydrology, and the conclusions as to utility of output metrics was similar[51].

4.7. The ease of understanding of the CPS is crucial to its utility; the numbers given by the CPGR are less understandable outwith a population modelling context. To use the theoretical example quoted by the BTO, a CPS of 0.515 means the population size of a Breeding Colony is expected to be 51.5% (i.e. half) of what it would have been in the absence of the development after 25 years, which is easy to understand. Whereas the corresponding CPGR, 0.973, means that the annual population growth rate at the breeding colony declines from 0.994 to 0.967. The actual scale of the consequence of this is hard for a non-specialist to comprehend, that of the CPS is not.

4.8. As such, it is wrong to disassociate the two metrics; aside from the question of comprehension, they are very similar, the only key difference is that CPGR does not include the length of time that the wind farm will be operational. This is crucial as there is considerable uncertainty surrounding most of the aspects of an assessment of the potential impacts of an offshore wind farm. However, the length of time that the development is operational is one of the few aspects not subject to this uncertainty as it is legally fixed. It is also a crucial consideration into the scale of impact. Therefore, the effect of using CPGR in isolation is to remove important contextual information, operational time, complicating the interpretation of impact, thereby increasing uncertainty and the need for precaution.

Impact assessment, Flamborough and Filey Coast SPA

4.9. For **gannet**, notwithstanding the methodological concerns detailed below, the Applicant's own combined displacement and collision assessment shows that the FFC SPA population is likely to be **53.5-51.9% lower** after the lifetime of the wind farms than it would be without the developments in-combination with other developments, or **30.0-23.6% lower** if the macro-avoidance correction factor is applied (the RSPB do not currently accept the use of this correction). In the context of the current outbreak of Highly Pathogenic Avian Influenza there is considerable uncertainty as to the continued viability of this population. As such, it

[49] Green, R. E., Langston, R. W., McCluskie, A., Sutherland, R., & Wilson, J. D. 2016. Lack of sound science in assessing wind farm impacts on seabirds. *Journal of Applied Ecology*, *53*(6), 1635-1641.
[50] Cook A.S.C.P., and Robinson R.A. (2016) Testing sensitivity of metrics of seabird population response to offshore wind farm effects. JNCC report no. 553
[51] Jitlal, M., Burthe, S., Freeman, S., Daunt, F. 2017. Testing and Validating Metrics of Change Produced by Population Viability Analysis (PVA). Scottish Marine and Freshwater Science Vol 8 No 23.

is not possible to rule out an Adverse Effect on the Integrity of the FFC SPA gannet population for the projects in-combination.

4.10. For **kittiwake**, the Applicant's assessment shows that the FFC SPA population is likely to be **20.6% lower** in-combination with other developments. Given the FFC SPA restore objective for this species' population and the vulnerability of the population, both locally and in the wider biogeographic region, the RSPB agrees with the Applicant it is not possible to rule out that an Adverse Effect on Integrity exists in-combination.

4.11. For **guillemot**, the Applicant's own displacement assessment, with probable displacement rate of 60% and mortality rates of 1 and 5%, shows that the FFC SPA population will be **39.4-9.5% lower** after the lifetime of the wind farms in-combination with other developments than it would be without the development. As such, it is not possible to rule out an Adverse Effect on the Integrity of the FFC SPA guillemot population for the projects in-combination.

4.12. For **razorbill**, the Applicant's own displacement assessment, with probable displacement rate of 60% and mortality rates of 1 and 5%, shows that the FFC SPA population will be **22.7-5.0% lower** after the lifetime of the wind farms in-combination with other developments than it would be without the development. As such, it is not possible to rule out an Adverse Effect on the Integrity of the FFC SPA razorbill population for the projects in-combination.

Impact assessment, North Norfolk Coast SPA

4.13. For **sandwich tern**, the Applicant's own combined displacement and collision assessment shows that the North Norfolk Coast SPA population will be potentially **62.4% lower** after the lifetime of the wind farms in-combination with other developments than it would be without the development. As such, the RSPB agrees with the Applicant that it is not possible to rule out an Adverse Effect on the Integrity of the North Norfolk Coast SPA sandwich tern population for the projects in-combination.

Impact assessment, Greater Wash SPA

4.14. For **sandwich tern**, the Applicant has not presented a population viability analysis for the consequences of the mortality arising from displacement and collision. As described above, counterfactual output metrics are crucial in order to quantify and understand the consequences of impacts from offshore wind farms at a population level. In the absence of this analysis the RSPB is unable to reach conclusions with regard to Adverse Effects on the Integrity of the Greater Wash SPA population for the projects in-combination.

4.15. For **red throated diver**, as described below, the Applicant has not fully considered the Conservation Objectives relevant to that population. As such, it is not possible to rule out an Adverse Effect on the Integrity of the Greater Wash SPA population for the projects in-combination.

Impact assessment – methodological concerns

4.16. The RSPB's key concerns with the impact assessment relate to the use of avoidance rates in gannet collision risk modelling, the application of a macro avoidance correction to bird density inputting into CRM, a lack of consideration of impacts compounded by HPAI, and

insufficient consideration for the full suite of conservation objectives of the Greater Wash SPA for red-throated diver.

Gannet modelling

4.17. In order to assess the mortality that could arise from avian collisions with turbine blades, the Applicant has used the deterministic formulation of the Band Collision Risk Model (CRM)[52] and presented this in Appendix 11.1 Offshore Ornithology Technical Report (APP-195. This method combines a series of parameters describing the turbine design and operation with estimates of a bird's size and behaviour to generate a predicted number of birds that would collide with a turbine over a given time period. While the RSPB would have preferred the stochastic formulation (sCRM), we acknowledge that at the time of scoping there were unresolved issues with this version. The stochastic formulation was initially developed by Masden (2015)[53] and then produced in an easier to use interface by McGregor *et al*. (2018)[54]. The stochastic version allows for some account of uncertainty and variability in parameters to be made.

4.18. The input parameters related to bird size and behaviour include a parameter known as "Avoidance Rate". This is defined by Band (2012)[55] as the inverse of the ratio of the number of actual collisions to number of predicted collisions. As such "Avoidance Rate" is a misnomer; it is a catch all term for the inconsistency between predicted and actual mortalities, an inconsistency that can be derived from a variety of sources, including avoidance behaviour per se, survey error and model misparameterisation.

4.19. The Applicant has used Avoidance Rates (see above) in the CRM, as recommended by the Statutory Nature Conservation Bodies (SNCBs 2014[56]) including Natural England. Whilst the RSPB agree with the majority of the advised rates including the use of a 98.9% avoidance rate for non-breeding gannets, in our opinion, a 98% avoidance rate is more appropriate for breeding gannets. This is because the figures used for the calculation of avoidance rates advocated by the SNCBs are largely derived from the non-breeding season for gannet[57,58]. During the breeding season, gannets are constrained to act as central placed foragers meaning they return to the colony after feeding in order to maintain territories, incubate

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52 Band, B. 2012. Using a Collision Risk Model to Assess Bird Collision Risks for Offshore Wind Farms. Report by British Trust for Ornithology (BTO). Report for The Crown Estate

53 Masden, E. (2015). Scottish Marine and Freshwater Science Vol 6 No 14: Developing an avian collision risk model to incorporate variability and uncertainty. Published by Marine Scotland Science. DOI: 10.7489/1659-1. http://www.scotland.gov.uk/Resource/0048/00486433.pdf

54 McGregor, R.M., King, S., Donovan, C.R., Caneco, B. and Webb, A. (2018) A Stochastic Collision Risk Model for Seabirds in Flight. Report to Marine Scotland Science

55 Band, B. 2012. Using a Collision Risk Model to Assess Bird Collision Risks for Offshore Wind Farms. Report by British Trust for Ornithology (BTO). Report for The Crown Estate

56 Joint Nature Conservation Committee (JNCC), Natural England (NE), Natural Resource Wales (NRW), Northern Ireland Environment Agency (NIEA), Scottish Natural Heritage (SNH) 2014, Joint Response from the Statutory Nature Conservation Bodies to the Marine Scotland Science Avoidance Rate Review

57 Cook, A S C P, Humphreys, E. M., Masden, E. A., & Burton, N. H. K. 2014. The Avoidance Rates of Collision Between Birds and Offshore Turbines. Edinburgh

58 Cook, A.S.C.P., Humphreys, E.M., Bennet, F., Masden, E.A., Burton, N.H.K. 2018 Quantifying avian avoidance of offshore wind turbines: Current evidence and key knowledge gaps. Marine Environmental Research, 140, 278-288

eggs and provide for chicks. Once chicks have fledged adult gannets remain at sea and no longer visit the colony. Differences in behaviour between the breeding and non-breeding season are likely to result in changes in avoidance behaviour.

4.20. There is evidence that the foraging movements and behaviour of gannets will vary in relation to stage of the breeding season in response to changes in the distribution and abundance of prey and changing constraints as they progress from pre-laying to chick-rearing[59]. GPS tracking of gannets breeding on the Bass Rock between 2010 and 2021 has shown variation in the two-dimensional foraging behaviour of birds across the breeding season (prior to chick-rearing and during chick-rearing), between sexes, and between years[60,72,61]. Three-dimensional tracking of gannets during chick-rearing has also revealed that flight height and flight speed both vary according to behaviour, sex and wind conditions[62,63,64] and similar patterns have been recorded in other seabirds[65] Because any error in the use of flight height and flight speed as input parameters in the CRM should be corrected for in the use of the Avoidance Rate, any seasonal variation in these parameters should also be reflected in variation in the Avoidance Rate, in the absence of any actual evidence from the breeding season.

4.21. Further to advice from Natural England, the Applicant has applied a reduction of 60-80% to the baseline densities inputted into the gannet collision risk modelling in order to account for macro-avoidance in the Report to Inform Appropriate Assessment (RIAA) [paragraph 1456]. This approach follows suggestions in Cook (2021[66]), the recommendations from which have not yet been formally adopted by the SNCBs. Cook (2021) is currently being reviewed and revised by two projects, one funded by JNCC and one by Natural England. Until these projects have reported, the RSPB do not accept this approach. The RSPB also note that there

[59] Lane, J.V., Jeavons, R., Deakin, Z., Sherley, R.B., Pollock, C.J., Wanless, R.J., Hamer, K. C., 2020. Vulnerability of northern gannets to offshore wind farms; seasonal and sex specific collision risk and demographic consequences. Marine Environmental Research. 162

[60] Cleasby, I.R., Wakefield, E.D., Bodey, T.W., Davies, R.D., Patrick, S.C., Newton, J., Votier, S.C., Bearhop, S., Hamer, K.C. 2015a. Sexual segregation in a wide-ranging marine predator is a consequence of habitat selection. Marine Ecology Progress Series, 518, 1-12.

[61] Lane, J.V. and Hamer, K.C. 2021. Annual adult survival and foraging of gannets at Bass Rock, Scotland: Report to the Ornithology subgroup of the Forth and Tay Regional Advisory Group (FTRAG-O) –October 2021

[62] Cleasby, I.R., Wakefield, E.D., Bearhop, S., Bodey, T.W., Votier, S.C., Hamer, K.C., 2015b. Three-dimensional tracking of a wide-ranging marine predator: flight heights and vulnerability to offshore wind farms. Journal of Applied Ecology, 52, 1474–1482

[63] Lane, J.V., Spracklen, D.V., Hamer, K.C., 2019. Effects of windscape on three-dimensional foraging behaviour in a wide-ranging marine predator, the northern gannet. Marine Ecology Progress Series, 628, 183–193.

[64] Lane, J.V., Jeavons, R., Deakin, Z., Sherley, R.B., Pollock, C.J., Wanless, R.J., Hamer, K. C., 2020. Vulnerability of northern gannets to offshore wind farms; seasonal and sex specific collision risk and demographic consequences. Marine Environmental Research. 162

[65] Masden, E.A., Cook, A.S.C.P., McCluskie, A., Bouten, W., Burton, N.H.K, Thaxter, C. 2021. When speed matters: the importance of flight speed in an avian collision risk model. Environmental Impact Assessment Review, 90

[66] Cook A.S.C.P. (2021) Additional analysis to inform SNCB recommendations regarding collision risk modelling. BTO research report 739

is no recommendation to include a macro-avoidance correction in the recently published NatureScot guidance to the assessment of impacts from offshore wind farms[67]

4.22. The current evidence of a strong macro avoidance of wind farms by gannets, established from observed behaviour, is almost entirely derived from non-breeding birds. The evidence for macro avoidance during the breeding season is limited with the exception of a study of gannets breeding on Heligoland[68] in the German North Sea. However, it is unclear from this study what the breeding status of the tracked birds was, or how their behaviour differed from what would have been expected pre-construction as two of the three wind farms were already operational during the first year of tracking. What the study does clearly show is that breeding gannets do fly through offshore wind farms, often showing no avoidance behaviour at all. In Figure 2 below, we reproduce Figure 2 from this paper showing tracked gannets' movements in respect to wind farms. While some show clear avoidance others do not and may even be attracted to the wind farm.

4.23. In the Cook (2021) report that suggests the application of macro avoidance to baseline densities, the suggestion is based on reviews that do not include this German tracking study, although it does acknowledge that it shows clear differences between individuals in relation to their response to wind farms. The previous gannet recommended avoidance rate was based on 'all gulls' data because no gannet data were available. The evidence of macro avoidance of gulls in response to wind farms is equivocal, so this rate was only calculated from 'within wind farm' avoidance. As gannets can show macro avoidance it therefore was suggested that this was applied to the baseline densities, and then collision risk modelling was carried out using the 'all gull' avoidance rate, so effectively applying avoidance twice. In response to this suggestion Natural England commissioned a further review of gannet avoidance rates, including whether macro avoidance should be incorporated in this way but this has not yet been reported. In the absence of having this report, the recommendations from it should not be acted upon, and the suggestions in Cook (2021) should not be taken up without the context of this review.

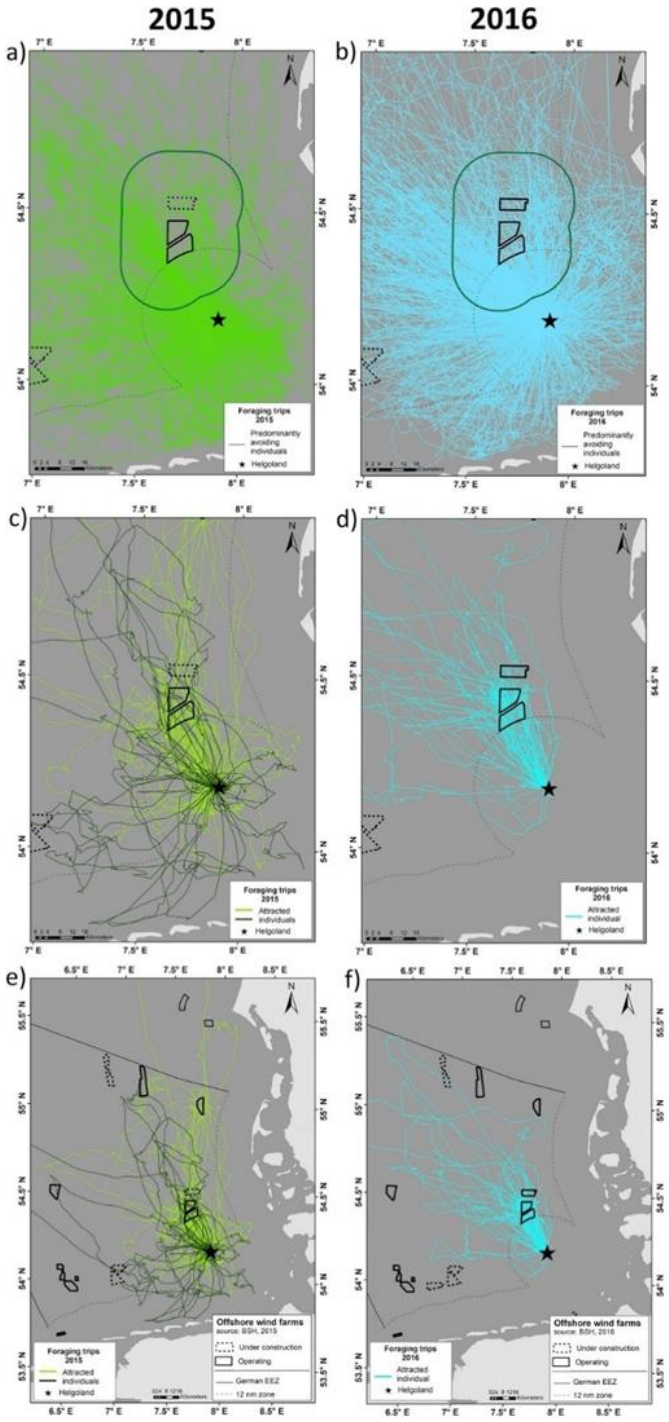
4.24. Notwithstanding the above, the RSPB does not agree with the approach for two reasons. Firstly, it does not take into account the likely seasonal variation in macro avoidance as described above. Secondly, by basing the 'within wind farm' avoidance rate on the 'all gull' rate, it assumes that gannets will have the same 'within wind farm' reactive flight response as gulls. This assumption is very unlikely to be met, as gannets have much lower flight manoeuvrability than gulls[69]. This will result in a lesser ability to make rapid reactions and consequently have a greater risk of collision. This should be reflected in the 'within wind farm' avoidance rate if any further changes are to be made.

[67] [redacted]

[68] Peschko, V., Mendel, B., Mercker, M., Dierschke, J., & Garthe, S. (2021). Northern gannets (Morus bassanus) are strongly affected by operating offshore wind farms during the breeding season. *Journal of Environmental Management*, *279*, 111509.

[69] Furness, R. W., Wade, H. M., & Masden, E. A. (2013). Assessing vulnerability of marine bird populations to offshore wind farms.Journal of environmental management,119, 56-66

Figure 2: Figure 2 from Peschko et al (2021)[70] showing flight of tagged birds from Heligoland (indicated by a star) in the vicinity of wind farms (outlined in black). Original figure legend is: "Flight behaviours of gannets tagged in 2015 (n = 10) (a) and 2016 (n = 15) (b) that 'predominantly avoided' the OWFs (all individuals shown in the same colour). Gannets tagged in 2015 (n = 2) (c) and 2016 (n = 1) (d) that were classified as 'attracted individuals' (individuals shown in different colours). (e) & (f) Large-scale movements of individuals shown in (c) and (d). OWFs: dashed black = under construction, solid black = operating, dark green line = 15 km buffer applied for PPM analysis."



[70] Peschko, V., Mendel, B., Mercker, M., Dierschke, J., & Garthe, S. (2021). Northern gannets (Morus bassanus) are strongly affected by operating offshore wind farms during the breeding season. *Journal of Environmental Management*, *279*, 111509.

4.25. Any evidence of macro avoidance should also be seen in the context of recent work in Belgian offshore windfarms that has shown potential habituation to the presence of turbines. This effectively results in lower macro avoidance[71] and so an elevated risk of collision. It is also important to acknowledge that corpses of Northern Gannets with injuries consistent with collisions with offshore wind farms have been recovered (Rothery *et al*., 2009[72]), and the imperfect detection of these corpses indicate that there may be many more.

4.26. The RSPB is also similarly concerned with the application of a macro avoidance correction factor in the sandwich tern collision risk models. This is a wholly novel approach to the assessment of collision risk to terns and is unsupported by any guidance or recommendations. As such we do not rely on it in deciding on any conclusions of adverse effect. We note that Natural England have also raised concerns in their Relevant Representation (Point 15, p.11, Table 4; Appendix C – Offshore Ornithology; RR-063).

Red-throated diver displacement

4.27. Displacement arises when there is a significant reduction in the density of birds within the wind farm footprint and the surrounding area (the buffer zones), which may be partial or total displacement, compared with the baseline situation. Displacement is equivalent to habitat loss and may be temporary or permanent, depending on whether or not there is habituation, i.e. adjustment to the presence of the wind farm and a resumption of use of the area. It may be triggered during construction, or during operation, depending on the direct cause. The Joint SNCB Interim Advice Note (2017, updated 2022[73]) defines displacement as affecting birds present *both in the air and on the water*.

4.28. Barrier effects arise when an obstacle, such as a wind farm, causes birds to divert from their intended path in order to reach their original destination. It is generally considered to act mainly on birds in flight (SNCBs 2022). As such they are similar, though not the same, as displacement effects. However, in practical terms it is currently not possible to disentangle the two and so barrier and displacement effects are considered together in impact assessment, as per SNCB advice (*Ibid.*)

4.29. The conservation objectives for the Greater Wash SPA are:

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

- *The extent and distribution of the habitats of the qualifying features*

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[71] Vanermen, N.; Courtens, W.; Van de walle, M.; Verstraete, H.; Stienen, E. 2021. Macro-avoidanceof GPS-tagged lesser black-backed gulls and potential habituation of auks and gannets. In Degraer, Brabant, Rumes & Vigin (eds) 2021. Environmental Impacts of Offshore Wind Farms in the Belgian Part of the North Sea, avoidance and habitat use at various spatial scales.Brussels: Royal Belgian Institute of Natural Sciences, OD Natural Environment, Marine Ecology and Management

[72] Rothery, P., Newton, I., & Little, B. (2009). Observations of seabirds at offshore wind turbines near Blyth in northeast England.Bird Study,56(1), 1-14

[73]Statutory Nature Conservation Bodies (Natural Resources Wales (NRW), Department of Agriculture, Environment and Rural Affairs / Northern Ireland Environment Agency (DAERA/NIEA), Natural England (NE), Scottish Natural Heritage (SNH) and Joint Nature Conservation Committee (JNCC)) (2022) Joint SNCB1 Interim Displacement Advice Note.

- *The structure and function of the habitats of the qualifying features*
- *The supporting processes on which the habitats of the qualifying features rely*
- *The population of each of the qualifying features, and,*
- *The distribution of the qualifying features within the site.*

4.30. Red throated divers are one of the most sensitive species to displacement effects from offshore windfarms, ranked as having the highest species concern value (along with black-throated diver) in relation to displacement of all the species considered in an assessment of vulnerability of seabirds to offshore windfarms (Furness et al., 2013)[74.] Similarly, a review of attraction and avoidance of offshore windfarms by seabirds clearly demonstrated that divers showed strong avoidance of turbines (Dierschke et al., 2016)[75]. This strong displacement effect has been shown in studies in the German North Sea to be significant at 15km from the wind farm, based on before and after studies on a long-term data set (Mendel et al., 2019)[76], a finding confirmed by satellite tracking and digital aerial surveys (Heinänen et al. 2020)[77]. Recent analysis by the Centre for Research into Ecological and Environmental Modelling of aerial surveys carried out in Liverpool Bay also showed a strong effect whereby, in all cases, the presence of a wind farm decreased the estimated number of birds compared to the absence of a wind farm. This effect was apparent up to 3.8km from the centre of the wind farm (Burt et al., 2022)[78].

4.31. As such, there is clear evidence of the displacement of red-throated diver from offshore wind farms with a significant effect detectable in some cases at considerable distance from the wind farm. The Greater Wash SPA is 7km from SEP and 16km from DEP. The numbers of red throated divers, their distribution within the SPA and their ability to use all suitable habitat contained in the SPA are relevant to the SPA conservation objectives but are not considered by the Applicant. If, as the evidence suggests, red-throated divers are displaced from part of the SPA which would otherwise be suitable for them the effect is to reduce the functional size of the SPA, undermining the conservation objectives. As detailed by Natural England, there already are extensive current OWF projects in the vicinity of the SPA as well as those that have received planning permission but are not constructed. These will already be causing perturbation to the SPA red-throated diver population and any further disturbance will exacerbate this. The RSPB therefore cannot rule out an adverse impact of displacement on the integrity of the Greater Wash SPA, arising through the project alone (SEP) and in combination.

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74 Furness, R. W., Wade, H. M., & Masden, E. A. (2013). Assessing vulnerability of marine bird populations to offshore wind farms. *Journal of environmental management*, *119*, 56-66

75 Dierschke, V., Furness, R. W., & Garthe, S. (2016). Seabirds and offshore wind farms in European waters: Avoidance and attraction. *Biological Conservation*, *202*, 59-68

76 Mendel, B., Schwemmer, P., Peschko, V., Müller, S., Schwemmer, H., Mercker, M., & Garthe, S. (2019). Operational offshore wind farms and associated ship traffic cause profound changes in distribution patterns of Loons (Gavia spp.). *Journal of environmental management*, *231*, 429-438

77 Heinänen, S., Žydelis, R., Kleinschmidt, B., Dorsch, M., Burger, C., Morkūnas, J., ... & Nehls, G. (2020). Satellite telemetry and digital aerial surveys show strong displacement of red-throated divers (Gavia stellata) from offshore wind farms. *Marine environmental research*, *160*, 104989

78 Burt, M.L., Mackenzie, M.L., Bradbury, G. and Darke, J. 2022. Investigating effects of shipping on common scoter and red-throated diver distributions in Liverpool Bay SPA. NECR425. Natural England

Highly pathogenic avian influenza (HPAI)

4.32. A new virulent form of bird flu, Highly Pathogenic Avian Influenza (HPAI), that originated in poultry in east Asia has now killed tens of thousands of wild birds in the UK and around the world. First confirmed in Britain during winter 2021/22, it had major impacts on populations of seabirds across the UK in summer 2022. There was significant mortality of Sandwich terns at Scolt Head Island, part of the North Norfolk Coast SPA; a population for which a restoration target has been set.

4.33. It is currently unclear what the population scale impacts of the outbreak will be, but it is likely that they will be severe, especially as Sandwich terns are also reported to have been very badly affected in other parts of their range making population recovery through immigration extremely unlikely. This scale of impact means that seabird populations will be much less robust to any additional mortality arising from offshore wind farm developments. It also means that there may need to be a reassessment of whether SPA populations are in Favourable Conservation Status. With such uncertainty as to the future of these populations, there is the need for a high level of precaution to be included in examination of impacts arising from the proposed development.

Derogation case

4.34. Based on the RSPB's conclusions on adverse effect on integrity, the RSPB considers a derogation case is required if the Secretary of State for Energy Security and Net Zero is to consider consenting a damaging project. The RSPB welcomes the information provided by the Applicant to enable its derogation case to be reviewed. As part of any derogation case, the RSPB considers compensation measures would be required for the following species, should the Secretary of State decide to consent the Application as it is currently proposed:

- Sandwich tern,
- gannet,
- kittiwake,
- guillemot, and
- razorbill.

4.35. As noted below in section 6, it is the RSPB's view that the SEP project alone and DEP and SEP in combination, means the RSPB cannot rule out an adverse impact of displacement on the integrity of the Greater Wash SPA with respect to red-throated diver. Therefore, measures are required to avoid those adverse impacts, otherwise compensation measures would be required.

4.36. The RSPB welcomes the constructive dialogue by the Applicant with stakeholders to explore potential compensation measures for these species.

5. Derogation case: the RSPB's approach to evaluating compensation measures under the Conservation of Habitats and Species Regulations 2017 (as amended)

Introduction

5.1. The RSPB has reviewed both the EC[79] and Defra[80] guidance on compensatory measures. Both are in broad alignment as to the principles to adopt when considering compensatory measures. This review also draws on the RSPB's over 20 years experience evaluating and negotiating compensation proposals under the Habitats Regulations by developers across various sectors. As the EC Guidance is fuller, we have used that as our primary reference, while drawing out any additional points made in the Defra guidance since it is UK focused.

5.2. We have specifically not referred to the consultation draft document from Defra entitled "Best practice guidance for developing compensation measures in relation to Marine Protected Areas" published in July 2021 due to it still being a draft produced for consultation and yet to be finalised.

5.3. Below, we summarise some of the key elements of that approach, including commentary on the issues of additionality and the level of detail required.

The RSPB's approach to assessing compensation proposals

5.4. In Table 4, we summarise the EC's criteria for designing compensatory measures and annotate them with additional commentary based on the RSPB's experience of the principles that should be applied when assessing compensatory measures. We will use the combination of the EC guidance and the RSPB's experience in this field to assess compensatory measures put forward by scheme proponents.

Table 4: Criteria for designing compensatory measures

EC criteria	**EC guidance summary** (emphasis added)	**RSPB additional commentary**
Targeted	Measures should be the **most appropriate to the impact predicted** and **focused on objectives and targets addressing the Natura 2000 elements affected**. Must **refer to structural and functional aspects of site integrity and habitats/species affected**. **Must consist of ecological measures**: payments to individuals/funds are not appropriate.	Clear objectives and success criteria must be established for the compensation measures. Must address the ecological functions and processes required by impacted species/habitat. Requires shared understanding and agreement on what the impacts are i.e. need to agree nature and magnitude, including that they will continue for as long as the project's impacts. This includes the time likely to be required for the SAC/SPA to recover

[79] EC (2018) Managing Natura 2000 sites – The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (21/11/18) C(2018) 7621 final. Due to the further details this EU guidance provides, we believe it is important to also consider along with the Defra guidance

[80] Defra (2021) https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site. Accessed March 2022.

EC criteria	EC guidance summary (emphasis added)	RSPB additional commentary
		from those impacts in the case of proposals that are in place for a specified time period. This is in order to define objectives for compensation measures and to set out the success criteria to determine whether those objectives have been/are being achieved.
Effective	**Based on best scientific knowledge available alongside specific investigations for the location where the measures will be implemented**. Must be **feasible and operational in reinstating the conditions needed to ensure the overall coherence** of the Natura 2000 network. **Measures where no reasonable guarantee of success should not be considered**. The likely success of the compensation scheme should influence final approval of the plan or project in line with the prevention principle. The **most effective option, with the greatest chance of success, must be chosen**. **Detailed monitoring required** to ensure long-term effectiveness with remediation provisions if shown to be less effective.	Scientific evaluation of proposed measures must be carried out before consent is granted to avoid agreeing to measures that is/are not effective or technically feasible. This should include appropriate baseline survey and assessment. Compensation must address the impacted SPA/SAC (or Ramsar site) feature to ensure overall coherence of the network for that feature is maintained. Substitution is not acceptable. Must be clearly defined timescales for delivery and measuring success (See success criteria under Targeted above). Monitoring must directly relate to the target species or habitat and the relevant ecological functions and processes. The compensation measures should be provided in perpetuity in line with obligations to ensure the overall coherence of the National Site Network is maintained. Where it is not possible to devise compensatory measures to offset the adverse effects on site integrity, the project should not proceed.
Technical feasibility	**Design must follow scientific criteria and evaluation** in line with best scientific knowledge and take into account the specific requirements of the ecological features to be reinstated.	See **Effective** above.
Extent	Extent required **directly related to**: - the **quantitative and qualitative aspects inherent to the elements of integrity likely to be impaired** - **estimated effectiveness of the measure(s)**	Based on an assessment of the necessary ecological requirements to restore species' populations and the related habitat structure and functions identified in the compensation objectives. Determining the minimum appropriate

EC criteria	EC guidance summary (emphasis added)	RSPB additional commentary
	Therefore, ratios best set on a case-by-case basis. Ratios should generally be well above 1:1. Ratios of 1:1 or below only considered when shown measures will be fully effective in reinstating structure and functionality in a short period of time.	quantity will require an understanding of the quality of the compensation measures and how effective they will be in reinstating the required structures and functions. Any identified uncertainty in success should be factored in to increased ratios. Ratios need to be used where they make ecological sense and will help secure a successful outcome by providing more of something. Simply multiplying capacity to address uncertainty risks giving a false level of confidence. If there is no reasonable guarantee of success that measure should not be considered (see **Effective** under EC criteria).
Location	**Located in areas where they will be most effective** in maintaining overall coherence of the Natura 2000 network. Pre-conditions to be met include: - **must be within same range/ migration route/wintering areas for bird species** and **provide functions comparable those justifying selection of original site esp. geographical distribution**; - **must have/be able to develop the ecological structure and functions required by the relevant species** (or habitat) - **must not jeopardise integrity of any other Natura 2000 site**. Spatial search hierarchy starting as close as possible to the impacted Natura 2000 site and working out from there.	While the preference is for compensation measures as geographically close to the location of the damage, it is important to consider whether or not the compensation measures will be subject to pressures impacting their efficacy in that location e.g. prey availability, disturbance, and/or other impacts from the same or similar developments such as collision risk or displacement due to offshore wind farms. Therefore, compensation measures should be located so as to maximise proximity while minimising external pressures that may reduce likelihood of success. Compensation measures proposed to benefit one SPA/SAC/Ramsar site feature must not result in damage to the integrity of any other SPA/SAC/Ramsar site and their features.
Timing	Case by case approach but **must provide continuity in the ecological processes essential to maintain the structure and functions that contribute to the Natura 2000 network coherence**. Requires **tight co-ordination between implementation of the plan or project and the compensation measures**. Factors to consider include:	Compensation measures should be fully functional before any damage occurs to ensure the overall coherence of the National Site Network is protected. This requires careful alignment of the timelines for implementing the plan or project and the compensation measures. Suggested time lags in delivering fully functional compensation will need to be

EC criteria	EC guidance summary (emphasis added)	RSPB additional commentary
	- **no irreversible damage to the site before compensation in place** - **compensation operational at the time damage occurs**. If not possible, over-compensation required - **time lags only admissible if will not compromise objective of "no net loss" to coherence of Natura 2000 network**; - May be possible to scale down in time depending on whether the negative effects are expected to arise in short, medium or long term. **All technical, legal or financial provisions must be completed before plan or project implementation starts** to prevent unforeseen delays that compromise effective compensation measures.	carefully considered and can only be accepted where this will not compromise the continuity of essential ecological processes, Any effect of delay should be factored into the design and additional compensation measures provided (see also **Extent** above).
Long-term implementation	**Legal and financial security required for long-term implementation** and **for protection, monitoring and maintenance of sites to be secured before impacts occur.**	Legal rights to secure and implement the compensation measures must be in place prior to consent being granted. And robust financial guarantees are required to fund implementation, monitoring and any necessary remediation measures. In line with Government policy, the Government should commit to including compensation measures, once delivered, within the National Site Network.

5.5. The current Defra guidance (aimed at competent authorities) reinforces some of the points above:

- Must be confident the measures will fully compensate for negative effects;
- The measure is technically feasible based on scientific evidence and previous examples;
- Whether the compensation measure is financially feasible;
- Compensation should be no more than is needed (to protect the coherence of the National Site Network);
- How the compensation will be carried out, including how it will be managed and monitored over time, and how it has been secured;
- How long the compensation measure will take to reach the required quality;
- Should make sure the compensation measures will remain in place all the time they are needed;
- Must put in place all necessary legal, technical, financial and monitoring arrangements;
- Compensation measures should usually be in place and effective before the negative effect is allowed to occur.

5.6. Overall, this can be expressed in another way to help identify ecologically effective compensation and the options to deliver it:

- **Understanding and defining what is ecologically effective compensation for a given feature** i.e. what is needed to address the ecological functions affected by the predicted impact(s) e.g. improvements in breeding productivity of an impacted seabird species;
- **Identifying the potential options** to provide ecologically effective compensation in principle and agreeing the scale of compensation required to protect the overall coherence of the National Site Network for the impacted feature taking account of the management objectives for that Network. This should consider factors affecting the likely success of the compensation measure in order to identify appropriate search criteria. In the case of seabirds, this might include avoiding proximity to current and planned offshore wind farms while ensuring access to areas with good food supply etc;
- **Applying a hierarchical search for suitable locations** to carry out those options to determine where they might be feasible. This should follow the following spatial hierarchy based on where the benefit of the compensation will accrue:
  - Provides benefit to the impacted SPA/SAC where that is appropriate given the risk factors considered above. Note: this is not the same as being located inside the MPA, which in UK MPA terms is unlikely to be feasible given the constrained boundaries usually applied i.e. all areas within the boundary are integral to its functioning already;
  - Provides benefit to a different SPA/SAC for the impacted feature;
  - A "de nouveau" site that provides benefit to the feature itself and can be added into the relevant site network once it has met its compensation objectives.
- **Detailed assessment of the feasibility of successfully delivering the chosen option** in the selected location(s). It is important to separate out the type of measure (and its ecological effectiveness as compensation) and the likelihood of it succeeding in practice at a particular location to meet the required compensation objectives. Certainty of success of a specific measure per se is not the same as whether it will be ecologically effective as compensation. However, it needs to be deemed potentially ecologically effective as compensation first before detailed options are drawn up and assessed. If it is not potentially ecologically effective as compensation, then it should not be considered further (in line with existing Defra guidance).

Additionality

5.7. The EC guidance (section 5.4.1) makes the general, overarching point that:

"Compensatory measures should be additional to the actions that are normal practice under the Habitats and Birds Directives or obligations laid down in EU law"

5.8. In practical and legal terms, this means compensatory measures must be additional to:

- Measures necessary to site management of the affected SPA or SAC e.g. to restore a designated feature to favourable status;

- Measures designed to meet other obligations e.g. achievement of Good Environmental Status (GES) under the Marine Strategy Regulations 2010.[81]

What level of detail is required on proposed compensation measures?

5.9. In his decision[82] on the Hornsea Project Three scheme, the Secretary of State for Business, Energy and Industrial Strategy set out clear expectations that offshore wind (and other) developers should submit (what have been termed by other developers) "in principle" compensation measure packages as part of their application, following appropriate pre-application discussions with stakeholders (emphasis added):

"6.3 The Secretary of State is clear that the development consent process for nationally significant infrastructure projects is not designed for consultation on complex issues, such as HRA, to take place after the conclusion of the examination. On occasion, as a pragmatic response to particular circumstances, he may undertake such consultation, but no reliance should be placed on the fact that he will always do so. In this instance, he has, on balance, accepted that the situation in respect of potential significant adverse effects on the sites referred to in para 6.2 was novel and so has exercised his discretion, and allowed the Applicant to make further representations on the matter of possible compensatory measures for those sites. However, he wishes to make it clear that, in order to maintain the efficient functioning of the development consenting regime, he may not always request post-examination representations on such matters, indeed it should be assumed that he will not do so, and he may therefore make decisions on such evidence as is in front of him following his receipt of the ExA's report. ***It is therefore important that potential adverse impacts on the integrity of designated sites are identified during the pre-application period and full consideration is given to the need for derogation of the Habitats Regulations during the examination****. He expects Applicants and statutory nature conservation bodies ("SNCBs") to engage constructively during the pre-application period and* ***provide all necessary evidence on these matters, including possible compensatory measures, for consideration during the examination****.*

6.4 This does not mean that it is necessary for Applicants to agree with SNCBs if SNCBs consider that there would be significant adverse impacts on designated sites. The final decision on such matters remains for the Secretary of State (though the Secretary of State reserves the right not to request further evidence from Applicants following the examination). Applicants should be assured that where they disagree with SNCBs and maintain a position that there are no significant adverse impacts, but provide evidence of possible compensatory measures for consideration at the examination on a "without prejudice" basis, both the ExA in the examination and the Secretary of State in the decision period will give full and proper consideration to the question of whether there are or are not significant adverse impacts. It will not be assumed that the provision of information regarding possible compensatory measures signifies agreement as to the existence of significant adverse impacts. The ExA will be required to provide an opinion on the sufficiency

[81] Marine Strategy Regulations 2010. No. 1627. http://www.legislation.gov.uk/uksi/2010/1627/contents/made Accessed 29 March 2022

[82] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010080/EN010080-003265-EN010080%20Hornsea%20Three%20-%20Secretary%20of%20State%20Decision%20Letter.pdf Accessed 29 March 2022

of the proposed compensation even if it considers that compensation is not required (in case the Secretary of State disagrees with that conclusion), but such measures would only be required if the Secretary of State were to find that there would be significant adverse impacts (and that the proposed compensatory measures are appropriate)."

5.10. We note statements to similar effect were made in the Secretary of State's decisions on the Norfolk Boreas and Norfolk Vanguard decisions (and referred to in the Examining Authority's First Written Questions at ES.1.23).

5.11. In this context, the RSPB does not consider "in principle" equates to "outline" proposals such that all/most of the critical issues are deferred in order to be addressed post-DCO consent. We consider this would completely undermine confidence in what the compensation measures will comprise and that the public interest to protect the coherence of the National Site Network can be secured.

5.12. The RSPB considers that detail about the location, design and implementation, monitoring and review of any proposed compensatory measures is needed to inform the application and examination process and enable proper public scrutiny. Details of the associated agreements, consents and permissions required to deliver the compensation measures should also be available for scrutiny. This in turn should provide the Secretary of State with the necessary confidence as to whether those measures can be secured and implemented with a reasonable guarantee of success, thereby protecting the coherence of the National Site Network.

5.13. We consider there are detailed requirements that should be subject to public scrutiny during the Examination process and settled before its conclusion, thereby enabling the final DCO to include all necessary conditions and requirements and any lack of confidence that compensation measures have/can be secured and/or will have a reasonable guarantee of success highlighted, so that the Examiners can take account of these concerns. Therefore, details of the proposals should be available as part of the application documentation in order that any potential interested parties have a full opportunity to review and assess their adequacy at an early stage of the Examination; thus ensuring that should further information and consideration be required this is possible within the Examination timetable.

5.14. The following are key details, with some adaptation, common to all compensation measures that, we believe, should be included within proposals, preferably with the application documents or at least at the very early stages of the Examination.

- **Nature/magnitude of compensation**: sufficient detail to enable review of :
  - the scale of compensation required in relation to the predicted impacts;
  - the detailed compensation proposals including objectives and associated success criteria to address those impacts;
  - Identify the relevant consenting and/or licensing mechanisms required; Identify any potential impacts of the proposed measure on the receptor site(s) and surrounding environment and carry out appropriate screening;
  - Based on this, identify any particular impact assessment requirements necessary which might arise from likely direct and indirect effects of the compensation

measure on other receptors (e.g. Environmental Impact Assessment, Habitats Regulations Assessment, SSSI consents etc);
    - best estimate of the timeline by which each proposed compensation measure can be fully implemented and when it will achieve its objectives (including assessment of ecological uncertainty), the latter to work out the lead-in time necessary to implement the compensation measure and ensure the overall coherence of the National Site Network is protected;
- **Location:** identification of precise location of compensation measure and legal securing of proposed compensation sites/measures with ability to scrutinise:
    - compensation design (detail);
    - evidence of relevant consents, licences, agreements etc being secured or at least being able to be legally secured;
    - both relevant processes and legal consents are included within the DCO; and
    - evidence of relevant legal agreements to secure land to ensure compatibility with compensation objectives are possible;
- **Monitoring and review:** detailed monitoring and review packages. As well as the relevant technical detail addressing the objectives for each compensation measure and success criteria, these should include:
    - Detailed terms of reference and ways of working for any "regulators group" to oversee implementation of measures, review periods, feedback loops etc;
    - Commitment to ensure the data and results of monitoring are publicly available to enable lessons to be learned and applied elsewhere, and to demonstrate the level of success and compliance.
- **Compliance and enforcement:** details and evidence of how the proposed compensation measures will be subject to review by the relevant regulator and the legal mechanisms available to those regulators to review and enforce any approved compensation plans e.g. if the agreed success criteria are not met. This is especially important if the proposed measures lie outside the jurisdiction of the decision-making authority.

5.15. We consider it is unsafe to assume an outline compensation measure can be translated in to a detailed and workable measure "on the ground" at a later date and all the necessary consents and agreements successfully secured.

5.16. Natural England has provided the Applicant with a checklist it has developed for compensatory measure submissions – an example of this is set out in paragraph 28 of Appendix 2 (APP-069)[83]. We fully support Natural England's advice especially the approach and level of detail considered to be required as part of the application documentation. It flows from the criteria and other factors we have described above and provides a robust basis for the evidence on each proposed compensation measure that should be submitted as part of any application.

5.17. The RSPB considers there are significant, detailed considerations for compensation measures that are essential to consider before consent is granted; rather than assume an outline compensation measure can be translated in to a detailed and workable measure "on

[83] 5.5.2 Appendix 2 - Sandwich Tern Compensation Document

the ground" at a later date and all the necessary consents and agreements successfully secured.

5.18. Not only should these details be subject to public scrutiny as part of the Examination process but to enable these issues to be properly addressed by the Examiners and the Secretary of State, such confirmed details are vital for confidence to be placed on the measures proposed.

5.19. By providing these details it should ensure these issues are properly addressed before the Secretary of State is required to make a decision on whether to grant DCO consent and ensure, among other things, that it is possible to:

- Identify the detailed location and mechanism(s) of the proposed compensation measure;
- Identify the relevant consenting and/or licensing mechanisms required;
- Identify any potential impacts of the proposed measure on the receptor site(s) and surrounding environment and carry out appropriate screening;
- Identify any particular impact assessment requirements necessary which might arise from likely direct and indirect effects of the compensation measure on other receptors;
- Be satisfied that the relevant legal consents are secured before any decision on DCO consent. If consent has not been granted, the Examining Authority and Secretary of State would know in advance.

5.20. This would in turn enable the Examining Authority and Secretary of State to be able to make a fully informed decision on whether proposed compensatory measures have been secured, have a reasonable guarantee of success and therefore will protect the overall coherence of the National Site Network.

5.21. The criteria, guidance and associated requirements set out above will guide how the RSPB assesses the Sheringham and Dudgeon Extension Projects compensation measure proposals.

Generic issues raised by the Applicant's compensation proposals

Lack of specific proposals and locations for compensation measures

5.22. As set out in our relevant representation (RR-083), the RSPB's overarching comment is that the Applicant has failed to put forward detailed and location specific compensation measures for any impacted species. Neither have any been secured. It is therefore not possible at this stage for the RSPB to assess any of the compensation measures properly and provide advice to the Examining Authority on whether each has a reasonable guarantee of success in meeting specific, agreed compensation objectives. This accords with Natural England's position set out in Appendix C of their Relevant Representations (pp.50-67; REP-063).

5.23. However, we have, as far as is practicable, provided more detailed comments in section 6 on each of the broad compensation measures.

Scale of compensation

5.24. The RSPB agrees with Natural England that there are issues with the scale of compensation being provided by the Applicant, as demonstrated by Natural's England's comments on Sandwich tern compensation and the recommendation that additional options for kittiwakes needs to be considered (pp.50-54, Appendix C, RR-063)

5.25. We further agree with Natural England that this is due to:

- Concerns with the offshore ornithology baseline characterisation (see section 4 above);
- The need for a quantified assessment of the level of compensation required to meet the predicted impact for each compensation measure, as the scale of the measure required will in part determine whether delivery is feasible.
- The need to account for the ongoing uncertainty created by the impact of HPAI on seabird colonies and the ability to restore populations that are already in decline.

5.26. We consider the current evidence base for many of the compensation measure proposals is insufficient and claimed benefits remain theoretical. This means it is not possible to have confidence in the compensation measures in general terms at this stage, in addition to specific comments set out in section 6 below.

Lead-in times for compensation

5.27. As Natural England has noted in its relevant representation (for example, point 13, p.59, Appendix C, RR-063) the Applicant proposes minimal lead-in times for its compensation measures: just 1 or 2 years prior to operation. The RSPB does not consider these lead-in times to be acceptable and would not meet the requirement for compensation measures to be functioning prior to damage occurring.

5.28. These short lead-in times do not recognise basic seabird breeding ecology, for example kittiwakes do not breed until they are 4+ years old. Any implementation timetable must ensure that the compensation measure is in place and ecologically functional before the damage occurs. Factors that need to be taken in to account in developing the required timeline include:

- The breeding ecology of the impacts species and timescales likely to be required for the agreed compensation measure to be ecologically effective;
- The point at which the adverse effect is predicted to occur. This will depend on the nature of the impact e.g.:
    - For collision: it would be at the point the wind farm becomes operational;
    - For displacement: it would be at an agreed point relating to when the physical presence of the wind farm infrastructure (operational or not) is deemed to be giving rise to displacement that is impacting on the relevant seabird species' population.
- That it is highly unlikely that the compensation will be delivering at the scale required before the impacts occur or during any period of colony establishment. We agree with Natural England that the issue of mortality debt must be addressed in assessing the likely effective point at which compensation of the impact would occur by (albeit for all impacted species requiring compensation, not just Sandwich terns):

"*Calculations relating to the scale of the measure required to compensate a specified impact should be stress tested against mortality debt scenarios…*" (see point 13, p.59, Appendix C, RR-063).

- That there will be a period of adjustment needed to enable any habitat created, especially for Sandwich terns, to develop and be adapted as required to ensure the appropriate management and maintenance measures are being effectively implemented.

Lifetime of compensation in relation to damage

5.29. It is the RSPB's view that compensation measures should remain in place for as long as the project's adverse impacts on the SAC/SPA/Ramsar site continue. Typically, this has been "in perpetuity" as impacts have been permanent. We recognise this is not automatically the case when dealing with offshore wind farms. However, it is also not as simple as just the lifetime of the development as proposed by the Applicant. This is in line with our advice to the Secretary of State regarding the Hornsea Project Three compensation. As noted in paragraph 2.18 of that response (November 2020)[84]:

"The length of time the compensation measures should be secured for must be based on the combination of the lifetime of the development plus the time it will take the affected seabird population to recover from the impacts."

5.30. Therefore, the apparent default proposal that the compensation measure will be decommissioned at around the end of the lifetime of the development is not acceptable. There are two key factors:

- Time lag in a new colony reaching the necessary population size meaning there is likely to be a significant delay before the required population is reached (assuming it is colonised);
- The time taken for the relevant population at the impacted SPA to recover from the accumulated annual losses of breeding adults over 40 years[85], and once the wind farm has ceased operation. The development's impact on the impacted SPA will likely go substantially beyond the lifetime of the development.

5.31. In addition, we will have to build in consideration of the need to implement measures aimed at building resilience into seabird populations in the face of, for example, HPAI.

5.32. We welcome the fact that the Secretary of State has followed our advice and that of Natural England on this matter in his decisions on Hornsea Three, Norfolk Boreas and Norfolk Vanguard by requiring that the various compensation measures be maintained beyond the operational lifetime of the development (if they are colonised).

[84] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010080/EN010080-003259-RSPB.pdf Accessed 29 March 2022

[85] Based on Table 4.5 (Offshore Scheme Summary) in Chapter 4 – Project Description (APP-090).

5.33. In addition, given that any compensation measures are to maintain the integrity of the North Norfolk Coast SPA/Ramsar and the Flamborough and Filey Coast SPA, any habitat created/measure taken should be developed to a standard that enables it to become a formal component of the National Site Network to ensure compliance with regulation 68, Conservation of Habitats and Species Regulations 2017 (as amended),which requires that compensation be secured to ensure the overall coherence of the National Site Network. Therefore the question of a whether a compensation measure can be "decommissioned" after a defined period of time needs to be considered carefully, with a preference that such measures should be maintained in perpetuity.

Environmental assessment of the proposed compensation measures

5.34. As we set out elsewhere in this section, we would expect detailed information to be provided on each compensation measure as part of the application documentation, such that the claimed benefits and any environmental effects of each measure can be scrutinised during the examination. At this stage, such detail has not been provided by the Applicant. We would welcome clarification from the Applicant on when further detailed information on each specific compensation measure will be provided, including but not limited to location, design, implementation methods and management, monitoring etc.

Summary

5.35. This section sets out the RSPB's approach to evaluating compensation measures. It includes our general approach to assessing compensation proposals and the level of detail we consider is required in order to evaluate compensation proposals as part of the examination process, before drawing out some general issues raised by the Applicant's proposals.

5.36. The RSPB has reviewed both the EC[86] and Defra[87] guidance on compensatory measures. This review also draws on the RSPB's over 20 years experience evaluating and negotiating compensation proposals under the Habitats Regulations by developers across various sectors. As the EC Guidance is fuller, we have used that as our primary reference, while drawing out any additional points made in the Defra guidance since it is UK focused.

5.37. The RSPB will use the EC's criteria and its experience to evaluate the various compensation measures:

- Targeted;
- Effective;
- Technical feasibility;
- Extent;
- Location;
- Timing;
- Long-term implementation;

[86] EC (2018) Managing Natura 2000 sites – The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (21/11/18) C(2018) 7621 final.
[87] Defra (2021) https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site. Accessed March 2022.

- Additionality.

5.38. In addition, we have set out the level of detail we consider is required in any proposed compensation measures, and have gone on to identify generic issues raised by the Applicant's proposals:

- Lack of specific proposals and locations for compensation measures;
- Scale of compensation;
- Lead-in times for compensation;
- Lifetime of compensation in relation to damage.

5.39. Section 6 sets out the RSPB's detailed comments on the Applicant's specific compensation measures as submitted.

5.40. Our key and overarching comment is that the Applicant has failed to put forward detailed and location specific compensation measures for any impacted species. Neither have any been secured. It is therefore not possible at this stage for the RSPB to assess any of the compensation measures properly and provide advice to the Examining Authority on whether each has a reasonable guarantee of success in meeting specific, agreed compensation objectives.

5.41. However, when further information is provided, we will assess the proposals against the criteria for compensation set out above and accord them each a Red, Amber, Green rating.

5.42. The RSPB's Red, Amber, Green (RAG) rating is assessed as follows:

- RED: Criteria not met and substantive issues relating to viability and feasibility of the measure are unresolved. Substantial evidence gaps remain. Unless complex issues resolved before consent, RSPB advice is that the Secretary of State cannot conclude that the coherence of the National Site Network for the affected species will be protected.
- AMBER: Criteria not fully met: significant issues relating to viability and feasibility of the measure are unresolved. Significant evidence gaps remain. Unless these issues are resolved before consent, the RSPB advice is that the Secretary of State is at risk of agreeing to a compensation measure that will not protect the coherence of the National Site Network for the affected species.
- GREEN: Criteria met. No substantive or significant issues relating to viability and feasibility of the measure remain. Any remaining issues are relatively minor and could be dealt with through requirements under the DCO.

5.43. In section 6, where the Applicant has relied on Hornsea Project Four compensation proposals (bycatch reduction and predator eradication in respect of guillemots and razorbills) we have included relevant information from our Hornsea Project Four submissions, which use the RAG rating approach described above.

6. RSPB detailed comments on the Applicant's specific compensation proposals

6.1. The Applicant has summarised its compensation measures in section 5.7 of APP-064 (Appendix 1 – Compensatory Measures Overview). It distinguishes between project-led measures (paragraph 36) versus collaborative and strategic measures (paragraph 37) which may become available. Further detail is provided in separate documents submitted as part of the application. Below, the RSPB sets out its position regarding each of these measures to assess the amount of weight and confidence that can be placed in each, and to determine whether they are capable of meeting the criteria and level of detail required, as outlined in Section 5 above. However, in general, significantly more detail should be presented to the examination for scrutiny by the Examining Authority and Interested Parties to enable a full assessment of the different compensation proposals, including all the necessary detail, permissions and consents.

Prey enhancement through stock recovery of various forage fish species (sandeel and sprat)(strategic)

6.2. The RSPB notes that the Applicant has described the possibility of using forage fish stock recovery as a strategic compensation measure for different seabird species (listed below):

- Sandwich tern: Sandeels and sprats
- Kittiwake: sandeels
- Guillemots and razorbills: sandeels

6.3. The only provision made for this is a financial contribution towards the establish of such measures should that become available at some future date. We comment in general terms on those proposals here rather than against each species.

6.4. The only provision made for this is a financial contribution towards the establishment of such measures should that become available at some future date.

6.5. The RSPB welcomes that the Applicant has made the link between prey availability and seabird population health and recovery. We agree that the lower availability and quality of small fish is impacting seabirds and needs to be addressed and that surface feeding birds that are highly dependent on sandeels are faring the worst as a result. We believe that stronger, targeted and effective management is required to address the impacts of fishing and other human pressures on forage fish to help recover seabird populations dependent on those forage fish and to ultimately deliver Good Environmental Status (GES), Favourable Conservation Status and an ecosystem approach to fisheries management[88]. We strongly believe that a more precautionary approach to management of fisheries that impact seabird prey is urgently required in the face of mounting pressure from food web disruption, offshore renewable energy development and HPAI on seabirds.

[88] See Dunn (2021) for background including recommendations, scientific evidence and policy drivers -

6.6. The RSPB has concerns around additionality, particularly where governments are already required to monitor and address the impacts of human pressures, including fisheries on the wider ecosystem, including seabirds. Secondly, the policy and legislative approach to addressing the impacts of some forage fish fisheries (e.g. sandeel and Norway pout) on the UK's ability to achieve GES is currently very dynamic. The UK Administrations are currently considering their next steps following a call for evidence on sandeel and Norway pout management[89] with the UK Government expected to go to consultation for sandeel management in English waters soon[90]. Further, it is already the overarching UK position to not be supportive of fishing for sandeels in UK waters[91] with stocks like sandeel also having been singled out as a key stock of concern with efficacy of existing measures to manage them to be regularly reviewed[92]. North Sea and Channel sprat are also in the proposed list of Fisheries Management Plans (FMPs) due for preparation and publication by Defra and Marine Scotland between 2022 and 2024[93].

6.7. As set out *inter alia* in the four country call for evidence on sandeel and Norway pout, Governments across the UK have already signalled their intent to consider industrial sandeel fisheries management and collectively agreed that 'urgent actions are needed to protect sandeel and Norway pout stocks and the wider marine ecosystem' given the impacts that poor stock health has on the UK's ability to achieve GES for marine birds and food webs[94] and they have set processes in motion to address these likewise a FMP has been proposed for sprat.

6.8. Therefore, in the absence of a clear mechanism and evidence to demonstrate how any such measures would be additional to Governments' existing requirements to deliver GES, Favourable Conservation Status and an ecosystem approach to fisheries management through stronger, targeted and effective management and monitoring of forage fish, the RSPB considers little or no weight can be placed on the Applicant's proposals.

Sandwich tern

6.9. Sandwich tern compensation measures are outlined in APP-069 (Sandwich Tern Compensation Document):

- Nesting habitat improvements and restoration of lost breeding range at Scar Point, Loch Ryan (project led).

[89] https://www.gov.uk/government/consultations/future-management-of-sandeel-and-norway-pout-in-uk-waters-call-for-evidence/outcome/summary-of-responses

[90] [redacted]

[91] https://www.gov.scot/publications/scotlands-fisheries-management-strategy-2020-2030-delivery-plan/documents/

[92] 5.3.5 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1119399/Joint_Fisheries_Statement_JFS_2022_Final.pdf

[93] https://www.gov.uk/government/publications/joint-fisheries-statement-jfs/list-of-fisheries-management-plans

[94] https://consult.defra.gov.uk/future-sandeels-strategy/sandeel-norway-pout-callforevidence/supporting_documents/Call%20for%20Evidence%20on%20Future%20Management%20of%20Sandeel%20and%20Norway%20pout.pdf

- Improved breeding success at SPA sites other than NNC - Farne Islands SPA (project-led).

6.10. We support and welcome the pre-Examination conclusion that an AEOI on integrity of the Greater Wash SPA and North Norfolk Coast SPA cannot be ruled out (as set out, for example, in paragraph 9 of the Applicant's derogation case; APP-063). We agree that management measures considered within the North Norfolk Coast and other SPAs cannot be considered compensation measures, as they should form management necessary to restore and maintain Sandwich terns at favourable status; additionality cannot be demonstrated. We have engaged with the developer over delivery of new sites for Sandwich terns. We have provided guidance and comments to the Applicant as they developed their proposed compensation package for Sandwich terns. Below we set out the criteria for identifying suitable Sandwich tern compensation measures that we have provided to the Applicant during the pre-application stage before setting out current position on different components of the Applicant's Sandwich tern compensation proposals.

The RSPB's criteria for identifying suitable Sandwich tern compensation measures

6.11. For Sandwich terns, the important design element is scale; they prefer big islands, with a minimum of a quarter of a hectare for nesting Sandwich Terns recommended by experts. Any suggested compensation sites and designs must therefore be sufficiently large to provide the greatest confidence that a Sandwich tern colony can be established. There are also wider biodiversity net gains that can be delivered through a carefully designed site that support additional breeding birds and also wintering birds.

a) Location

6.12. In order to have confidence that sites will have the greatest potential to attract breeding Sandwich terns, these should be located immediately behind a sea wall, ideally on a site close to open sea, access to known feeding areas. The location behind a defence ensures confidence of longer-term sustainability for any habitat that is created.

b) Conditions

6.13. To maintain the appropriate conditions, saline seepage or a sluice to regulate tidal input will be required to create a brackish lagoon. Water levels should be between 20-40cm with deeper channels around the islands. There must be a clear mechanism outlined that identifies how conditions of the habitat will be firstly created, but equally importantly maintained.

c) Size of habitat and islands

6.14. Overall, habitat should cover at least 15ha and up to 30ha. Of this area, at least 1/3 of the area (4.95ha to 9.9ha) should be shallow islands. The islands should be flat and level, topped with shingle, or a similar inert, stony substrate with a mix of particle size between 5 – 25mm. Gently sloping sides will be needed on all newly created islands, approximately 1 in 50 gradients. Sandwich terns like islands to be reasonably vegetated, but with open areas as well. The height of the island is therefore important. If it is very low and of uniform height, it may be completely submerged in winter and then exposed as water levels fall in spring. This will affect the vegetation growth and may result in islands being too bare or too uniformly

vegetated. Any design therefore needs to ensure site conditions will develop appropriately in order to be suitably attractive to Sandwich terns, alongside an appropriate management programme.

d) Predator-proof fence

6.15. As we have found with many sites, a predator-proof fence should be erected around the whole site. This gives extra security for birds attempting to breed and allows productivity to be maximised; a key requirement of the compensation habitat.

e) Appropriate security provided that sites will be delivered

6.16. Given compensation measures will need to be created and functioning prior to harm to Sandwich terns occurring, a realistic construction timeline that incorporates compensation measures delivery must be provided. The timeline for delivery of the compensation measures must consider the need for planning permission to be granted and all relevant consents secured. Appropriate detail will also be required regarding security of land on which compensation measures will be delivered. This is all required to give confidence that any compensation sites will actually be brought forward.

f) Sustainability of the compensation habitat

6.17. The habitat that is created must be maintained in perpetuity. This is essential as the site should be developed with the intention that it formerly become part of the National Site Network. Funding of future management to maintain the site must therefore be considered in light of this requirement.

6.18. Whilst the Applicant has identified that guidance provided by the RSPB has been used to inform the development of compensation habitat proposals for Sandwich (para 29 in the Sandwich tern compensation document; APP-069), we have serious concerns about the current proposals based on the scale of habitat and the lack of detail to demonstrate that suitable habitat can be secured and delivered.

The RSPB's comments on "Nesting Habitat Improvements and Restoration of Lost Breeding Range at Scar Point, Loch Ryan"

6.19. The Applicant outlines two options for providing compensation habitat at Loch Ryan:

- A pontoon and,
- A lagoon with nesting islands

6.20. Below we outline our concerns on each of these options.

Creation of a pontoon

6.21. The RSPB has serious concerns about the suitability of a pontoon as a compensation measure. There is no evidence that Sandwich terns use artificial rafts for nesting. A proposal to create a raft for common terns at Loch Ryan is already being delivered by the RSPB. Whilst a pontoon may provide added benefits for breeding common terns it is not a realistic or viable option for Sandwich terns: Natural England and the RSPB are in agreement on this point (see reference 7 in Appendix C of Natural England's Relevant Representation, RR-063).

The creation of the pontoon would appear to be a quick and easy win, but fails to account for the ecological requirements of Sandwich terns (note the importance of this criteria set out in Table 4 above regarding 'targeted measures'). The Applicant notes the concerns expressed by the RSPB and Natural England on this proposed option at Expert Topic Group meetings (para 147, p.46, Appendix 2; APP-069).

6.22. All existing and historic Sandwich tern colonies have been land-based. There is no justification for the inclusion of the pontoon unless this is retained for wider biodiversity benefits. However, this is a separate consideration from compensation measures.

Creation of a lagoon with nesting islands

6.23. We agree with Natural England that creation of a lagoon with nesting islands does have the potential to provide an effective compensation measure for Sandwich terns. The ecological requirements of the species are known and this enables the conditions needed to attract Sandwich terns to be created. However, there remain outstanding gaps in the Applicant's evidence to be confident on the scale of habitat that needs to be delivered. We are especially concerned that the Applicant has chosen to develop an option that does not meet the "scale" criteria we have outlined above.

6.24. There are a number of statements made by the Applicant to justify its approach to the development of the Loch Ryan proposal that we consider to be unjustified or erroneous. We highlight these in Table 5 below with our comments:

Table 5: RSPB comments on APP-069: Sandwich Tern Compensation Document

Paragraph	RSPB comment
140	The Applicant discusses the colonisation of St John's Pool by Sandwich terns and makes a number of statements about birds moving widely between sites. The colonisation of St John's Pool, being quite near the Orkney sites, is not surprising. We know that terns move along the east coast of Scotland, as birds are caught in the Ythan Estuary in Aberdeenshire, after breeding further south as well as there being birds moving south, but we are less clear of the evidence for them moving down the west coast of Scotland. We know that other tern species breeding in Northumberland go overland from the Irish Sea to the North Sea, rather than going around the Scottish coast. Therefore, it would be helpful to see some tracking data or ring resighting data to back up the assumption that birds move widely between sites in respect of the west coast of Scotland.
141	The Applicant states that "*Since there seems to be frequent non-breeding by adult Sandwich terns provision of this new breeding opportunity is likely to increase the proportion of the population that chooses to breed…*" This would only be true if nest sites were the limiting factor and there is no reason to think this. It is more likely that birds breed or not depending on their body condition at the start of the breeding season, so winter food supply is more likely to be the determining factor.
142	It is not clear what evidence exists to suggest that it is a lack of suitable nesting habitat limiting recolonisation of west Scotland. There are a range of factors that

Paragraph	RSPB comment
	will be affecting the colonisation of sites, which include the limiting impact of American Mink.
144/145/147	Common terns often use rafts, Sandwich terns do not. It is not because they have not had opportunities to, as there are many tern rafts within the range of Sandwich terns and they have never nested on any of them. For example, Sandwich terns have moved from North Norfolk and historically colonised the Scroby sandbanks off of Great Yarmouth (Norfolk) when these features have remained above the high tides. Nearby Breydon Water has tern rafts that have been used for decades by common terns, but there have been no records of Sandwich terns ever showing an interest in breeding on them.
144/146	Creating and fencing a lochan might work but there has been no serious consideration given to creating or restoring an island within Loch Ryan or another suitable site. Also if a lochan with islands is created the design needs to follow best practice guidance. The St John's Pool islands are atypical – bigger flatter islands are usually better. The fence has to be genuinely well-made and well-maintained in perpetuity/replaced as required in order to ensure it is effective.
150	The advice received by the RSPB from Dutch seabird experts appears to be contradictory on the importance of scale for Sandwich terns.
152	Sandwich terns do not use nest boxes. They do not even use chick shelters very often: the chicks usually defend themselves by running away into vegetation, often as a big creche. The work on the Farne Islands on vegetation management and nutrient stripping is likely to be beneficial, but will not provide additionality over management measures required to restore and maintain favourable status.
153/Map6.1	The Applicant has identified that a lagoon would be created to the north of Scar Point. The RSPB has a number of concerns regarding the suitability of this site. We are concerned about the site being constrained by rising land and woodland. This is likely to make the site feel too enclosed for Sandwich terns, as they prefer an open aspect. Disturbance in the surrounding area will need to be carefully managed to ensure birds are not put off from using the site. The presence of RAF Wig Bay Seaplane Base would also introduce disturbance and it would be helpful to know if it was present/active when Sandwich terns bred historically on the Point. Any trees would need to be removed and the ground confirmed that it would be suitable for a lochan creation. It is not clear how water would be brought onto site and how water levels would be maintained. This is critical to the management of the site and its potential to be effective.

Paragraph	RSPB comment
155	Sandwich terns usually nest on quite flat sites, so mounds of sand or gravel would not be appropriate. Again, this appears to be based on the St John's Pool example which is very much an atypical habitat and an exception. To have any confidence in the proposal best practice approach to habitat creation must be adopted. With respects to the fence, if this electric then it will need to be checked and maintained daily to ensure that it is functioning effectively. It is not clear how the Applicant plans to maintain the site. A higher barrier fence that is not electrified might be more appropriate, but would still come with the same ongoing maintenance needs through the season to ensure that it is functional.
176	Review of JNCC Report 500 (Quantifying usage of the marine environment by terns Sterna sp. Around their breeding colony SPAs)[95] shows that there is little overlap in foraging areas between the Farne Islands and Coquet Island. Therefore, the assumption that food supplies are good on the Farnes because they are on Coquet does not necessarily hold. There is also no consideration of how other factors could be affecting the birds on the Farne Islands. For example, what is the impact of disturbance impacts from visitors to the Farnes compared with Coquet which is not open to the public? It would be helpful to have this evidence set out for completeness.

Improved breeding success at other SPA sites other than NNC – Farne Islands SPA

6.25. The RSPB has concerns that the measures proposed are not relevant to Sandwich tern or are measures that should be implemented as SPA site management and, therefore, additionality cannot be demonstrated. These concerns have also been raised by Natural England in Appendix C of their Relevant Representation (RR-063). We set out comments below against each of the measures proposed by the Applicant:

6.26. *Nest boxes (paras 152, 177, 184, 186 and 189 of Appendix 2; APP-069)*: Sandwich Terns do not use nest boxes. The Applicant has misrepresented the Steel & Outram (2020) paper. Nowhere in this article does it say that Sandwich terns use nest boxes. They do sometimes nest on the Isle of May 'terrace' (which was built in the hope of attracting Roseate Terns): this is probably because it is bare ground which this species likes. Even then, since the terrace was constructed, they have recorded 21 pairs of Sandwich Terns in 2016, 4 pairs in 2017, 0 pairs in 2018, 10 pairs in 2019. This does not suggest the significant benefits being promoted by the Applicant. This has been pointed out in Natural England's Relevant Representation (Point 14, pp.59-60, Appendix C; RR-063). Whilst nest boxes might provide some benefit for birds to nest against or as chick shelters, this is likely to be limited, as the chicks usually defend themselves by running away into vegetation, often as a big creche.

[95] Wilson et al. 2014 JNCC Report 500: Quantifying usage of the marine environment by terns Sterna sp. Around their breeding colony SPAs https://data.jncc.gov.uk/data/926cdbbd-c384-42a9-b9e5-81abd778bbd0/JNCC-Report-500-FINAL-WEB.pdf Accessed 10 February 2023.

Sandwich Tern is the tern species least likely to use them. Roseate terns are the main species that benefit from nest boxes. In addition, any evidence is also needed to understand if the deployment of nest boxes could be detrimental to other seabird features of the Farne Islands SPA, as identified by Natural England in Appendix C of their Relevant Representation.

6.27. *Deployment of nest cameras (paras 152, 177, 184, 186 and 189 of Appendix 2; APP-069)*: It is unclear how nest cameras alone can constitute a compensation measure. They can help identify a management problem but the compensation element will come from any follow up action to address the predation impact etc, although in this instance we do not see how this could be distinguished from necessary SPA site management work. It is also unclear how camera footage would be processed, as it would require significant resources. More detail on this is needed to demonstrate its appropriateness.

6.28. *Use of bamboo canes to deter nest predation by gulls*: Given that canes will already form part of the management activities needed to restore Sandwich terns it remains unclear how this would be additional and therefore a suitable compensation measure. We note that Natural England share this concern.

6.29. In developing compensation options for supporting the recovery of Sandwich terns on the Farne Islands SPA we consider that none of those proposed by the Applicant are appropriate.

Additional sites that could be considered for the purposes of Sandwich tern compensation

6.30. The RSPB has previously highlighted a number of search areas for the Applicant to review as locations where habitat for Sandwich terns could be created. The following locations were discussed at the Expert Topic Group meeting on 24 May 2022:

- Gibraltar Point, Lincolnshire Coast
- South of Anderby Creek, Lincolnshire Coast
- North of Anderby Creek, Lincolnshire Coast
- North Lincolnshire Coast (Tetney to Mablethorpe)
- Area adjacent to Easington lagoons/Kilnsea area, north Humber Estuary.

6.31. In addition, Foulness Island in Essex has also been discussed as a former Sandwich tern site that may have potential for supporting Sandwich terns again.

6.32. It is acknowledged that there are concerns with the suitability of alternative locations, notably around additionality (such as for Foulness Special Protection Area) where actions to restore the Sandwich tern SPA feature are required, or where there may not have been historic records of breeding Sandwich terns and there is therefore uncertainty over the prospect of new habitat being used. However, the Loch Ryan location also has uncertainties over success. Therefore, additional locations should be considered. Whilst there are challenges in including additional sites as compensation locations for Sandwich terns, we consider alternative locations will will need to be properly explored and scrutinised to provide greater certainty that any adverse impacts on the North Norfolk Coast SPA and Greater Wash SPA population of Sandwich terns can be compensated for. Reliance on a

single site with the described uncertainties places chances of success at risk. Therefore, we agree with Natural England that other sites should be explored (paragraph 2, Appendix C, RR-063).

Summary of RSPB views on the Applicant's Sandwich tern compensation proposals

6.33. The Applicant acknowledges there is uncertainty about whether or not Sandwich terns would recolonise Loch Ryan if suitable breeding habitat was created, and how quickly this may occur (for example, para 152, pp.47-48, Appendix 2; APP-069). We consider the compensation package should include a greater number of appropriately located sites to provide confidence that sufficient capacity will be created to accommodate Sandwich terns and ensure that suitable options are available for birds to have options to breed and build resilience into the SPA network. The addition of a single site will make limited contribution to addressing the resilience.

6.34. Our comments through the Examination will focus on the Sandwich tern evidence base, the assessment assumptions and conclusions, and the quality and appropriateness of the compensation package to address impacts on Sandwich terns. At present, the RSPB does not consider the compensation package will protect the overall coherence of the National Site Network for Sandwich terns.

Kittiwake

6.35. Kittiwake compensation measures are outlined in APP-072 (Kittiwake Compensation Document). They comprise:

- Nest site improvements to enhance breeding success:
- Construction of new artificial breeding sites (onshore or offshore):

6.36. Pending further information from the Applicant, we set out our current views on each below, drawing on our relevant representation.

Nest site improvement to enhance breeding success

6.37. This relies on demonstrating improved breeding success in urban locations where success is argued to be constrained by human disturbance or predation. Potential locations are suggested (e.g. in Lowestoft and Tyne) but none apparently secured at the time of the application. Challenges include but are not limited to: demonstrating improved breeding success over the long-term against a detailed evidential baseline, demonstrating additionality against other kittiwake nesting initiatives already underway in selected locations.

6.38. The RSPB broadly agrees with Natural England's comments on this proposal set out in Appendix C of its relevant representation (RR-063), including:

- Reference 22: regarding significant problems associated with the lack of knowledge on likely recruits to new nest sites and difficulty in securing locations;
- Reference 23: regarding there being no inherent difference in delivering productivity gains between new structures and adaptations to existing structures;

- Reference 25: regarding the lack of a detailed method to quantify claimed benefits and the need for this to be submitted into the Examination for scrutiny;
- Reference 26: regarding the high levels of uncertainty that suitable locations will be available for the required scale of intervention over the lifetime of the project.

Construction of new artificial breeding sites (onshore or offshore)

6.39. The RSPB notes and agrees with the Applicant's comment that concerns have been raised by stakeholders around the potential for diminishing returns with an increased number of new artificial nesting structures for kittiwakes. Such measures are currently unproven as compensation measures e.g. delivering against an agreed set of compensation objectives.

6.40. The RSPB agrees that artificial nesting structures are a possible compensation measure for kittiwake but with such substantial caveats that we consider they are, as yet, unproven as a compensation measure.

6.41. In respect of onshore ANS, the RSPB shares Natural England's concern (reference 27, Appendix C, RR-063) that the benefit of new structures in the Lowestoft area is questionable given the number of proposals currently in train by consented offshore wind farms.

6.42. In respect of offshore ANS, there is significant legal uncertainty at this time in respect of the ability to repurpose offshore structures for this use as the view of the Department for Energy Security and Net Zero and the Offshore Petroleum Regulator for Environment & Decommissioning (OPRED) has not been established at this point.

6.43. We consider it would be helpful to provide the Examining Authority with the RSPB's summary position at the end of the Hornsea Project Four examination on (onshore and offshore) artificial nesting structures. These points are all broadly relevant to the current application and provided in Table 6 below.

Table 6: the RSPB's overall rating of the Hornsea Four artificial nesting structure compensation measure for Kittiwake and recommended actions (taken from Table 6 in the RSPB's Hornsea Project Four REP6-069)

RSPB's OVERALL RATING OF COMPENSATION MEASURES FOR KITTIWAKE
- **Artificial nesting structures (offshore and onshore)**

Summary

Detailed concerns set out in previous submissions remain:

- Lack of agreement on magnitude of impact to be compensated for (see section 2, Annex A)
- Lack of agreement on the methodology to convert those impacts to compensation objectives;
- whether nesting habitat is a limiting factor for breeding kittiwakes in the southern North Sea and whether any new structure will be used by additional breeding adults as opposed to existing adults choosing to redistribute;
- whether and over what timescale any new colony will achieve the target population and also recruit breeding adults to the UK National Site Network for kittiwakes, including FFC SPA;
- lack of a meta-population analysis[96] to clarify the dynamics between any proposed artificial nesting structure and SPA/other colony populations: elucidating the feasibility of establishing the proposed colonies and the consequences of such colony establishment on the populations of other colonies, in particular FFC SPA;
- the lead-in time for the proposed compensation in relation to the point at which impact will occur and the lifetime of the compensation measure in relation to damage.

Review of the most recent materials confirms **fundamental issues remain relating to the securing of (i) a location and (ii) a regulatory pathway agreed with the relevant regulators to allow the repurposing of an offshore oil or gas structure for compensation purposes**.

Further information is required on the Applicant's proposals, with particular reference to:

- A secured location for the proposed Artificial Nesting Structure
- If this is a repurposed offshore structure, details of agreement with the relevant regulatory authorities on the regulatory pathway that will secure that structure for the lifetime of the compensation measure.
- If it is an alternative ANS, details of the relevant agreements that secure the location and any regulatory requirements.
- Details of the design of the relevant ANS, compensation objectives, implementation, monitoring, reporting and adaptive management strategies.

Due to the uncertainty on these critical matters in respect of a repurposed offshore ANS, there is currently significant doubt as to whether the Applicant will be able to bring forward an artificial nesting structure, where that structure will be, what form it will take and whether any other barriers remain in respect of securing the compensation measure.

Guillemot and razorbill

6.44. Compensation measures for guillemots and razorbills are set out in APP-074 (Gannet Guillemot and Razorbill Compensation Document):

- Bycatch reduction;

[96] Due to immigration from other colonies being required for recruitment into the artificial colonies, conventional population analysis, which are based on closed populations, are not suitable. A method for the theoretical quantification of connectivity between colonies has been described by Miller (2020)[96] and Miller et al (2020)[96] for the Shetland meta-population of kittiwake, and a similar method for a regional meta-population of East Atlantic would elucidate the feasibility of the establishment of the colonies. Furthermore, it would investigate the consequences of such colony establishment on the populations of other colonies, in particular that of the FFC SPA. There is additional complexity due to the number of emerging proposals for artificial nesting structures as compensation from other wind farm developers.

- Predator eradication; and

6.45. Below we expand on our comments set out in our Relevant Representation on each of these measures and, where relevant, note our agreement with Natural England's comments as set out in their Relevant Representation (RR-063). As the Applicant has relied, in part, on submissions made by Hornsea Project Four, we have included summary information from our detailed comments on those measures (and have also provided our more detailed comments from our Hornsea Four submissions in Annex A). This is to illustrate the critical issues that remain outstanding on each measure.

Bycatch reduction (project-led and collaborative)

6.46. As stated in our Relevant Representation, the applicant refers to various possible measures to achieve bycatch reduction, although no specific measure with the necessary detail is proposed to enable a proper assessment as compensation. Any proposal must be evidenced and specific to a particular fishery in order to determine if it will result in sustained bycatch reduction for each species beyond the lifetime of the OWF. This typically requires multi-year trials which have not been carried out prior to application. Therefore, the Applicant's claim of there being no delay to compensation delivery are not proven.

6.47. Reference is made to use the use of looming eye buoys (LEB) as one potential measure. LEBs are an experimental prototype measure that has been developed by the RSPB/BirdLife International in collaboration with Fishtek Marine. It has not been proven to be an effective measure for bycatch reduction with respect of guillemot and razorbill at the time of writing. The Applicant appears to place reliance on claims made by Orsted in its submissions to the Hornsea Four examination. The RSPB carefully reviewed the evidence presented by Orsted, was highly critical of it and considers that at this stage little weight can be placed on it as a viable compensation measure. Table 7 below is a copy of Table 9 from the RSPB's REP6-069 to the Hornsea Four examination: this summarised the further information the RSPB considered the Examining Authority and Secretary of State would need in order to begin to evaluate Hornsea Four's bycatch proposal. Our detailed assessment of the same proposal against the compensation criteria set out in Table 4 above (section 5) is provided in Annex A to this submission (at Table A1).

Table 7: the RSPB's overall rating of the Hornsea Four bycatch reduction compensation measure for Guillemot and Razorbill and recommended actions (taken from Table 9 in the RSPB's Hornsea Project Four REP6-069)

RSPB's OVERALL RATING OF COMPENSATION MEASURE FOR GUILLEMOT AND RAZORBILL - **Bycatch reduction**
Key issues to resolve revolve around the inadequate evidence base underpinning the Applicant's proposals. Below we set out the actions required to address these prior to the Secretary of State carrying out further consultation with interested parties. - Expert (peer) review; - Absence of scientifically robust statistical analysis (bycatch rates) - Lack of detail on variables; - Dataset not comprehensive; - Missing data collection details;

RSPB's OVERALL RATING OF COMPENSATION MEASURE FOR GUILLEMOT AND RAZORBILL - **Bycatch reduction**		
- Insufficient modelling of variables; - Pseudoreplication/ Error distribution.		
RSPB observation/ Issue	**Action required by the Applicant**	**What would this provide?**
Expert (peer) review	- Provide detail on the fisheries, ornithologist and statistical experts that conducted the data and statistical analysis including their credentials and who is paying them. - The RSPB requests that the Applicant authorise a confidential review by an independent expert in seabird bycatch data analysis. - The RSPB would like to offer the Applicant the opportunity to share their data confidentially with the RSPB's bycatch experts including Yann Rouxel, Bycatch Project Manager, developer of the LEB, and Steffen Oppel, Senior Scientist and experienced analyst of seabird bycatch data. Alternatively, the RSPB can recommend experts from leading independent scientific organisations (Zoological Society of London, University of Washington or the British Trust for Ornithology).	- Confidence that the results of the trial have been verified by an independent third-party bycatch expert and a robust peer review. - Confirmation and evidence that the results of the bycatch reduction trials to date are as effective as the Applicant states, so that Interested Parties and the Secretary of State can determine the level of confidence that can be placed in the results.
Absence of scientifically robust statistical analysis (bycatch rates).	- Calculate and share the bycatch rates for all birds and specific species (this can be done without sharing the underlying data). - Describe data analysis conducted in the methods such that it is repeatable	- Bycatch rates would allow the Applicant to say how many birds they could save through bycatch reduction measures. - Provide a repeatable analytical method- a basic foundation of sound science.
Lack of detail on variables	Provide detail, for the range of experimental LEB and control nets, on: - Fishing effort - Sample size - Gillnet type - Location and times	- An ability to understand the basis for any analysis and subsequent claims around efficacy.
Dataset not comprehensive	- Conduct multi- year trials	- Best-practice, wider diverse sample size, more confidence.
Missing data collection details	Provide detail on the below factors influencing data collection: - location of cameras on boats. - proportion of bycatch events that were identifiable (ability to identify species from an image of a bird carcass in a net).	- These are again elements of the experiment which will have an influence on the results – it is important to present these such that the robustness of the results

RSPB's OVERALL RATING OF COMPENSATION MEASURE FOR GUILLEMOT AND RAZORBILL - Bycatch reduction		
	- proportion of bycatch self-reported by fishermen versus from cameras. - method to verify self-reported bycatch (e.g with camera footage). - Confirmation that the control nets were identical to the experimental nets - Bycatch reduction results for the other species they caught	can be scrutinised and assessed. - Ability to evaluate over what area and time horizon the results can be extrapolated. If mitigation works only at certain times of the year the annual mortality reduction would be lower than when you assume that the reduction is constant across all seasons.
Insufficient modelling of variables	- Conduct statistical models to account for variables (including fishing effort), and present findings.	- Reassurance that the described effect is real and supported by valid data and analysis.
Pseudoreplication/ Error distribution	- Data need to be analysed with a Poisson distribution (numerical response), or some other approach must be taken to overcome the pseudoreplication issue for binary data. - If the trials are strictly paired then a simple paired t-test would be sufficient to assess the differences.	- Magnitude of the bycatch reduction (in absolute and not just relative terms) to evaluate whether the scale of mortality reduction can indeed compensate for the scale of windfarm-induced mortality.

6.48. We consider it helpful to provide this information to illustrate how much work is still required by the Applicant before this measure can be given serious consideration. In this respect we fully agree with Natural England's statement in paragraph 20 of its Relevant Representation:

"*The proposals for compensatory measures to account for impacts on guillemot and razorbill are relatively undeveloped and lack the required detail on location, scale, technical feasibility and long-term implementation. Crucially, there is no clear evidence that bycatch or predation impacts at an identified site are occurring to a degree that offers the Applicant sufficient opportunity to reduce those impacts at the scale required to provide compensation*."

Predator eradication from a breeding colony (collaborative)

6.49. As we set out in our Relevant Representation, the Applicant has not put forward any specific measure, but does make reference to proposals by Hornsea Project Four in respect of Guernsey. The RSPB carefully reviewed the evidence put forward by Hornsea Project Four on its proposals. Table 8 below is a copy of Table 8 from the RSPB's REP6-069 to the Hornsea Four examination: this summarised the further information the RSPB considered the Examining Authority and Secretary of State would need in order to begin to evaluate Hornsea Four's predator eradication proposal. Our detailed assessment of the same proposal against the compensation criteria set out in Table 4 above (section 5) is provided in Annex A to this submission (at Table A2).

Table 8: the RSPB's overall rating of the Hornsea Four predator eradication compensation measure for Guillemot and Razorbill and recommended actions (taken from Table 8 in the RSPB's Hornsea Project Four REP6-069)

<table>
<tr><td colspan="3">RSPB's OVERALL RATING OF COMPENSATION MEASURE FOR GUILLEMOT AND RAZORBILL
- Predator eradication</td></tr>
<tr><td colspan="3">Key issues to resolve revolve around the inadequate evidence base underpinning the Applicant's proposals. Below we set out the actions required to address these prior to the Secretary of State carrying out further consultation with interested parties.
- Lack of coherent strategy for identifying islands/island groups for predator eradication and associated detailed documents;
- Inadequate evidence to demonstrate benefit to breeding guillemot and razorbill of proposed eradication strategy;
- Lack of evidence of connectivity of guillemots and razorbills from Channel Islands to respective UK National Site Networks.</td></tr>
<tr><td>RSPB observation/ Issue</td><td>Action required by the Applicant</td><td>What would this provide?</td></tr>
<tr><td>Lack of coherent strategy for identifying islands/island groups for predator eradication and associated detailed technical documents</td><td>Prior to determination of DCO by Secretary of State, submit full versions of the following documents for review by Interested Parties:

- Project selection, including coherent strategy and rationale for scoping islands/island groups in and out
- Feasibility Study
- Implementation Plan (Project Plan, Operational Plan, Monitoring & Evaluation Plan)
- Biosecurity and Emergency Response Plan.</td><td rowspan="3">Full information for review by Interested Parties to assess:
- feasibility of predator eradication proposals
- benefit to guillemot and razorbill
- evidence that guillemots and razorbills reared in Channel Islands will recruit to respective UK National Site Networks at required scale to protect coherence of those networks

Advice from Interested Parties will ensure Secretary of State can take a fully informed and rational decision in respect of whether the compensation measure will protect the coherence of the UK National Site Network for guillemot and razorbill.</td></tr>
<tr><td>Inadequate evidence to demonstrate benefit to breeding guillemot and razorbill of proposed eradication strategy</td><td>Prior to determination of DCO by Secretary of State, submit full versions of the following for review by Interested Parties:

- Provision of full breeding bird and INNS survey and monitoring results;
- Detailed rationale and evidence, based on chosen eradication strategy and selected locations, to demonstrate benefit to breeding guillemot and razorbill through increases in productivity and survival over and above existing levels experienced at the selected locations.</td></tr>
<tr><td>Lack of evidence of connectivity of guillemots and razorbills from Channel Islands to respective</td><td>Prior to determination of DCO by Secretary of State, submit full version of the following for review by Interested Parties:</td></tr>
</table>

RSPB's OVERALL RATING OF COMPENSATION MEASURE FOR GUILLEMOT AND RAZORBILL - Predator eradication		
UK National Site Networks	- Provision of additional evidence to demonstrate level of connectivity between guillemots and razorbills reared in Channel Islands and those recruited into respective UK National Site Networks	

6.50. We consider it helpful to provide this information to illustrate how much work is still required by the Applicant before this measure can be given serious consideration.

Gannet

6.51. Compensation measures for gannet are set out in APP-074 (Gannet Guillemot and Razorbill Compensation Document). The RSPB repeats here its comments from its Relevant Representation

- **Enhance the conservation of wintering and migrant shorebirds and waterfowl at Loch Ryan, Scotland** (non like-for-like compensation): **this cannot be considered as compensation**. It is not compliant with the requirement to protect the overall coherence of the National Site Network for gannet. The RSPB notes the Applicant refers to draft Defra guidance, which has not been published in final form. The RSPB was highly critical of the element of Defra's draft guidance relied on by the Applicant as the RSPB considers it does not comply with the legal requirements for compensation under the Habitats Regulations as such measures cannot protect the overall coherence of the National Site Network for the impacted species.
- **Bycatch reduction (project-led and collaborative):** this comprises a research proposal to establish the scale and pattern of bycatch of gannet in Portuguese waters and to investigate the merits of different bycatch reduction measures. The RSPB recognises there is a need for such research. However, **it does not comprise a feasible compensation measure for any predicted adverse effects on integrity on FFC SPA gannets**. Such research will take many years to complete and may not produce viable bycatch reduction measures. Therefore, it cannot be relied on as a compensation measure at this stage and we cannot see how this will change prior to the end of the examination.

Red-throated diver

6.52. As set out in section 4 above, it is the RSPB's view that the SEP project alone and DEP and SEP in combination, means the RSPB cannot rule out an adverse impact of displacement on the integrity of the Greater Wash SPA. Therefore, measures are required to avoid those adverse impacts, otherwise compensation measures would be required.

Annex A

Extracts from the RSPB's Hornsea Project Four REP6-069: detailed comments on Hornsea Project Four's proposals on bycatch reduction and predator eradication as compensation for guillemots and razorbills from the Flamborough and Filey Coast Special Protection Area.

The tables below set out the RSPB's detailed assessment of the Hornsea Project Four compensation proposals against the compensation criteria described in section 5 of this Written Representation. They are taken from sections 5 and 6 of the RSPB's REP6-069 submitted to the Hornsea Project Four examination. The additional analysis provides essential context to the summary tables provided in section 6 above.

Bycatch reduction

Table A1: the RSPB's comments on the Hornsea Four bycatch reduction compensation measure proposal against compensation criteria (taken from Table 4 in the RSPB's Hornsea Project Four REP6-069, dated 27 July 2022)

EC criteria [See Table 4 in REP2-089 for fuller description]	**RSPB RAG rating** (Red, Amber, Green)	**RSPB key observations based on current proposals and information provided**
Targeted - Appropriate to impact predicted - Shared understanding and agreement on impacts - Address structural/functional aspect of site integrity affected		**Looming Eye Buoys (LEB) remain unproven for bycatch reduction** - The proposed bycatch reduction measures remain unproven as the presented analysis of the trial results are not scientifically robust (see **Effective**). As a result, these measures are currently inappropriate as compensation for impacts on guillemot or razorbill. **Razorbills absent from trial** - No razorbills were caught during the LEB experimental or control trials, therefore there is no way of knowing if LEBs would reduce bycatch of razorbills (to address the impact of the development) even if proven for guillemot. LEBs remain untested for razorbill. **Unclear impact on target site species** - It is unknown if bycatch reduction in the south of England would benefit the birds from FFC SPA given lack of evidence on connectivity (see RSPB REP5-120, section 3, comments on connectivity).
Effective - Based on best scientific knowledge. Scientific evaluation carried out - Specific to the location to be implemented - Clearly defined timescales - Feasible and operational in reinstating required conditions - Measures where no reasonable guarantee of success should not be considered		**Insufficient statistical analysis** - The Applicant "*presents a comparison of proportion of guillemot bycatch in control versus LEB nets in order to assess the potential for LEBs to reduce guillemot bycatch in gillnets*." (REP5-068, Page 14, 2.5.1.1). - And claims "*LEBs have reduced the level of bycatch of guillemot within a commercial gillnet fishery by approximately 25% within a 50 m radius".* (REP5-068, Page 19, 4.1.1.4). This 25% metric is not scientifically robust because:

EC criteria [See Table 4 in REP2-089 for fuller description]	RSPB RAG rating (Red, Amber, Green)	RSPB key observations based on current proposals and information provided
		- It does not highlight if results are statistically significant or coincidental. - It does not allow for adequate scientific scrutiny and the analysis is not presented in a way that is repeatable by others. - This metric seems to be calculated by cross multiplying the percentage of nets that caught at least one guillemot in LEB nets (42.9%) versus control nets (57.1%)- **this is not recognised as an effective way to calculate bycatch reduction**. Standard analyses would require either paired sampling designs, and comparison of bycatch rates (bycatch per unit effort) in LEB and control nets, or zero-inflated models that account for; variation in space, time, effort, and fishing gear on bycatch rates, and can accommodate the large number of fishing events where no bycatch occurs. - It presents the proportion of nets with/without bycatch, which indicates nothing of the magnitude of bycatch events or the overall intensity. - There is no indication of sample size, so 25% could mean control nets caught 4 birds and LEBs 3. - It cannot be used to interpret whether the level of bycatch reduction is credible and of sufficient magnitude to offset any loss from windfarms. - Pseudoreplication- the Applicant states, "where guillemot bycatch were recorded more than once for an individual net, these were considered as separate catching events." (REP5-068, 2.5.1.3, page 14). Modelling events that occur in the same net separately, unless properly accounted for in the modelling strategy (for which no evidence is provided), introduces the risk to erroneously find statistical evidence for an effect that does not exist, because data are effectively duplicated and sample size is artificially increased, thus inflating the power to detect an effect (even though none may exist). Scientific bycatch research treats each net as a single datum with the number of birds per net (effort) providing a bycatch rate- this avoids pseudoreplication. - There is no error distribution specified and it is therefore not possible to independently evaluate whether the assumptions of the model are likely to be met, or what response variable was modelled. The Applicant has not provided any rationale for why they have used bycatch proportions as a

EC criteria [See Table 4 in REP2-089 for fuller description]	RSPB RAG rating (Red, Amber, Green)	RSPB key observations based on current proposals and information provided
		metric rather than aggregated numbers and an associated bycatch rate in both control and experimental nets. The bycatch rate (number of birds caught per km per net per day) should be provided as a scientifically recognised metric used in bycatch research. Bycatch rate could be presented in an entirely anonymised way, so as not to implicate individual fishers. The scientific literature on seabird bycatch mitigation provides many examples of how to do this, using specific statistical analysis, which does not appear to have been conducted here. **Scientific data omitted** The Applicant omits key details from the trial findings (REP5-068) that are fundamental to any robust scientific bycatch evaluation, including: - Fishing effort and sample size- data were collected from 9 fishers, but there are no details provided on: the gear that was used (see point below), how long it was in the water, and the number of hauls, along with the sample size used in their analysis. For example, for each fisher, data could be from 1 net over 1 season or 1 net a day. If nets vary in length between 50 and 500 metres, then counting the nets is not the same as accounting for equal fishing effort. - Gillnet type - gillnets vary greatly (mesh size, length, etc.), so this small sample could be from a very diverse range of gillnet types and therefore statistical weight of their sample size might be lower. - Location and time- bycatch is hugely variable in time and space, the Applicant has not provided the range of locations and time of bycatch/ fishing. The RSPB is aware, from its own trials, that there is significant variation in the nets used depending on time of day and location along the south coast of England. Likewise, bycatch risk might be elevated at certain times of day which can also inform mitigation design – see the RSPB's recent paper, Cleasby et al (2022)[97] assessing bycatch risk from gillnet fisheries for three diving seabird species. - Experts that reviewed the data are completely unknown, so it is unclear if they have suitable credentials to analyse the data.

[97] Cleasby, I. R., Wilson, L. J., Crawford, R., Owen, E., Rouxel, Y., & Bolton, M. (2022). Assessing bycatch risk from gillnet fisheries for three species of diving seabird in the UK. Marine Ecology Progress Series, 684, 157-179.

EC criteria [See Table 4 in REP2-089 for fuller description]	RSPB RAG rating (Red, Amber, Green)	RSPB key observations based on current proposals and information provided
		- Data collection details: o location of cameras on boats. o proportion of bycatch events that were identifiable (ability to identify species from an image of a bird carcass in a net). o proportion of bycatch self-reported by fishermen versus from cameras. o method to verify self-reported bycatch (e.g with camera footage). o Confirmation that the control nets were identical to the experimental nets. o Bycatch reduction results for the other species they caught. - Variables -The Applicant references statistical models to account for variables, but the results of these are not presented. They present basic percentage of trials with bycatch for sea state, wind speed and time of day; but that does not equal a proper statistical model analysis and does not take into account key variables including those listed above (fishing effort, location etc.). **Insufficient data collection** Whilst the methodology for collecting the data is promising, albeit limited by an absence of transparency, data from one season cannot provide a comprehensive enough scientific sample to confidently assess bycatch reduction (see ACAP guidance[98] and our previous submission REP4-058). **Lack of data transparency** See paragraph 6.2. Unfortunately, without access to the data there is no way to check any of the Applicant's analyses. See also **Location** and **Timing**.
Technically feasible - Design must follow scientific criteria and evaluation in line with best scientific knowledge - See also Effective		**ACAP best practice** - The proposed bycatch reduction measures are not in line with ACAP Best Practice guidance[99] - The Applicant has not provided sufficient evidence to support their claims - the way results and methodology are presented crucially lacks scientific best practice. **Other research** The Applicant continues to draw incorrect conclusions from scientific studies, principally

[98] ACAP (2021) ACAP Review of mitigation measures and Best Practice Advice for Reducing the Impact of Pelagic Longline Fisheries on Seabirds. In: ACAP - Twelfth Meeting of the Advisory Committee. Online.
[99] ACAP (2021) ACAP Review of mitigation measures and Best Practice Advice for Reducing the Impact of Pelagic Longline Fisheries on Seabirds. In: ACAP - Twelfth Meeting of the Advisory Committee. Online

EC criteria [See Table 4 in REP2-089 for fuller description]	**RSPB RAG rating** (Red, Amber, Green)	**RSPB key observations based on current proposals and information provided**
		Rouxel et al (2021). As stated in REP5-120, author of the paper, Yann Rouxel (RSPB Bycatch Project Manager), has confirmed that comparing this paper to the Applicant's research is inappropriate given the fundamental differences between the two studies. Similar trials have not found similar results. Preliminary results from trials conducted in other gillnet fisheries are not supportive of the claimed effectiveness at 25% bycatch reduction of guillemots.
Extent - Relates directly to quantitative and qualitative element of integrity likely to be impaired - Estimated effectiveness of measure - Key uncertainties identified and factored in - [If no reasonable guarantee of success should not be considered]		- Agreement has yet to be reached on the scale of the impact to be compensated for on guillemot and razorbill from the FFC SPA. This is due to the delays in the submission of updated baseline characterisation and revised impact assessment information until Deadlines 5 and 5a (see Annex A for the RSPB's view on the new information). **Integrity of razorbill and guillemot/ target species** - To date the Applicant has not provided qualitative or quantitative evidence that bycatch reduction can compensate for the impacts on the integrity of FFC SPA arising from Hornsea 4 and its impacts on razorbill and guillemot from FFC SPA. Notwithstanding the absence of transparent data and multi-year trials, the lack of a bycatch rate means it is not possible to calculate the scale of bycatch reduction measures (if proven) required for compensation. **LEB remains unproven and uncertain** - Fundamental uncertainties remain around the effectiveness of LEBS (see **Effective**) - In the absence of robust scientific analysis there is no reasonable guarantee of success as LEB remains unproven.
Location - Located where they will be most effective to protect coherence of species' National Site Network - Must be able to provide ecological structure and functions required by species		- It is unknown if bycatch measures in the south of England, even if proven, will benefit razorbill and guillemot from FFC SPA. This is due to: o difficulty in knowing which colony a bycaught bird comes from; and o the lack of evidence on connectivity between the bycatch trial locations (unknown) and the Flamborough and Filey Coast SPA, as well as other SPAs designated for guillemot and razorbill in the UK National Site Network (see RSPB REP5-120).

EC criteria [See Table 4 in REP2-089 for fuller description]	RSPB RAG rating (Red, Amber, Green)	RSPB key observations based on current proposals and information provided
Timing - Must provide continuity in ecological processes to maintain structure/functions contributing to species' National Site Network - No irreversible damage before compensation operational - Should be fully functional before damage occurs - All technical, legal or financial provisions completed before project implementation starts to prevent delays to effective compensation		- Although the Applicant has stated they can commence the bycatch reduction scheme in one year, this is on the basis of a one season trial which is not in line with best practice. Multi- year trials should be conducted before the measures are agreed and implemented – the Applicant has not committed to, or accounted for, the additional time required to conduct more trials before implementation.
Long-term implementation - Legal rights to secure and implement compensation measures in place prior to consent being granted - Financial security secured - Protection, monitoring and maintenance of sites secured before - In place for as long as impact on affected SPA occurs		**Uncertainty of participation over 35 years** - No confirmation how the Applicant will ensure there are sufficient participating fishers over the 35 year period (RSPB disputes this time period as too short) or how bycatch compensation measures will interplay with future regulation and fisheries management (see REP2-092). **Long term risk of using an unproven measure** - When implementing bycatch reductions measures over a long timescale it is vital to get the starting point right, with thoroughly tested and proven measures. The economic impacts on fishers need to be considered. If this is not done correctly it will risk damaging relationships with fishers, if measures are found to be ineffective, and could jeopardise trials and uptake of more advanced robust bycatch reduction measures in the future. **Monitoring** - Monitoring of the compensation effectiveness and bycatch rates will be crucial, yet the exact method of monitoring will be decided based upon further evidence gathering and discussion with industry experts- this is not best practice. A monitoring programme needs to be detailed and agreed before the examination closes and before implementation.
Additionality - Measures must be additional to those already required - Able to demonstrate claimed benefits are additional to		- There are a series of existing general policy and legislative commitments at national, regional seas and global scales that require the UK Administrations to act on wildlife bycatch in UK waters.

EC criteria [See Table 4 in REP2-089 for fuller description]	**RSPB RAG rating** (Red, Amber, Green)	**RSPB key observations based on current proposals and information provided**
current baseline (e.g. breeding population, productivity etc)		- As previously stated in REP2-092, governments are required to monitor and address bycatch of sensitive species – including seabirds. - Developers and decision-makers must recognise 1. there is a question of additionality, when governments are required to address bycatch and 2. that the policy and legislative approach to addressing wildlife bycatch is currently very dynamic. - The UK Administrations are currently developing a series of policies that should see the introduction of further measures to address wildlife bycatch issues in UK waters, most notably these include: o The UK Fisheries Act (2020) o The UK Marine Strategy (part 3 - programme of measures) o The UK Bycatch Mitigation Initiative and o Seabird Conservation Strategies in each of the four countries - The introduction of regulations and legal frameworks could require fishing practices to change which could impact the developer's compensation proposals or ability to implement them.

Predator eradication

Table A2: the RSPB's comments on the Hornsea Four predator eradication compensation measure proposal against compensation criteria (taken from Table 1 in the RSPB's Hornsea Project Four REP6-069, dated 27 July 2022)

EC criteria [See Table 4 in REP2-089 for fuller description]	**RSPB RAG rating (Red, Amber, Green)**	**RSPB key observations based on current proposals and information provided**
Targeted - Appropriate to impact predicted - Shared understanding and agreement on impacts - Address structural/functional aspect of site integrity affected		- Focus of documents is on guillemot (see para 1.1.1.12, REP5-058, Island Suitability Assessment) based on the assumption that the compensation requirements for razorbill are low and suitable nesting sites will be available. (See **Extent** and paragraphs 3.7-3.8 above on magnitude of compensation.) - The Applicant frequently equates presence of a predator (e.g. rat) in a colony of birds with predation. While it presents limited evidence of this in some locations, more substantive evidence is needed to distinguish between scavenging and predation in order to assess any claimed benefit. - Lack of coherent strategy with clear, defendable eradication units, and incomplete information (see **Effective**, **Technically Feasible** and **Location**) mean it is not possible to determine if the measure will target guillemot and/or razorbill in practical terms. - No assessment of impacts of proposed plans on non-target species (see also **Technically Feasible**).
Effective - Based on best scientific knowledge. Scientific evaluation carried out - Specific to the location to be implemented - Clearly defined timescales - Feasible and operational in reinstating required conditions - Measures where no reasonable guarantee of success should not be considered		The RSPB welcomes the work to date and the various statements that surveys into breeding birds, habitat suitability and presence of INNS are ongoing. This raises the prospect that relevant, fuller information may be acquired in due course and could be made available to Interested Parties and the Secretary of State as part of a post-examination consultation process. However, due to the lack of a coherent strategy at this stage (which could have given confidence in how such information would be anlaysed and applied by the Applicant in any future Feasibility Study etc), we are unable to rate this as Amber. **Breeding bird presence/habitat suitability** - Variation in quality of source information used for assessment is not clear on a site by site basis. - Methodology on use of pictures of islands is unclear. No explanation given as to why, for

EC criteria [See Table 4 in REP2-089 for fuller description]	RSPB RAG rating (Red, Amber, Green)	RSPB key observations based on current proposals and information provided
		islands which were photographed, all areas of suitable cliff not photographed. - Methodology for each site should be summarised in a table. Do not consider sites assessed without local expert knowledge or where oblique images used to make measurements. **Assessing benefit to guillemot/razorbill** - Documents make general assumption (without evidence) that breeding productivity will automatically be enhanced by removal of INNS without ruling out other factors that may explain the absence of guillemot or razorbill or them not occupying all suitable habitat (see also **Targeted**). - This feeds into the strong implication (e.g. paras 5.1.1.1-2 in REP5-082 Predator Eradication Implementation Study Update) that islands will be colonised by guillemot and razorbill after eradication, regardless of whether the Applicant has confirmed presence of rats or not and, in particular, whether the absence of the birds on those islands is due to rats or other factors. For example, the claim of "profound benefits" to guillemot and razorbill from rat eradication in para 3.2.1.3 of REP5a-019 (Predator Eradication and control: Opportunities within the Bailiwick of Guernsey). - Whilst it is not necessary to know if rats are present on every island within an eradication unit (as a precautionary approach should be taken and all islands within the unit should be assumed to host rats and hence be baited) it **IS** necessary to have this information if the calculation of benefits to guillemot and/or razorbill is based on the assumption that rats ARE present, when in fact that information is not known. - Therefore, for some of the possible islands there may be no benefit to guillemots or razorbills, despite the assumptions made by the Applicant. - No productivity analysis is yet presented to demonstrate relevance of this assumption to potential locations. Only one productivity dataset is intended to be provided (post examination): a single season will not account for natural fluctuation. Therefore, assumed benefits are unproven and certainly not site specific at this stage. **Use of A24 traps to reduce predation pressure**

EC criteria [See Table 4 in REP2-089 for fuller description]	RSPB RAG rating (Red, Amber, Green)	RSPB key observations based on current proposals and information provided
		- Given rat density is already low, it is unclear what benefit there will be in the use of these traps.
Technically feasible - Design must follow scientific criteria and evaluation in line with best scientific knowledge - See also Effective		- **No feasibility assessment:** the Feasibility Study (which addresses 7 criteria specific to eradication schemes) is explicitly deferred until after the examination (e.g. see para 5.1.3.9-5.1.3.12 in REP5-031, Roadmap Version 4, in particular logistical considerations). Compounded by lack of explicit site selection (see **Location** below). - **Incomplete surveys and results:** Incomplete information, alongside assumptions rather than evidence. Not all sites have yet been surveyed for: o Breeding bird presence or habitat suitability (compounded by inconsistent survey and assessment methods) o Presence/absence of INNS. 9 of the 19 islands/islets listed in Table 6 (REP5-058) were not surveyed to confirm presence/absence. As set out above, while it is appropriate to assume INNS presence from a baiting operation perspective, it cannot be assumed that baiting a site that may or may not host rodents will benefit razorbill or guillemot. - **No clear eradication strategy set out:** lack of detail on how eradication at each island/island group will be undertaken, what the eradication units will be, and what is being committed to e.g. eradication to zero density or merely ongoing control. o Implication that Sark will only be subject to "control" perpetuating risk of continued reinvasion of adjacent islets (see para 5.3.1.1 in REP5-082).

EC criteria [See Table 4 in REP2-089 for fuller description]	RSPB RAG rating (Red, Amber, Green)	RSPB key observations based on current proposals and information provided
		- **Use of A24 traps**: the implication that, post-eradication, reliance will be placed on the use of Goodnature A24 kill traps to reduce predation pressure. Given the recorded rat density is low already, it is not made clear what the benefit will be of this measure, nor is evidence provided of A24 efficacy in similar situations. - **Community support:** demonstration of community support inadequate – based on very low sample (see separate comment below, paragraphs 5.15-5.21) - **No assessment of other risk factors:** No assessment/mention of other factors that increase risk of failure/incursion, nor how they would be managed. For example, presence of waste management sites on Alderney close to some potential sites. No data presented that assesses the risks to non-target species (see also **Targeted**). - **Lack of biosecurity plan:** no biosecurity plan presented and unclear when it will be put in place e.g. see paragraph 3.1.1.1 in REP5a-019 and reference to use of adaptive management for biosecurity. This cannot replace need for detailed biosecurity plan.
Extent - Relates directly to quantitative and qualitative element of integrity likely to be impaired - Estimated effectiveness of measure - Key uncertainties identified and factored in - [If no reasonable guarantee of success should not be considered]		- Agreement has yet to be reached on the scale of the impact to be compensated for on guillemot and razorbill from the Flamborough an Filey Coast SPA. This is due to the delays in the submission of updated baseline characterisation and revised impact assessment information until Deadlines 5 and 5a (see Annex A for the RSPB's view on the new information). - Agreement would then need to be reached on: o the scale of impact to be compensated for each species; o how that should be converted into relevant population metrics in order to describe robust compensation objectives, including number of birds that need to be recruited into the UK National Site Network population each year (see paragraphs 3.7-3.8 above) o Detailed assessment of the likely effectiveness of the proposed compensation measure in the selected island/island group in respect of improvements in productivity; o Assessment of the likely level of connectivity of birds reared in the selected location to the species' UK National Site Network and the likely level

EC criteria [See Table 4 in REP2-089 for fuller description]	RSPB RAG rating (Red, Amber, Green)	RSPB key observations based on current proposals and information provided
		of recruitment of those birds into the population in that National Site Network (see also RSPB REP5-120, section 3 on connectivity, especially paragraphs 3.12-3.23). o From this, an adjustment could be made (ratio) to determine the number of additional breeding pairs and fledged young required each year. - At present we do not have agreement on any of these matters and serious concerns with regard the level of connectivity, let alone the likely level of successful recruitment.
Location - Located where they will be most effective to protect coherence of species' National Site Network - Must be able to provide ecological structure and functions required by species		- **Lack of site selection strategy:** No site selection strategy presented, how islands/islets or groups of islands will be categorised for selection purposes, and no final site selection. - **No coherent approach to site selection:** currently no discernible coherent approach to site selection. Lack of structured approach to island/island group selection, what is scoped in and out. Compounded by incomplete information on INNS presence, evidence of predation, benefit to guillemot/razorbill. - **Opaque approach to reinvasion risk:** the Applicant has, to date, failed to set out its approach to the identification of eradication units. Instead, it has focused on describing individual islands/islets. This non-standard practice makes it difficult to discern its likely eradication strategy. Other issues include: o Lack of biosecurity plan means no current information on how Applicant has identified and intends to manage natural and assisted reinvasion risks. o The RSPB does not accept that a site 50m from a source population of black rat is highly likely to be reinvaded but an island 52, 54 or 55m would be at significantly reduced risk of reinvasion by the species. - **Island characteristics:** Table 6 (island suitability update, REP5-058) requires improvement and confirms view that strategy is not clear: o Refers only to guillemot o Only 10 out of 19 islands confirmed to have rats present. o Does not state which species of rat present. Each poses different risk to

EC criteria [See Table 4 in REP2-089 for fuller description]	RSPB RAG rating (Red, Amber, Green)	RSPB key observations based on current proposals and information provided
		guillemot and razorbill (see RSPB REP2-093, section 4). o Does not state distance from each island to those islands where no intention of eradicating rodents. This is an essential characteristic to understand.
Timing - Must provide continuity in ecological processes to maintain structure/functions contributing to species' National Site Network - No irreversible damage before compensation operational - Should be fully functional before damage occurs - All technical, legal or financial provisions completed before project implementation starts to prevent delays to effective compensation		- Significant problems remain that pose challenges in respect of ability to implement a successful predator eradication programme as a compensation measure, and therefore the timing and effectiveness of implementation in respect of compensating for the predicted damage: o Lack of site selection strategy and associated Feasibility Study, Implementation Plan, Biosecurity Plan for expert assessment o Lack of full survey results in respect of breeding seabirds, and presence/absence of INNS o Lack of robust assessment on potential benefit of proposed strategy to guillemot and/or razorbill; o Lack of robust assessment of benefit to UK National Site Network for guillemot and razorbill. - This includes a fuller understanding of: o The timescales over which any benefits to guillemot and razorbill will accrue at the predator eradication sites; o The magnitude of any improvements in productivity against current (baseline) productivity; o The sustainability of any positive changes in population and productivity, including long term recruitment to Guernsey; o The likelihood of any birds reared in Guernsey being recruited into the UK National Site Network for either species and the timescales for achieving that, given the long-delay before fledged birds reach breeding age (typically 5-6 years for guillemot and 4-5 years for razorbill). This is likely to result in a considerable time lag before any benefit to the UK National Site Network occurs (even assuming that such benefits accrue, which the RSPB considers to be unsubstantiated e.g. see comments on connectivity in REP5-120).
Long-term implementation - Legal rights to secure and implement compensation		- Lack of precise strategy and locations means legal rights cannot be guaranteed to be secured prior to consent being granted;

EC criteria [See Table 4 in REP2-089 for fuller description]	RSPB RAG rating (Red, Amber, Green)	RSPB key observations based on current proposals and information provided
measures in place prior to consent being granted - Financial security secured - Protection, monitoring and maintenance of sites secured before consent - In place for as long as impact on affected SPA occurs		- Lack of clarity over level of protection to be afforded selected locations (c.f. UK Government policy to afford compensation sites that same level of protection as SPAs and SACs) - Lack of commitment to maintain the compensation in place for as long as impact on affected SPA occurs. Commitment is only for 35 year lifetime of wind farm plus 3 years.
Additionality - Measures must be additional to those already required - Able to demonstrate claimed benefits are additional to current baseline (e.g. breeding population, productivity etc)		- The fundamental challenge is the ability to demonstrate: o If any benefit will accrue at the local (Channel Islands) level e.g. whether any apparent population change is simply birds redistributing or responding to other factors besides the predator eradication o Whether any local (Channel Islands) benefit that is observed will result in benefit to the UK National Site Network for the species. - Using Alderney as an example: o Inclusion of locations (e.g. Fourquie, La Nache) where predator control work is already underway is inappropriate and would not be compensation. In addition, given the proximity of e.g. Fourquie, La Nache to the main island of Alderney, and the ongoing risk of reinvasion, this should not be considered eradication. o A defendable eradication including these islets would need to include Alderney itself. Only Burhou (more than 2km from Alderney) would avoid the need to include Alderney in its eradication unit. o L'Etac de la Quiore: no rats present and no guillemots breeding, with no explanation as to why. Unclear how this could offer additionality.