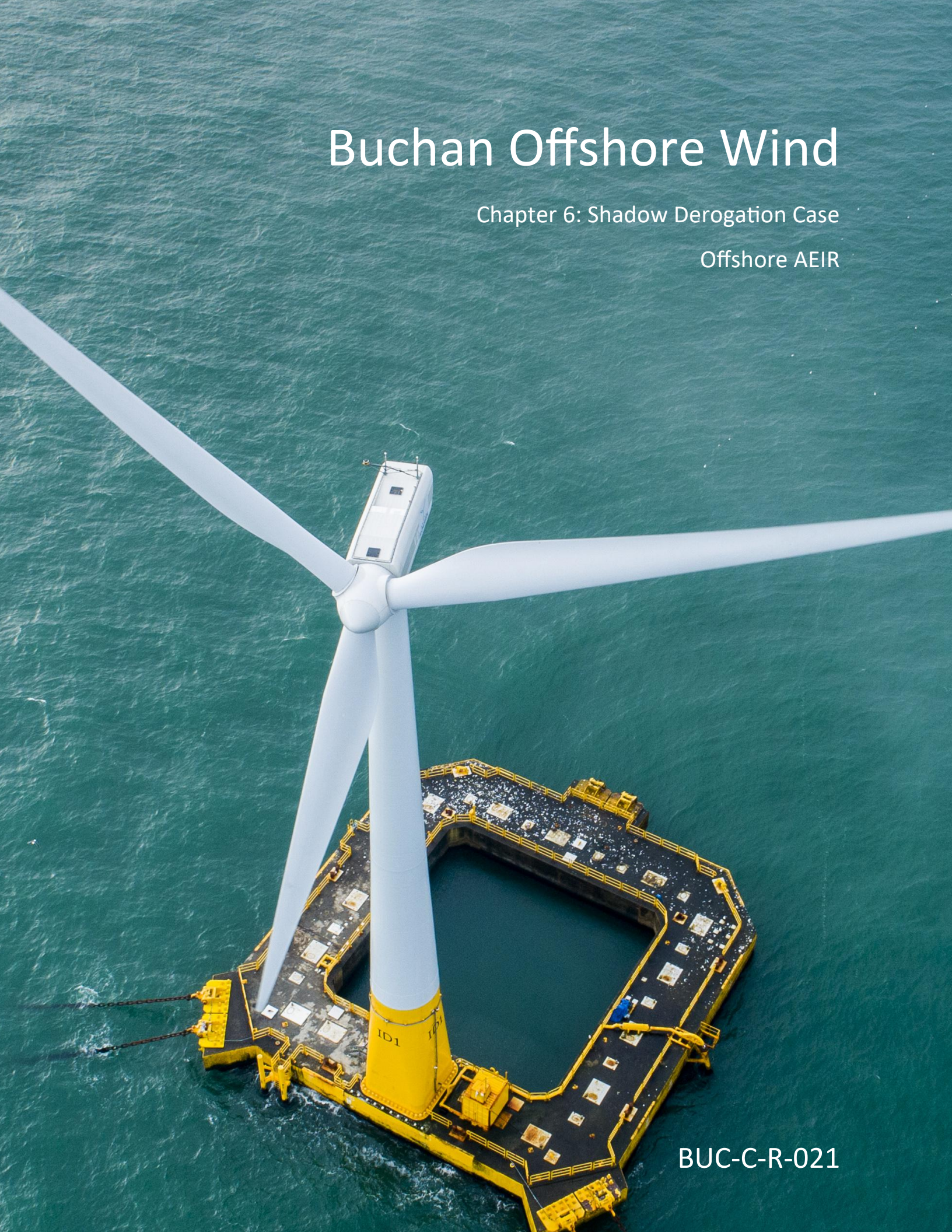
Buchan Offshore Wind

Chapter 6: Shadow Derogation Case

Offshore AEIR



BUC-C-R-021

Buchan Offshore Wind

Additional Environmental Information Report

Chapter 6 Shadow Derogation Case

QMS Review

Name	Company	Date	Reviewed	Approved
RMR	Natural Power	16/06/2026	LJN	SMM
CMO	Buchan Offshore Wind	16/06/2026	CMO	DON

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6.1 INTRODUCTION

6.1.1 Overview

6-1 This Additional Environmental Information Report (AEIR) Chapter has been prepared to provide targeted additional information in response to a Request for Additional Environmental Information (RAEI) received from Marine Directorate – Licensing Operations Team (MD-LOT) and informed by advice from NatureScot in relation to the Shadow Derogation Case, particularly in respect of compensation measures. The approach to responding to the Request for Additional Environmental Information is presented in **AEIR, Chapter 1: Introduction**.

6-2 This report has been prepared to supplement the Shadow Derogation Case, including the Offshore Ornithology Compensation Evidence Plan and the Outline Offshore Ornithology Compensation Implementation & Monitoring Plan for the Proposed Offshore Development.

6-3 For further information on the Proposed Offshore Development and the application overview see **AEIR, Chapter 1: Introduction**.

6.1.2 Relationship to the Environmental Impact Assessment Report

6-4 This report supplements EIAR Volume 2, Chapter 9 (Offshore and Intertidal Ornithology) and Part 3 of the Report to Inform Appropriate Assessment (RIAA) and provides additional information or clarification in response to specific RAEIs raised during consultation.

6-5 Except where explicitly stated within this report, the assessment methodology, baseline information, and conclusions presented within the EIAR remain valid and unchanged.

6-6 This report should be read in conjunction with the following documents:

- EIAR Volume 2, Chapter 9: Offshore and Intertidal Ornithology;
- Report to Inform Appropriate Assessment Part 3 – Assessment on Special Protection Areas and Ramsar Sites;
- EIAR Volume 3, Appendix 9.1 Offshore and Intertidal Ornithology Baseline;
- EIAR Volume 3, Appendix 9.2 Offshore Ornithology Collision Risk Modelling (CRM);
- EIAR Volume 3, Appendix 9.3 Ornithology Distributional Responses Report;
- EIAR Volume 3, Appendix 9.4 Ornithological Impact Apportioning, Derivation of Cumulative Impacts and PVA Screening;
- EIAR Volume 3, Appendix 9.5 Ornithology Population Viability Analysis Report;
- Derogation Case (as submitted with the EIAR);
- Offshore Ornithology Compensation Evidence Plan (as submitted with the EIAR); and

- Outline Offshore Ornithology Compensation Implementation & Monitoring Plan (as submitted with the EIAR).

6.1.3 Scope of this Report

6-7 This chapter addresses those matters raised through the RAEI process that relate to the Shadow Derogation Case as informed by NatureScot and that require the provision of targeted additional information or further clarification.

6-8 The RIAA includes an assessment of predicted impacts on bird populations protected as part of the UK SPA network. NatureScot advised MD-LOT that due to the predicted impacts from the project alone, and in-combination with other reasonably foreseeable plans and projects, there would be an Adverse Effect on Site Integrity (AEOSI), or they would be unable to advise there was an absence of an AEOSI. As such, proposed compensation measures for SPAs were submitted alongside the EIAR and RIAA as part of the Shadow Derogation Case. In order to address matters raised within the RAEI issued by MD-LOT (18.12.2025), informed by NatureScot representation (01.10.2025), more information is provided for each measure addressed here in the Offshore Ornithology Compensation Evidence Plan (as submitted with the EIAR) and Outline Offshore Ornithology Compensation Implementation & Monitoring Plan (as submitted with the EIAR), using the same headings for ease of navigation.

6-9 In addition, this chapter of the AEIR presents a review of the level of compensation required for each species following the receipt of advice from NatureScot (01.10.2025) on which SPA qualifying features have an AEOSI (or where this could not be excluded).

6-10 Advice from MD-LOT (by email 22.04.2026) stated that following the provision of this AEIR the following process will be completed:

- there will be consultation with stakeholders, including NatureScot, on the RAEI, including the updates made to the evidence needed to support the proposed compensation measures;
- an Appropriate Assessment will be completed by MD-LOT once consultation is complete;
- a formal request for derogation will be provided by MD-LOT, based on the conclusion of the Appropriate Assessment (assuming Adverse Effects on Site Integrity are concluded);
- the Applicant will have the opportunity to further refine the compensation measures plans, including information in this report, within a formal Derogation Case; and
- MD-LOT will assess the formal Derogation Case and additional information, including meetings, may be needed during this process.

6.2 CONSULTATION AND REQUESTS FOR ADDITIONAL ENVIRONMENTAL INFORMATION

6.2.1 Approach to Consultation and RAEI

6-11 A summary of the consultation undertaken during the determination phase only is provided in **AEIR Chapter 1: Introduction**. For detail on consultation undertaken to inform the Derogation

Case please refer to the Derogation Case (as submitted with the EIAR) for the Proposed Offshore Development.

6-12 In accordance with the advice issued by MD-LOT on 18 December 2025, this AEIR focuses on responding to the RAEI items identified by MD-LOT, informed by NatureScot (01.10.2025) in relation to the Shadow Derogation Case, namely, compensation measures. These items form the primary basis of the additional information presented within this chapter. This included a Request for Additional Environmental Information (RAEI) within NatureScot's statutory response to the EAIR (and all associated documents).

6-13 Consultation matters relevant to the provision of additional information for this topic are presented in a single consolidated table (**Table 6-1**). This approach ensures consistency in how consultation feedback has been captured and addressed within this AEIR.

6-14 All items raised during the determination period on the Shadow Derogation Case by NatureScot are presented and addressed in full in **Appendix 6.1 – Consultation Log.** These matters are addressed, where relevant, through clarification, signposting to the EIAR, or provision of additional supporting information within this AEIR.

6.2.2 Summary of Consultation Relevant to the Shadow Derogation Case

6-15 **Table 6-1** presents a consolidated summary of consultation issues relevant to the Shadow Derogation Case. For each item, it provides a summary of the issue raised and sets out how and where the matter has been addressed within this AEIR.

Table 6-1. Summary of Request for Additional Environmental Information (RAEI) relevant to the Shadow Derogation Case and responses provided in this AEIR chapter

Consultee	Date / Document	Summary	Relevance to this Chapter
Management of marine litter			
NatureScot & MD-LOT	18.12.2025 RAEI 01.10.2025 NatureScot EIAR representation	NatureScot agreed that plastic ingestion and entanglement are a pressure affecting seabirds but they noted that it is difficult to quantify the benefits of this measure and the ingestion could not be assessed quantitatively.	The response to this topic can be found in **Section 6.4** where discussion is presented on the difficulties in measuring the entanglement mortality in microplastics in relation to the small level of compensation required for each species. Nevertheless, there is likely benefit in implementing this measure alongside the other measures proposed.
NatureScot & MD-LOT	18.12.2025 RAEI 01.10.2025 NatureScot EIAR representation	NatureScot advised that there is stronger evidence available on entanglement of gannets at nest sites.	The response to this topic can be found in **Section 6.4.1** where the Applicant presents additional information and evidence in relation to the removal of marine litter from gannet nesting colonies being suitable as a compensation measure for gannets.
NatureScot	31.03.2026 NatureScot Workshop (video conference meeting)	NatureScot recommended that this measure is better progressed at a strategic level. However, it was noted that the Scottish Statutory Instrument (The Conservation of Habitats and Species (Offshore Wind) (Amendment etc.) Regulations 2026) was not yet enacted so strategic measures were not available to developers currently and the Applicant needed	The response to this topic can be found in **Section 6.4** where it is noted that the Applicant intends to propose this measure at national or strategic level.

Consultee	Date / Document	Summary	Relevance to this Chapter
		to take forward quantifiable project level measures at this stage	
NatureScot	31.03.2026 NatureScot Workshop (video conference meeting)	NatureScot noted that there were assumptions made in the calculations of benefit from marine litter removal and that these can only be indicative.	The response to this topic can be found in **Section 6.4**
Artificial nesting structure for kittiwake (ANS)			
NatureScot & MD-LOT	18.12.2025 RAEI 01.10.2025 NatureScot EIAR representation 31.03.2026 NatureScot Workshop (video conference meeting)	NatureScot stated that they did not support this measure based on a variety of stated reasons.	This measure has been removed from the package of measures as detailed in **Section 6.5.**
Additional management measures at protected sites			
NatureScot & MD-LOT	18.12.2025 RAEI 01.10.2025 NatureScot EIAR representation 31.03.2026 NatureScot Workshop (video conference meeting)	NatureScot did not support management actions to address invasive non-native plan species, fly tipping, and Highly Pathogenic Avian Influenza (HPAI) impact minimisation.	These management actions were removed from the measures detailed in **Section 6.6**
NatureScot & MD-LOT	18.12.2025 RAEI 01.10.2025 NatureScot EIAR representation	NatureScot were generally supportive of management actions to reduce disturbance, suppress predators and manage flooding of suitable cliff nesting habitat.	The response to the reduction of anthropogenic disturbance and suppression of predators can be found in **Section 6.6.**

Consultee	Date / Document	Summary	Relevance to this Chapter
	31.03.2026 NatureScot Workshop (video conference meeting)		
Marine habitat creation			
NatureScot & MD-LOT	18.12.2025 RAEI 01.10.2025 NatureScot EIAR representation	NatureScot noted that elements of this measure would be better delivered as a strategic measure.	The response to this topic can be found in **Section 6.7** where it is noted that the Applicant intends to propose this measure at national or strategic level.

6.3 UPDATED REQUIREMENT FOR COMPENSATION

6-16 The level of compensation required in the Offshore Ornithology Compensation Evidence Plan (as submitted with the EIAR) was based upon the predicted impacts to all SPAs for each feature, as advice from NatureScot on which SPA qualifying features had an AEOSI (or where this could not be excluded) had not been received at that time. Now that advice has been provided by NatureScot (01.10.2025) on which SPA qualifying features have an AEOSI (or where this could not be excluded) the level of compensation required for each species has been updated here.

6-17 For each species included in the Compensation Evidence Plan, a summary of the NatureScot advice (01.10.2025) on which SPAs have an AEOSI (or cannot be excluded) and the updated predicted impacts from the Proposed Offshore Development (as shown in **AEIR, Chapter 4: Offshore Ornithology**) are provided in **Sections 6.3.1** to **6.3.5**. It is important to note that NatureScot provided advice (01.10.2025) on the compensation measures based on the total predicted impact to all SPAs assessed in the RIAA and not only those where NatureScot have advised there is an AEOSI or an AEOSI cannot be ruled out. Thus, the predicted impact requiring compensation is smaller than provided in the without prejudice Derogation Case. Until MD-LOT have completed their Appropriate Assessment the exact compensation requirements will be uncertain. Advice from MD-LOT (by email 22.04.2026) stated that, if required following the Appropriate Assessment, a formal request for derogation will be issued and the Compensation Evidence Plan, Implementation Plan and Monitoring Plan will be updated, if necessary.

6.3.1 Kittiwake

6-18 NatureScot were unable to conclude No AEOSI for the following SPAs with breeding kittiwake as a qualifying feature:

- Buchan Ness to Collieston Coast SPA;
- East Caithness Cliffs SPA;
- Forth Islands SPA;
- Fowlsheugh SPA;
- North Caithness Cliffs SPA;
- Troup, Pennan & Lion's Heads SPA; and
- West Westray SPA.

6-19 The updated predicted impacts, as detailed in **AEIR, Chapter 4: Offshore Ornithology**, for each adult kittiwake population assessed are shown in **Table 6-2**. This shows that the annual predicted impact to SPAs that will need to be compensated is between 3.3 and 4.4 (rounded to 1 decimal place) birds per annum.

Table 6-2 Updated predicted impacts on adult kittiwakes from each population assessed. Bold text shows which SPAs NatureScot were unable to conclude No AEOSI. Seasonal definitions are provided in the EIAR Appendix 9.1 Offshore and Intertidal Ornithology Baseline. Displacement mortalities are provided for higher and lower displacement mortality values from NatureScot Guidance Note 8.

Population name	Displacement mortality scenario	Breeding adult impacts			
		Spring migration	Breeding season	Autumn migration	Annual total
Buchan Ness to Collieston Coast SPA	Higher	**0.151**	**0.594**	**0.044**	**0.790**
	Lower	**0.102**	**0.471**	**0.032**	**0.605**
Calf of Eday SPA	Higher	0.009	0.003	0.003	0.015
	Lower	0.006	0.003	0.002	0.011
Cape Wrath SPA	Higher	0.002	0.033	0.001	0.035
	Lower	0.001	0.026	0.000	0.028
Copinsay SPA	Higher	0.008	0.014	0.002	0.024
	Lower	0.005	0.011	0.002	0.018
East Caithness Cliffs SPA	Higher	**0.488**	**0.831**	**0.142**	**1.461**
	Lower	**0.328**	**0.659**	**0.105**	**1.092**
Fair Isle SPA	Higher	0.009	0.012	0.003	0.024
	Lower	0.006	0.009	0.002	0.017
Farne Islands SPA	Higher	0.042	0.023	0.012	0.077
	Lower	0.028	0.019	0.009	0.055
Forth Islands SPA	Higher	**0.037**	**0.063**	**0.011**	**0.111**
	Lower	**0.025**	**0.050**	**0.008**	**0.083**
Foula SPA	Higher	0.004	0.004	0.001	0.009
	Lower	0.003	0.003	0.001	0.007
Fowlsheugh SPA	Higher	**0.113**	**0.369**	**0.033**	**0.514**
	Lower	**0.076**	**0.292**	**0.024**	**0.392**
Handa SPA	Higher	0.000	0.035	0.000	0.035
	Lower	0.000	0.028	0.000	0.028
Hermaness, Saxa Ford and Valla Field SPA	Higher	0.005	0.000	0.001	0.006
	Lower	0.003	0.000	0.001	0.005
Hoy SPA	Higher	0.005	0.007	0.001	0.013
	Lower	0.003	0.006	0.001	0.010
Marwick Head SPA	Higher	0.006	0.024	0.002	0.032
	Lower	0.004	0.019	0.001	0.025
North Caithness Cliffs SPA	**Higher**	**0.123**	**0.212**	**0.036**	**0.370**
	Lower	**0.082**	**0.168**	**0.026**	**0.277**
North Rona and Sula Sgeir SPA	Higher	0.000	0.004	0.000	0.004
	Lower	0.000	0.003	0.000	0.003
Noss SPA	Higher	0.006	0.001	0.002	0.009
	Lower	0.004	0.001	0.001	0.006
Rousay SPA	Higher	0.021	0.009	0.006	0.036
	Lower	0.014	0.007	0.005	0.026

Population name	Displacement mortality scenario	Breeding adult impacts			
		Spring migration	Breeding season	Autumn migration	Annual total
St Abb's Head to Fast Castle SPA	Higher	0.041	0.044	0.012	0.097
	Lower	0.028	0.035	0.009	0.072
Sumburgh Head SPA	Higher	0.003	0.005	0.001	0.008
	Lower	0.002	0.004	0.001	0.006
Troup, Pennan and Lion's Heads SPA	Higher	**0.180**	**0.694**	**0.052**	**0.926**
	Lower	**0.121**	**0.551**	**0.039**	**0.710**
West Westray SPA	Higher	**0.146**	**0.036**	**0.042**	**0.223**
	Lower	**0.098**	**0.028**	**0.031**	**0.157**
Non-SPA colonies	Higher	0.845	0.302	0.245	1.392
	Lower	0.568	0.239	0.181	0.989
Regional population	Higher	2.243	3.320	0.651	6.214
	Lower	1.509	2.632	0.482	4.623
Compensation total	**Higher**	**1.238**	**2.799**	**0.360**	**4.395**
	Lower	**0.832**	**2.219**	**0.265**	**3.316**

6.3.2 Guillemot

6-20 NatureScot were unable to conclude No AEOSI for the following SPAs with breeding guillemot as a qualifying feature:

- Buchan Ness to Collieston Coast SPA; and
- Troup, Pennan & Lion's Heads SPA.

6-21 The updated predicted impacts, as detailed in AEIR **Chapter 4: Offshore Ornithology**, for each adult guillemot population assessed are shown in **Table 6-3**. This shows that the annual predicted impact to SPAs that will need to be compensated is between 30.4 and 71.0 (rounded to 1 decimal place) birds per annum.

Table 6-3 Updated predicted impacts on adult guillemots from each population assessed. Bold text shows which SPAs NatureScot were unable to conclude No AEOSI. Seasonal definitions are provided in the EIAR, Appendix 9.1: Offshore and Intertidal Ornithology Baseline. Displacement mortalities are provided for higher and lower displacement mortality values from NatureScot Guidance Note 8.

Population name	Displacement mortality scenario	Breeding adult Impacts		
		Breeding	Non-breeding	Annual total
Buchan Ness to Collieston Coast SPA	Higher	**10.216**	**18.451**	**28.667**
	Lower	**6.130**	**6.150**	**12.280**
Calf of Eday SPA	Higher	0.964	1.741	2.705
	Lower	0.578	0.580	1.159
Copinsay SPA	Higher	2.847	5.142	7.990
	Lower	1.708	1.714	3.423
Fair Isle SPA	Higher	3.536	6.386	9.922
	Lower	2.122	2.129	4.250
Hoy SPA	Higher	1.836	3.315	5.151
	Lower	1.101	1.105	2.207

Population name	Displacement mortality scenario	Breeding adult Impacts		
		Breeding	Non-breeding	Annual total
Marwick Head SPA	Higher	1.195	2.157	3.352
	Lower	0.717	0.719	1.436
Rousay SPA	Higher	0.934	1.687	2.620
	Lower	0.560	0.562	1.123
Sumburgh Head SPA	Higher	0.324	0.586	0.910
	Lower	0.195	0.195	0.390
Troup, Pennan and Lion's Heads SPA	Higher	**15.101**	**27.273**	**42.374**
	Lower	**9.061**	**9.091**	**18.152**
West Westray SPA	Higher	3.551	6.413	9.964
	Lower	2.130	2.138	4.268
Non-SPA colonies	Higher	0.296	0.534	0.830
	Lower	0.177	0.178	0.356
Regional population	Higher	40.800	73.686	114.486
	Lower	24.480	24.562	49.042
Compensation total	Higher	**25.317**	**45.724**	**71.041**
	Lower	**15.191**	**15.241**	**30.432**

6.3.3 Razorbill

6-22 NatureScot were unable to conclude No AEOSI for the East Caithness Cliffs SPA with breeding razorbill as a qualifying feature.

6-23 The updated predicted impacts, as detailed in AEIR Chapter 4: Offshore Ornithology, for each adult razorbill population assessed are shown in **Table 6-4.** This shows that the annual predicted impact to SPAs that will need to be compensated is between 1.3 and 2.2 (rounded to 1 decimal place) birds per annum.

Table 6-4 Updated predicted impacts on adult razorbills from each population assessed. Bold text shows which SPA NatureScot were unable to conclude No AEOSI. Seasonal definitions are provided in the EIAR, Appendix 9.1: Offshore and Intertidal Ornithology Baseline. Displacement mortalities are provided for higher and lower displacement mortality values from NatureScot Guidance Note 8

Population name	Displacement mortality scenario	Breeding adult impacts				
		Spring migration	Breeding	Autumn migration	Non-breeding	Annual total
East Caithness Cliffs SPA	Higher	0.015	**2.078**	**0.054**	**0.078**	**2.226**
	Lower	0.005	**1.247**	**0.018**	**0.026**	**1.296**
Fair Isle SPA	Higher	0.001	0.078	0.004	0.006	0.089
	Lower	0	0.047	0.001	0.002	0.05
North Caithness Cliffs SPA	Higher	0.002	0.567	0.007	0.011	0.586
	Lower	0.001	0.34	0.002	0.004	0.346
Troup, Pennan and Lion's Heads SPA	Higher	0.002	0.609	0.008	0.011	0.629
	Lower	0.001	0.365	0.003	0.004	0.372
West Westray SPA	Higher	0.001	0.046	0.002	0.003	0.053
	Lower	0	0.028	0.001	0.001	0.03
	Higher	0.012	0.679	0.043	0.062	0.798

Population name	Displacement mortality scenario	Breeding adult impacts				
		Spring migration	Breeding	Autumn migration	Non-breeding	Annual total
Non-SPA colonies	Lower	0.004	0.408	0.014	0.021	0.447
Regional population	Higher	0.033	4.057	0.118	0.171	4.38
	Lower	0.011	2.434	0.039	0.057	2.542
Compensation total	Higher	**0.015**	**2.078**	**0.054**	**0.078**	**2.226**
	Lower	**0.005**	**1.247**	**0.018**	**0.026**	**1.296**

6.3.4 Puffin

6-24 NatureScot were unable to conclude No AEOSI for the following SPAs with breeding puffin as a qualifying feature:

- Forth Islands SPA; and
- North Caithness Cliffs SPA.

6-25 The predicted impacts for each adult puffin population assessed are shown in **Table 6-5.** Note that NatureScot did not advise that these impacts needed to be updated and so the numbers in the Report to Inform Appropriate Assessment Part 3 – Assessment on Special Protection Areas and Ramsar Sites (see Table 5-33 therein) have been used here. **Table 6-5** shows that the annual predicted impact to SPAs that will need to be compensated is between 2.3 and 3.9 birds per annum.

Table 6-5 Updated predicted impacts on adult puffins from each population assessed. Bold text shows which SPAs NatureScot were unable to conclude No AEOSI. Displacement mortalities are provided for higher and lower displacement mortality values from NatureScot Guidance Note 8

SPA	Displacement mortality scenario	Annual mortality
Cape Wrath	High	0.2
	Low	0.1
Fair Isle	High	1.4
	Low	0.8
Forth Islands	High	**3.3**
	Low	**2.0**
Foula	High	0.3
	Low	0.2
Hoy	High	0.1
	Low	0.0
North Caithness Cliffs	High	**0.6**
	Low	**0.3**
Noss	High	0.1
	Low	0.1
Sule Skerry and Sule Stack	High	4.4
	Low	2.6
Compensation total	Higher	**3.9**
	Lower	**2.3**

6.3.5 Gannet

6-26 NatureScot were unable to conclude No AEOSI for the following SPAs with breeding gannet as a qualifying feature:

- Fair Isle SPA;
- Forth Islands SPA;
- Hermaness, Saxa Vord and Valla Field SPA;
- Noss SPA; and
- Sule Skerry and Sule Stack SPA.

6-27 The predicted impacts, as detailed in **AEIR, Chapter 4: Offshore Ornithology**, for each adult gannet population assessed are shown in **Table 6-6.** This shows that the annual predicted impact to SPAs that will need to be compensated is between 3.5 and 6.5 (rounded to 1 decimal place) birds per annum.

Table 6-6 Updated predicted impacts on adult gannets from each population assessed. Bold text shows which SPAs NatureScot were unable to conclude No AEOSI. Seasonal definitions are provided in the EIAR, Appendix 9.1: Offshore and Intertidal Ornithology Baseline. Displacement mortalities are provided for higher and lower displacement mortality values from NatureScot Guidance Note 8

Population name	Displacement mortality scenario	Breeding adult impacts			
		Spring migration	Breeding season	Autumn migration	Annual total
Fair Isle SPA	Higher	**0.033**	**0.52**	**0.078**	**0.63**
	Lower	**0.016**	**0.312**	**0.028**	**0.356**
Flamborough and Filey Coast SPA	Higher	0.093	0.138	0.224	0.455
	Lower	0.046	0.083	0.098	0.227
Forth Islands SPA	Higher	**0.465**	**2.048**	**1.126**	**3.639**
	Lower	**0.232**	**1.228**	**0.49**	**1.95**
Hermaness, Saxa Vord and Valla Field SPA	Higher	**0.204**	**0.412**	**0.395**	**1.012**
	Lower	**0.102**	**0.247**	**0.172**	**0.521**
North Rona and Sula Sgeir SPA	Higher	0	0.184	0.019	0.203
	Lower	0	0.11	0.008	0.119
Noss SPA	Higher	**0.082**	**0.575**	**0.159**	**0.815**
	Lower	**0.041**	**0.345**	**0.069**	**0.455**
St Kilda SPA	Higher	0	0.523	0.121	0.644
	Lower	0	0.313	0.053	0.366
Sule Skerry and Sule Stack SPA	Higher	**0**	**0.381**	**0.009**	**0.391**
	Lower	**0**	**0.229**	**0.004**	**0.233**
Non-SPA colonies	Higher	0.05	1.009	0.122	1.181
	Lower	0.025	0.605	0.053	0.683
Regional population	Higher	0.928	5.791	2.253	8.971
	Lower	0.462	3.473	0.975	4.91
Compensation total	Higher	**0.784**	**3.936**	**1.767**	**6.487**
	Lower	**0.391**	**2.361**	**0.763**	**3.515**

6.3.6 Summary

6-28 A short summary of the level of compensation needed for each species, that has been rounded up to the nearest whole bird is provided in **Table 6-7.** The level of compensation needed is very small relative to the SPA populations of each species (**Table 6-7**). For all species, including guillemot, the level of compensation required would unlikely be measurable at a population scale. Since the scale of the required compensation is so small, proportionate compensation should also be small. The Conservation of Habitats and Species (Offshore Wind) (Amendment etc.) Regulations 2026 state that, "Compensatory measures must benefit the UK MPA network in a manner which is reasonably proportionate to the adverse effects, or predicted adverse effects, of the relevant offshore wind plan or project on the integrity of the European site, European offshore marine site or Ramsar site". It follows therefore that the certainty provided by the available evidence that compensation would provide a sufficient benefit should also be proportionate to the risks to populations. Here, the predicted impacts from the project alone to SPA features that require compensation are sufficiently small that the difference is unlikely to be measurable.

Table 6-7 Summary of the level of compensation required for each species rounded up to the nearest whole bird. Displacement mortalities are provided for higher and lower displacement mortality values from NatureScot Guidance Note 8.

Species	Lower mortality	Higher mortality	Total population size of SPAs requiring compensation	Percentage of population requiring compensation	
				Lower mortality	Higher mortality
Kittiwake	4	5	181,702	0.0018%	0.0024%
Guillemot	31	72	88,482	0.0344%	0.0803%
Razorbill	2	3	45,194	0.0029%	0.0049%
Puffin	3	4	91,924	0.0025%	0.0042%
Gannet	4	7	240,450	0.0015%	0.0027%

6-29 The advice provided by NatureScot (01.10.2025) was based upon larger predicted compensation requirements. Their advice was based on the RIAA and Derogation Case documents that assumed the total impact to all SPAs from the project alone would be needed. The updated assessment described here shows a much lower requirement for compensation (**Table 6-8**).

Table 6-8 The difference in the compensation requirement from the Proposed Offshore Development alone between the derogation case as submitted and the updated estimate shown here.

Species	Derogation case compensation requirement		Updated compensation requirement (AEIR)	
	Lower mortality	Higher mortality	Lower mortality	Higher mortality
Kittiwake	23	26	4	5
Guillemot	0	94	31	72
Razorbill	10	15	2	3
Puffin	3	10	3	4
Gannet	0	8	4	7

6.4 MEASURE 1 - MANAGEMENT OF MARINE LITTER

6-30 NatureScot have commented on the application of the removal of marine litter as a compensation measure. The representation made by NatureScot to MD-LOT (01.10.2025), stated:

> *"We can agree that both plastic ingestion and entanglement are an issue for seabirds, however, it is generally quite difficult to quantify the effects in relation to compensation"*
>
> *"…this report does not quantify the impact [from plastic ingestion] in any way, instead focusing on using entanglement records only to see which species are impacted"*
>
> *"Further justification and explanation of the NEEOG figures should be provided, or other evidence of entanglement, to support the values presented."*
>
> *"We highlight uncertainties around the predictions of benefit and consider that in order to determine the effectiveness of the measure, further work is required in order to improve the accuracy of the calculations"*
>
> *"We have some confidence in taking forward this measure for gannet, as evidence exists to support entanglement being an issue for this species. However, we consider that for other species further evidence is required regarding entanglement to be convinced that it could be effective for kittiwake, razorbill, puffin and guillemot.*
>
> *Should this measure be relied upon to compensate for impacts arising from the Proposed Development, then we require further clarification on the points discussed above. Noting that marine litter is one of the LOTs being considered as part of the Portfolio of Seabird Compensation Measures."*

6-31 Overall, while NatureScot agree that plastic pollution is a pressure on seabird populations, it is difficult to quantify at present. Still, it is acknowledged that this is a known issue for seabirds. However, given the very small predicted level of compensation required for each species (**Section 6.3**), it is logical that any removal of plastic from relevant marine environments will be beneficial for the species and populations requiring compensation at the very small scale required.

6-32 More recent published examples of evidence of entanglement with the species requiring compensation could not be found. However, sampling of the key species requiring compensation has found ingested plastics in kittiwake (Baak *et al*. 2020, Franco *et al*. 2019, Acampora *et al*. 2017), guillemot (Franco *et al*. 2019, Bond *et al*. 2013), razorbill (Murano *et al*. 2024, Trapletti-Lanti *et al*. 2025), puffin (Trapletti-Lanti *et al*. 2025, Franco *et al*. 2019) and gannet (Trapletti-Lanti *et al*. 2026, Basto *et al*. 2019, Franco *et al*. 2019, Pierce *et al*. 2004). Murphy *et al*. (2025) showed that there was a 90% chance of mortality associated with only 23 pieces of ingested plastic (0.098 cm^3/cm) in seabirds.

6-33 By removing macroplastics from habitats used by the key species requiring compensation, the proposed measure will reduce the source material from which microplastics are generated through fragmentation and degradation. This is likely to decrease the exposure of

these species to microplastics, which can be ingested and may contribute to adult mortality. Although the magnitude of this benefit is difficult to quantify, it is clear that reducing macroplastic pollution will also reduce the generation and availability of microplastics, thereby providing a positive outcome for these species. The level of compensation required is, however, very small.

6-34 NatureScot's advice on the difficulties in measuring the entanglement mortality in macroplastics (01.10.25) are noted, but there is strong evidence that marine plastic pollution causes mortality and other adverse effects in seabirds (Savoca *et al*. 2026, de Jersey *et al*. 2025). Consequently, reducing macroplastic pollution would logically reduce exposure to plastic ingestion and entanglement, thereby lowering a recognised source of mortality and improving conditions for affected species. However, direct evidence linking plastic removal to measurable increases in seabird population size remains limited because population trends are influenced by multiple interacting pressures.

6-35 It was noted that, a "number of assumptions are made in the calculations presented and that these can only be indicative" and that, "In calculating compensation benefits a linear relationship is used between plastic removal and reduction in mortality i.e. 5% less plastic means 5% less mortality. It would seem more likely that the benefits would increase exponentially as the removal % went up, with very little effect with very low % reductions" (advice provided by NatureScot on 28 April 2026). However, the level of compensation required for each species is sufficiently small that empirically measuring the benefit at the scale of compensation required is unlikely to be successful. Given the very small scale of compensation required, contributing to the removal of marine plastic pollution from the habitats used by the species requiring compensation would very likely provide sufficient benefit when combined with the other measures proposed. As discussed in the Implementation and Monitoring Plan, this measure is proposed to be secured through funding a suitable marine litter removal organisation (i.e. Fishing for Litter).

6-36 NatureScot noted that, "*This is one of the measures being considered in the portfolio of compensation measures, as a strategic measure, and may be better taken forward at that level*." (advice provided 28 April 2026). Whilst acknowledging this measure may become a strategic measure in the portfolio of measures, the Applicant intends to propose it at a regional (NEEOG) or national (MRF) strategic level now that the Scottish Statutory Instrument [The Conservation of Habitats and Species (Offshore Wind) (Amendment etc.) Regulations 2026] amending the Habitats Regulations has been enacted.

6.4.1 Removal of marine litter from gannet nesting colonies

6-37 There are multiple published studies showing that gannets in particular incorporate marine litter into nests (O'Hanlon *et al.* 2019, Montevecchi 1991, Bond *et al.* 2012). In addition, an associated mortality from this behaviour has been reported by Votier *et al.* (2011). Furness & Furness (2025) suggested that seaweed farming near gannet colonies could represent a suitable compensation measure by providing a suitable natural alternative to marine litter as a nesting material.

6-38 Votier *et al*. (2011) found that, on average 65.63±26.05 (range 33–109) birds on Grassholm in Wales were entangled with plastic nesting material each year. Of these birds 75% to 100% were fully grown nestlings. It was estimated by Votier *et al*. (2011) that entanglement on

Grassholm in the breeding season resulted in approximately 0.04% of the adult population and 0.34% of the juvenile population being impacted each year.

6-39 To estimate the potential mortality caused by marine litter entanglement, the percentage of nests with marine litter at each SPA colony with connectivity to the Proposed Offshore Development was obtained from O'Hanlon *et al.* (2019). By multiplying this percentage by the adult and juvenile population size (assumed to be half the adult populations size as gannets have one chick per pair) and then by the mortality rates from Votier *et al.* (2011), an estimate was made of the number of adults and number of juveniles impacted by marine litter at each colony in each year (**Table 6-9**). O'Hanlon *et al*. (2019) did not provide an estimate of the percentage of nests containing marine litter for the colonies in the North Rona and Sula Sgeir SPA, so no estimate was made for this SPA.

6-40 This approach is relatively simple, which has some advantages,, such as its transparency, and contains some important assumptions. The adjustment made to take account of the percentage of nests containing marine litter was made as O'Hanlon *et al*. (2019) estimated that 100% of the nests on Grassholm contained some marine litter. Therefore, the estimated additional mortality to adult and juvenile birds from Votier *et al*. (2011) would likely have been an overestimate without an adjustment for the number of nests where entanglement may occur. In the absence of other empirical evidence, it is assumed that this adjustment is reasonable. Votier *et al.* (2011) noted that their estimated mortality rates are likely to be underestimates, so it is assumed that the calculations here are precautionary. While it is assumed that the number of juveniles was half the adult population size, as each pair have one chick, there is natural mortality of chicks through the breeding season and the total mortality from entanglement seems likely to increase as the breeding season progresses.

Table 6-9 Estimated mortality from marine litter entanglement at each SPA with gannet as a qualifying feature with connectivity to the Proposed Offshore Development.

SPA	% nest with debris*	Adult population size	Estimated juvenile population size	Estimated impact		
				Adults	Juveniles	TOTAL
Fair Isle	53	9,654	4,827	7.3	8.7	16.0
Noss	46	24,670	12,335	21.5	19.3	40.7
Sule Skerry and Sule Stack	25	18,130	9,065	29.0	7.7	36.7
Forth Islands	22	150,518	75,259	273.7	56.3	330.0
Hermaness, Saxa Vord and Valla Field	47	37,478	18,739	31.9	29.9	61.8
North Rona and Sula Sgeir	No information	18,990	9,495	n/a	n/a	n/a
St Kilda	82	120,580	60,290	58.8	168.1	226.9
Flamborough & Filey Coast	67	26,784	13,392	16.0	30.5	46.5
Total				**438.1**	**320.5**	**758.7**

* Values from O'Hanlon *et al*. 2019.

6-41 The calculations show that between 16 (Fair Isle) and 330 (Forth Islands) gannets (adults and juveniles) could be impacted at each colony in each year (**Table 6-9**). Across all of the

colonies (except North Rona and Sula Sgeir) a total of 438 adult gannets and 320 juvenile gannets could be negatively affected by marine litter entanglement each year. Therefore, there is good evidence that management measures that reduce this impact are likely to be suitable as a compensation measure for gannets. Removing marine litter from any of the gannet colonies listed in **Table 6-9** would therefore likely be sufficient to compensate for the predicted impact needing compensation of 4 – 7 adult birds. Given that all the all of the predicted effects of plastics on gannet populations in **Table 6-9** exceeds the level of compensation required, funding a strategic approach to litter management in gannet colonies would be the most appropriate approach to take.

6.5 MEASURE 2 - ARTIFICIAL NESTING STRUCTURE FOR KITTIWAKE (ANS)

6-42 NatureScot stated in their letter to MD-LOT 01 October 2025 that:

"we do not currently support this measure"

6-43 Based on the updated predicted level of impact that may require compensation shown in **Section 6.3.1**,the Applicant does not think that this measure is necessary nor proportionate to the risk from the Proposed Offshore Development to the UK SPA site network. As such this measure has been removed from the package of compensation measures being proposed.

6.6 MEASURE 3 - ADDITIONAL MANAGEMENT MEASURES AT PROTECTED SITES

6-44 NatureScot noted in their letter to MD-LOT 01 October 2025 that:

> "*Very little detail is provided about this measure to enable us to make an assessment of its value*" that, "*Invasive non-native plant species seem unlikely to be of particular concern*" "*Fly tipping also seems likely to be only of minor concern*" that, "*Alteration of watercourses draining onto sea cliffs to provide additional nesting habitat is mentioned*" and that, *"A compensation measure targeted at HPAI impact minimisation would be reactive and dependent on outbreaks occurring in the future at specific sites. As such its benefits are not really identifiable or measurable*".

6-45 Considering the comments from NatureScot and the re-assessed level of compensation required (**Section 6.3**), the Applicant intends to remove these management actions from this measure as they are not required.

6-46 However, NatureScot also noted that, "*We can accept that anthropogenic disturbance can be an issue, but more detail is required about impacts at specific sites to be targeted by this measure*" and that, "*Eradication/suppression of mammalian predators is a measure being adopted widely*". Consequently, based on feedback from NatureScot and the revised, and small, levels of compensation required in **Section 6.3.6**, this measure will be reduced to:

- Reduction of disturbance from anthropogenic sources; and
- Suppression of predators.

6-47 NatureScot advised (01.10.2025) that, "*in our view, for this to act as a compensation measure the management will need to be identified in advance of implementation so that the sufficiency and effectiveness of the proposed management measures can be determined and quantified at an early stage. This would need to be provided in a detailed seabird*

compensation plan, post consent. At present, there is no information which quantifies the benefits of the measure."

6-48 These measures are discussed in further detail in the sections presented below.

6.6.1 Reduction of Disturbance from Anthropogenic Sources

6-49 The Applicant proposes that pilot studies are completed to inform future baseline studies to determine whether there are anthropogenic disturbance pressures and predator pressures on the relevant features of the Buchan Ness to Collieston Coast SPA (i.e. kittiwake, guillemot, and razorbill). Pilot study methods to collect detailed information on anthropogenic disturbance will be developed in consultation with relevant stakeholders (including MD-LOT, NatureScot and any relevant land managers). Supporting fieldwork would propose to be undertaken in 2027 with baseline studies being completed in subsequent breeding seasons prior to the operation of WTGs. The results of the pilot study will be used to inform the baseline and post-construction monitoring methods, in consultation with NatureScot and MD-LOT.

6.6.2 Estimating Potential Benefit To Visitor Management

6-50 Additional information is provided below on a predicted benefit to kittiwake and guillemot from visitor management at the Buchan Ness to Colliestion Coast SPA. The only published measured effect of visitor management on the seabirds of interest found in a literature search was Beale & Monaghan (2004). This study was conducted at the seabird colony at St Abb's head, which is a similar mixed species colony to that at Buchan Ness to Collieston Coast. While the Buchan Ness to Collieston Coast SPA is not managed, the St Abb's head colony is managed by the National Trust for Scotland.

6-51 Beale & Monaghan (2004) studied the effects of visitors to the seabird colony as predation-free predators and modelled the perceived predation risk by guillemots and kittiwakes. Their results predicted the change in breeding success of nesting guillemots and kittiwakes to relative change in visitor disturbance (**Figure 6-1**).

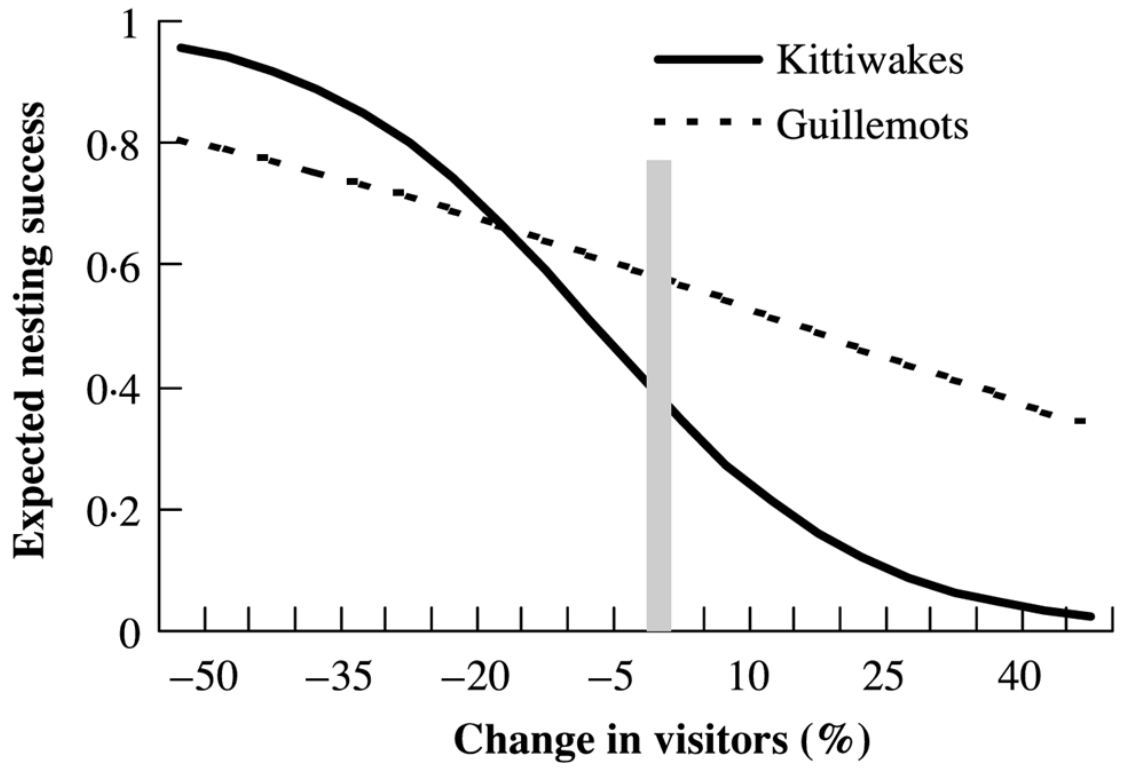


Figure 6-1 The overall relationships identified between human disturbance and nesting success in kittiwakes and guillemots at St Abbs Head National Nature Reserve, Scotland. Shaded bar represents current visitor numbers. (From Beale & Monaghan 2004)

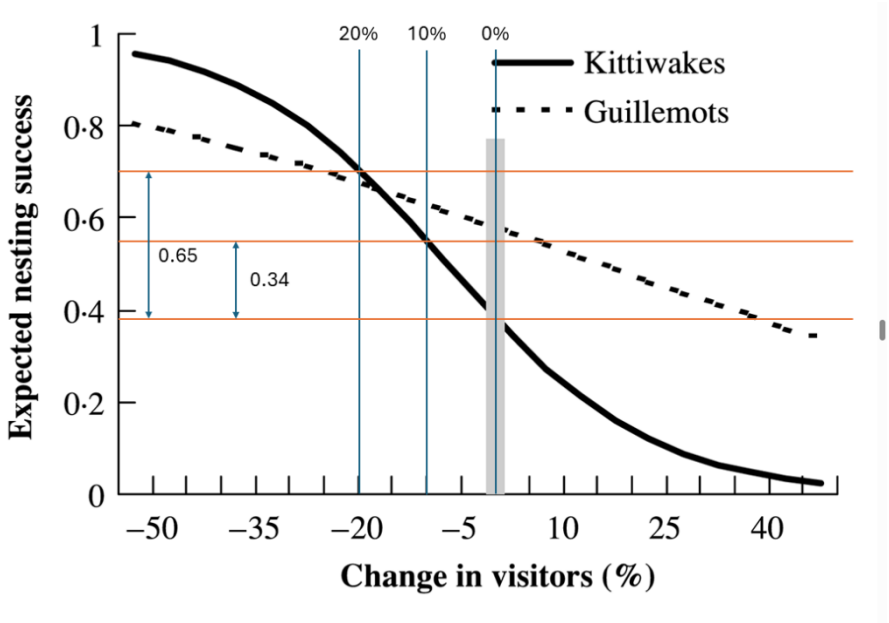
6-52 Using the information from Beale & Monaghan (2004) the predicted change in breeding success was estimated for a 10% and 20% reduction in visitor numbers (actually visitor impacts). The 10% and 20% reduction in visitor numbers were chosen arbitrarily based on the assumption that these values would be achievable as management aims. The change in visitor numbers would need to be included in the monitoring and adaptive management plan. It is important to note that the change that management would need to achieve is a change in visitor numbers that results in a reduction in disturbance to each species. However, the "change in visitors" in Beale & Monaghan (2004) refers to the "people load", defined as the average of the number of people minutes per hour (number of people multiplied by the number of minutes they are present over a 60 minute interval) divided by the distance to the viewpoint. This value is not only referring to the change in the number of visitors by the people minutes (i.e. the total number of people divided by the time spent at a specific viewpoint) and the distance between the viewpoint and the nesting birds. There were two approaches taken to this:

1. Apply the change in expected nesting success from the 0% change in visitors from Figure 1 in Beale to the 10% and 20% reduction in visitor numbers, hereafter referred to as the "St Abb's Approach" **(Figure 6-2).**

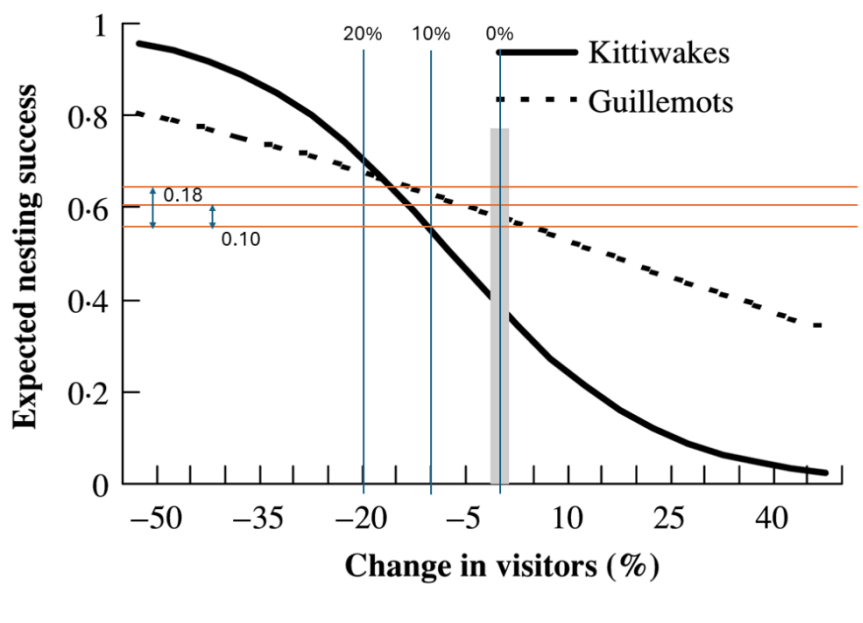
   However, this approach is based on relatively low expected nesting success at the 0% change in visitors in Beale & Monaghan (2004) Figure 1. So, a second approach was also applied.

2. Use the productivity values from **Volume 3, Appendix 9.5 Ornithology Population Viability Analysis (PVA) Report** of the EIAR as the baseline on Figure 1 from Beale & Monaghan (2004) and then apply a 10% and 20% reduction in visitors and estimate the predicted change in productivity from the relationships for each species, hereafter the "Productivity approach" (**Figure 6-3**).

6-53 For each of these approaches two outputs were derived: the number of additional chicks per annum for each species using each approach for a 10% and 20% reduction in visitor numbers, and a PVA to project the change in breeding adults in the Buchan Ness to Collieston Coast SPA for each species from each approach.

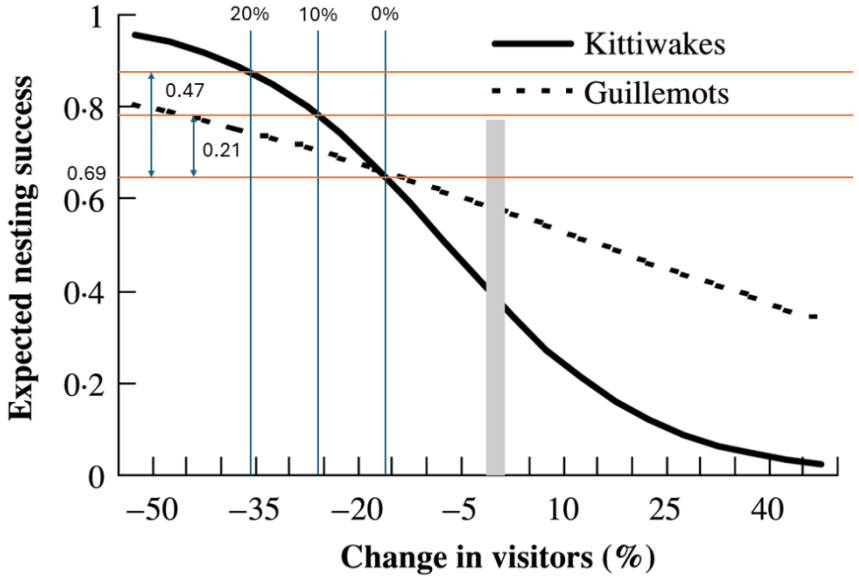


Kittiwake based on St Abb's Head 0% change in visitors

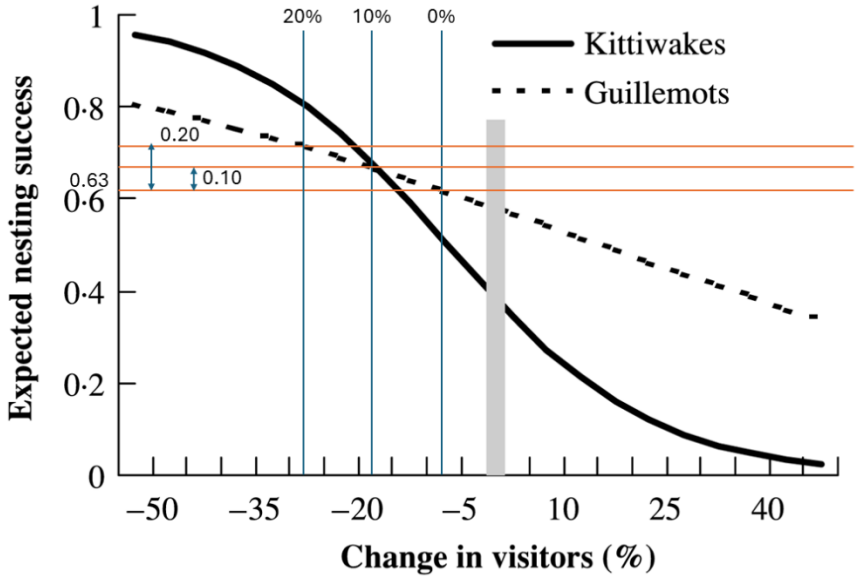


Guillemot based on St Abb's Head 0% change in visitors

Figure 6-2 Predicted change in expected nesting success from a 10% and 20% reduction in visitor numbers. Based on model results from Beale & Monaghan (2004). Based on the St Abb's Approach.



Kittiwake based on 0% change in visitors at 0.69 chicks per pair



Guillemot based on 0% change in visitors at 0.63 chicks per pair

Figure 6-3 Predicted change in expected nesting success from a 10% and 20% reduction in visitor numbers. Based on model results from Beale & Monaghan (2004). Based on the Productivity Approach.

6.6.2.1 Results

6-54 Using the predicted change in productivity using the St Abb's Approach, the model by Beale & Monaghan (2004) predicted a 10% reduction in visitor numbers would result in an increase in kittiwake productivity from 0.690 chicks per pair to 1.034. Reducing visitor numbers by 20% was predicted to increase kittiwake productivity to 1.344 chicks per pair. For guillemot the predicted increase in productivity was from 0.629 chicks per pair to 0.728 if visitor numbers were reduced by 10% and to 0.806 if visitor numbers were reduced by 20% (**Table 6-10)**.

Table 6-10 Predicted productivity of kittiwakes and guillemots from a 10% and 20% reduction in visitor numbers using the St Abb's approach.

Species	Baseline chicks per pair	Predicted chicks per pair from a 10% reduction in visitors	Predicted chicks per pair from a 20% reduction in visitors
Kittiwake	0.690	1.034	1.344
Guillemot	0.629	0.728	0.806

6-55 Using the predicted change in productivity using the Productivity Approach, the model by Beale & Monaghan (2004) predicted that a 10% reduction in visitor numbers would result in an increase in kittiwake productivity from 0.690 chicks per pair to 0.900. Reducing visitor numbers by 20% was predicted to increase kittiwake productivity to 1.584 chicks per pair. For guillemot productivity the predicted increase in productivity was from 0.629 chicks per pair to 0.733 if visitor numbers were reduced by 10% and to 0.825 if visitor numbers were reduced by 20% **(Table 6-11)**.

Table 6-11 Predicted productivity of kittiwakes and guillemots from a 10% and 20% reduction in visitor numbers using the Productivity Approach.

Species	Baseline chicks per pair	Predicted chicks per pair from a 10% reduction in visitors	Predicted chicks per pair from a 20% reduction in visitors
Kittiwake	0.690	0.900	1.584
Guillemot	0.629	0.733	0.825

6-56 Applying these changes in productivity to the populations in the Buchan Ness to Collieston Coast SPA (Kittiwake = 27,094 individual adults, guillemot = 40,763 individual adults) results in large number of additional chicks per annum from the colony regardless of the approach taken (**Table 6-12**). If the visitor impact was reduced by 10% it was predicted the there would be 2,845 to 4,660 additional kittiwake chicks fledged and between 1,251 and 1,187 additional guillemot chicks fledged per annum.

Table 6-12 Predicted number of additional chicks from the Buchan Ness to Collieston Coast SPA from a 10% and 20% reduction in visitor numbers using the model predictions from Beale & Monaghan (2004).

Species	Baseline condition	Population size (individuals)	Baseline productivity	Baseline chicks per annum	Productivity @ 10%	Additional chicks @ 10%	Productivity @ 20%	Additional chicks @ 20%
Kittiwake	St Abb's Approach	27,094	0.690	9,347	1.034	4,660	1.344	8,860
Kittiwake	Productivity Approach	27,094	0.690	9,347	0.900	2,845	1.584	12,111
Guillemot	St Abb's Approach	23,972	0.629	7,539	0.728	1,187	0.806	2,120
Guillemot	Productivity Approach	23,972	0.629	7,539	0.733	1,251	0.825	2,346

6-57 To determine if these predictions would result in an increase in the number of breeding adults in the SPA, PVA models were run for each approach for the first 20 years following visitor management action. The results of these PVAs (using the same input parameters as Appendix 9.5 Ornithology Population Viability Analysis Report) showed that there was no change in population size for the first three years for kittiwake and five years for guillemot (**Table 6-13**). This was due to the assumption in the PVA that the population was closed. Therefore, change in the population size was only due to the intrinsic increase in the population from additional fledged birds occurring due to visitor management and a delay is caused by the age at first breeding used in the PVA model.

6-58 It is clear from **Table 6-13** that as soon as fledged birds that survived to breeding age recruit to the population, the size of the breeding population was projected to increase rapidly, and well above the level of level of compensation required for each species (kittiwake = 5 individual adults per annum, guillemot = 72 individual adults per annum).

Table 6-13 Projected number of additional pairs of adult kittiwakes and guillemots in Buchan Ness to Colliestion Coast SPA from changes in productivity resulting from visitor management

Years from management action	Additional pairs of kittiwake				Additional pairs of guillemot			
	St Abb's Approach		Productivity Approach		St Abb's Approach		Productivity Approach	
	10% visitor reduction	20% visitor reduction	10% visitor reduction	20% visitor reduction	10% visitor reduction	20% visitor reduction	10% visitor reduction	20% visitor reduction
0	-1	3	-1	-1	-3	0	-3	-3
1	-2	1	-2	-2	-2	0	-3	-3
2	-1	2	-1	-1	-2	-1	-3	-4
3	-1	1	0	-1	-1	0	-3	-5
4	2,742	4,781	1,685	3,681	-2	-1	-3	-6
5	5,135	8,944	3,156	6,894	-1	0	-2	-5
6	7,216	12,555	4,435	9,682	473	821	498	895
7	9,034	15,710	5,553	12,124	932	1,617	982	1,766
8	11,550	20,645	6,987	15,709	1,377	2,390	1,452	2,611
9	14,537	26,889	8,632	20,089	1,810	3,142	1,910	3,432
10	17,885	33,993	10,445	25,041	2,229	3,869	2,353	4,227
11	21,391	41,621	12,322	30,285	2,641	4,585	2,788	5,010
12	25,291	50,490	14,347	36,249	3,101	5,393	3,274	5,895
13	29,686	61,069	16,556	43,157	3,605	6,290	3,809	6,879
14	34,599	73,366	18,962	51,036	4,154	7,263	4,390	7,951
15	39,965	87,406	21,523	59,829	4,736	8,308	5,009	9,100
16	45,966	103,668	24,319	69,833	5,354	9,418	5,665	10,323
17	52,638	122,607	27,348	81,196	6,003	10,591	6,351	11,618
18	60,094	144,516	30,649	94,139	6,693	11,842	7,085	13,000
19	68,304	169,747	34,188	108,703	7,425	13,178	7,861	14,478
20	77,454	199,115	38,031	125,283	8,199	14,596	8,682	16,046

6.6.2.2 Assumptions and limitations

6-59 Several important assumptions are made in this assessment.

6-60 It was assumed that the model outputs from Beale & Monaghan (2004) can be applied to the population in the Buchan Ness to Colliestion Coast SPA. It is important to note that Beale (2007) found that the model could not be validated from data from kittiwake colonies in Orkney, but broadly a similar response was found for guillemot. There is therefore uncertainty in whether the model from Beale & Monaghan (2004) would apply at Buchan Ness to Colliestion Coast SPA and therefore post-consent monitoring of the effects of visitor disturbance, and the benefits of its reduction would need to be undertaken.

6-61 It has been assumed here that the visitor management would apply to the whole of both species populations in the Buchan Ness to Colliestion Coast SPA. It is likely that only part of the SPA is subject to visitor pressure (particularly Bullers of Buchan and Longhaven) and so the predicted benefit is likely an overestimate. However, the predicted benefit, even based on only a 10% reduction in the impacts from visitors and the smallest benefit from the information extracted from the Beale and Monaghan (2004) model, is considerably larger than the level of compensation required.

6-62 The population model used in the PVA has multiple assumptions made within it. The key assumption likely to be important is that the population is closed. In reality, the populations being assessed here will be open, with immigration and emigration occurring. In an open population, the reduction in the pressure from visitor management may result in increased immigration into the population, as higher quality nest sites, with reduced human disturbance, become available. Another assumption is that there is no density dependence in the population. Therefore, the modelled population is able to grow unencumbered by important population limitations, such as available nesting habitat and food resources. In reality, the exponential growth seen in the population will not occur due to density dependent processes acting on the populations of kittiwake and guillemot.

6.6.2.3 Conclusions

6-63 The application of the Beale and Monaghan (2004) model gives a broad indication that reducing the pressures from visitors by as little as 10% is likely to result in strong benefits to kittiwake and guillemot populations. Given the very small level of compensation required, the uncertainties in this approach are a relatively low risk that the proposed measure would be insufficient.

6-64 In addition to benefiting kittiwake and guillemot it is likely that better management of visitors to the Buchan Ness to Colliestion Coast SPA will result in benefits to other species, including razorbill (also a feature of the SPA) and puffin (not a feature of the SPA, but present in small numbers, 136 counted in 2025, in the Bullers of Buchan Coast SSSI).

6.6.3 Suppression of Predators

6-65 The Applicant discussed the potential for corvid predation of eggs and/or chicks to be a potential predator pressure on the features of the Buchan Ness to Collieston Coast SPA with NatureScot [workshop 31 March 2026]. NatureScot agreed that the suppression of corvids was a potentially

beneficial measure. Additional information on this potential source of pressure is therefore provided below.

6-66 Anecdotal evidence of corvid predation on seabirds suggests that where breeding pairs are close to colonies they may predate the eggs and chicks of open nesting seabirds. There is very little published information on this effect, however. This may be due to the small scale of any effect of corvids on populations of cliff nesting seabirds. However, in the circumstances here, small scale predation may be of the similar scale to the small scale of predicted impacts from the Proposed Offshore Development on some cliff nesting seabird species. The negative effects of food availability on nest attendance by kittiwakes has been shown to increase vulnerability to nest predation by large gulls (Regehr & Montevecchi 1997), so this mechanism may also be likely to result in increased vulnerability to predation by corvids. It is therefore logical that other factors that affect nest attendance, such as anthropogenic disturbance, would also increase vulnerability to nest predation, potentially also from corvids. The Supplementary Advice on the Conservation Objectives for the Flamborough and Filey Coast SPA noted that, "*Predation of juvenile and adult birds by carrion crow (Corvus corone) and peregrine falcons (Falco peregrinus) is known to occur, particularly around Filey Brigg and the Briel Newk section of Flamborough Head*.". Ravens have been shown to predate kittiwake chicks in Norway (Tella *et al*. 1995).

6-67 Carrion crows have been recorded taking guillemot eggs in the UK (Birkhead 1974, Birkhead 1977). In Japan large-billed crows (*Corvus macrorhynchos*) have been shown to be an important predator of common guillemots, resulting in population scale pressure. Removing that pressure was shown by Hasebe *et al*. 2026 to have a positive effect on guillemot population size at the affected colonies. Ravens have also been recently recorded taking guillemot chicks in the UK (e.g. https://www.durlston.co.uk/guillemots)

6-68 While cavity nesting razorbills are likely to be less vulnerable to nest predation by corvids, many nests are on open ledges in mixed colonies with guillemots and kittiwakes. There is very little published information on corvid predation of razorbill eggs or chicks, though there are more generic comments on corvids being important nest predators in general texts (e.g. Birds of the World).

6-69 Based on the small number of predicted impacts requiring compensation the Applicant therefore proposes that this element of the measure is constrained to corvid predation, and a pilot study will be completed to inform this part of the measure. Pilot study methods to determine if more detailed information on predation could be collected will be developed in consultation with NatureScot with fieldwork being undertaken in 2027 and with baseline studies being completed in subsequent breeding seasons prior to the operation of WTGs.

6.6.4 Pilot Studies

6-70 The proposed pilot studies aim to provide initial information on the potential levels of visitor disturbance and corvid predation on the qualifying features of the Buchan Ness to Collieston Coast SPA. In addition, the pilot studies will be used to refine further baseline study methods to gather the evidence needed to demonstrate that the compensation measures are providing sufficient benefit, along with the other proposed compensation measures, to overcome the predicted impacts on the project alone. It is important to note that prior to the Appropriate

Assessment being completed there is some uncertainty about the level of benefit required. Pilot study methods will be provided in detail and shared with relevant stakeholders (including MD-LOT, NatureScot and any relevant land managers). Any feedback will be incorporated into updated methods.

6-71 As detailed in the Implementation and Monitoring Plan submitted alongside the EIAR, as part of adaptive management, where measures are deemed to be potentially unsuccessful against the required standard to meet site-specific objectives to compensate for impacts from the Proposed Offshore Development, adaptations will be made to each proposed measure or new measures will be developed in consultation with NatureScot. The pilot studies will therefore look to inform the potential success of measures proposed.

6-72 The pilot study to inform the visitor management element of this measure will collect information on the location and numbers of visitors at key times (e.g. weekends, warm weather periods, bank holidays) in the Buchan Ness to Collieston Coast SPA. The locations of visitor concentrations will be compared with current nesting seabirds or potential nesting locations that are not currently occupied. These data will provide an indication of suitable locations for baseline and post-management implementation studies. These studies will be strongly based on the methodology of Beale & Monaghan (2004), allowing validation of the predictions made here and empirical estimates of the benefits to kittiwake and guillemot populations. These studies will be extended to other relevant species (e.g. razorbill) in the SPA, if this is possible.

6-73 The pilot study to inform the management of corvid predation will collect information on the nesting and potential nesting locations of relevant corvids and suitable locations for monitoring corvid predation on seabirds in the Buchan Ness to Collieston Coast SPA. Initial discussions with landowners will be conducted to determine whether removal of corvid nests in close proximity of seabird colonies would be feasible and if landowners would be amenable to ongoing management of nesting corvids. The pilot study will also inform baseline and post-management implementation studies.

6.7 MEASURE 4 – MARINE HABITAT CREATION

6-74 NatureScot stated in their letter to MD-LOT 01 October 2025 that, “

> “*We agree that they are not feasible as stand-alone measures but could add to a package of measure in a qualitative way and that there could be merit in some of elements of these options. However, we are unable to come to view based on the information provided. Should the Applicant need to rely on project specific compensation rather than their preferred option of the MRF, then we advise this measure is revisited.”*

6-75 NatureScot also noted that, *“This is another measure that may be more appropriate to deliver as a strategic measure.*” (advice provided 28 April 2026).

The Applicant intends to propose this measure at a regional (NEEOG) or national (MRF) strategic level now that the Scottish Statutory Instrument [The Conservation of Habitats and Species (Offshore Wind) (Amendment etc.) Regulations 2026] amending the Habitats Regulations has been enacted in May 2026. The Applicant is also investigating project specific and strategic level

compensation measures for marine habitat creation that could be adopted if required including Nature Inclusive Design solutions embedded in project design, and potential contribution to habitat enhancement organisations. Detail on the proposals will be developed in consultation with NatureScot.

6.8 SUMMARY OF CONCLUSIONS

6-76 This chapter of the AEIR has provided targeted additional information relating to compensation measures for seabird SPAs predicted to be impacted by the Proposed Offshore Development. It has shown that the need for compensation is small and therefore it is likely that the proposed measures would be sufficient and proportionate.

6-77 Following any further advice from stakeholders and the completion of the Appropriate Assessment by the Competent Authority, the Compensation Evidence Plan and Implementation and Monitoring Plan will be updated by the Applicant and provided to the Competent Authority as described in **Section 6.1.3**.

6-78 Pilot studies will be designed to collect further data on additional management measures, if required. Methods will be shared with MD-LOT, NatureScot and other relevant stakeholders and updated based on feedback received. These will be planned for the 2027 breeding season. The results from the Pilot Studies will inform the iterative management process, including any updates needed to methodologies for baseline and post-construction monitoring. Baseline and post-construction monitoring studies will inform the adaptive management plan and the ongoing duty to maintain the coherence of the UK site network.

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APPENDIX 6.1 – CONSULTATION LOG

This appendix provides a comprehensive record of consultation undertaken with NatureScot during the determination phase relevant to the Shadow Derogation Case AEIR.

Consultee's response	**Response from applicant**
We note the Applicants preference to use a future Marine Recovery Fund (MRF) and in-line with interim guidance we welcome that the Applicant has also initiated consideration of compensation measures. Until the Scottish MRF and Scotland's Portfolio of Compensatory Measures are operational, we request ongoing involvement to advise on the ecological effectiveness of any project specific compensation measure(s).	Noted, consultation with NatureScot on compensation measures will continue.
Given our concerns regarding the derivation of compensation requirements from the mortality values provided within the RIAA, we are unable to advise on the sufficiency of the measures presented currently. As such, we have focused our advice on the ecological feasibility of proposed compensation measures, which have been outlined by the Applicant should the MRF not be available. Further advice is provided in Appendix G.	Responses requested will be provided in the Additional Environmental Information Report.
As such, we advise a derogation case is required, please see Appendix G for our advice on the compensation measures proposed as part of a without prejudice derogation case by the Applicant.	Noted.
The Applicant has submitted a derogation case alongside the s36 and Marine Licence Applications for the proposed Buchan Offshore Wind Farm. This derogation case is provided on a without prejudice basis, and includes the following documents: • Offshore Ornithology Compensation Evidence Plan • Outline Offshore Ornithology Compensation Implementation & Monitoring Plan We have considered the Offshore Ornithology Compensation Evidence Plan and the Outline Offshore Ornithology Compensation Implementation & Monitoring Plan. In the most part, our advice within this Appendix is based on these two Reports.	Noted.

Consultee's response	Response from applicant
In the absence of the publication of the Sectoral Marine Plan for Offshore Wind Energy (anticipated March 2026) we provide advice on project-specific compensation. We are aware there are several relevant projects and workstreams considering compensation delivery - at a plan or strategically - being conducted across Scottish and UK Governments. A Scottish Government Consultation on the Scottish Marine Recovery Fund (MRF) is underway, highlighting the opportunity for developers to contribute to this for the delivery of compensation measures to be identified in a Portfolio of Seabird Compensation Measures. We are responding to the MRF consultation to ensure relevant, meaningful, high-quality measures are secured to address the biodiversity crisis, and particularly the decline of seabird populations.	Noted.
We note the Applicants preference to use a future MRF (i.e. Measure 5 - Strategic and/or regional compensation measures) and in-line with interim guidance we welcome that the Applicant has also initiated consideration of compensation measures. Until the Scottish MRF and Scotland's Portfolio of Compensatory Measures are operational, we request ongoing involvement to advise on the ecological effectiveness of any project specific compensation measure(s).	Noted.
Within the assessment provided in the RIAA, the Applicant has reached conclusions of No Adverse Effect on Site Integrity (AEOSI) for each site and species assessed, both project-alone and in combination. However, as set out in Section 2 and Table 2-1 of the Offshore Ornithology Compensation Evidence Plan the Applicant has outlined sites and species which, in their view, may require compensatory measures. Noting the Applicants statement at Table 2-1 that "SPAs and features requiring compensation cannot be confirmed until the Appropriate Assessment has been completed," and in view of the difficulties we have encountered in providing final ornithological advice, as discussed in Appendix A, we are unable to agree with any of the mortality predictions provided. We note also that the predicted total mortality values provided in Table 2-1 do not appear to bear relation to the values presented within the RIAA.	Noted. Additional information will be included in AEIR Chapter 3: Offshore & Intertidal Ornithology.

Consultee's response	Response from applicant
The Applicant identifies a number of measures that could be undertaken to compensate for impacts to guillemot, razorbill, puffin, kittiwake and gannet. The measures are proposed as a package and comprise of: • Measure 1 – Management of marine litter NatureScot is the operating name of Scottish Natural Heritage • Measure 2 – Artificial nesting structures for kittiwake 81 • Measure 3 – Additional management measures at protected sites • Measure 4 – Marine habitat creation • Measure 5 – Strategic and/or regional compensation measures We have focused our advice on the ecological feasibility of proposed compensation Measures 1 – 4, which were submitted as part of the without prejudice derogation package. In doing so, we acknowledge that at this point in time, the Appropriate Assessment has yet to be undertaken. Also given our concerns regarding the derivation of compensation requirements from the mortality figures provided within the RIAA, we are unable to advise on the sufficiency of the measures presented	Noted.
On the basis of our provisional appraisal of AEOSI (see Appendix A), we agree that compensation measures are likely to be required for the species identified, namely: • Guillemot • Razorbill • Puffin • Kittiwake • Gannet	Noted.
We have found both the detail provided within the Compensation Evidence Plan and Compensation Implementation & Monitoring Plan to be generally high-level and lacking in detail. This is highlighted and reflected within our advice on the specific measures below.	Noted. Additional information will be included in AEIR Chapter 6: Shadow Derogation.
It is proposed that two approaches to reduce marine litter would be applied: • reduction of litter at sea; and • reduction of litter on the coast. Two impact mechanisms are considered: • Ingestion • Entanglement	Noted.

Consultee's response	Response from applicant
An overview is provided for the effects of plastic ingestion on a range of species including guillemot, puffin and fulmar. Evidence for entanglement and use of plastic debris in nesting material is focused on gannet. Ryan (2018)25 is cited stating that entanglement also poses a serious threat to seabirds outside of use in nesting material, with 36% of species recorded to have been entangled in plastic marine litter and with fishing gear playing a major factor. However, this report does not quantify the impact in any way, instead focusing on using entanglement records only to see which species are impacted.	Noted. Additional information will be included in AEIR Chapter 6: Shadow Derogation.
We can agree that both plastic ingestion and entanglement are an issue for seabirds, however, it is generally quite difficult to quantify the effects in relation to compensation. The Applicant has attempted to address this problem by using information from the NEEOG regional compensation project (Pizzolla et al., 2024). This study indicates that plastic ingestion is a high risk for fulmar, medium risk for kittiwake but low risk for guillemot, puffin, razorbill and gannet. For entanglement, gannet are considered at high risk, kittiwake medium risk and the auk species medium/high risk. Within Table 4-1 it is noted that for auks there is a paucity of information on risk and that the medium/high is based on foraging depth/behaviour only. The Applicant estimated the present annual mortality to Scottish East and North coast seabird populations which may be attributable to physical impairment effects resulting from marine plastic.	Noted.
Table 4-3 provides the regional baseline mortality and estimated ingestion and entanglement mortality figures derived as proportions of baseline mortality; it is stressed that values were based upon several uncertain assumptions and few estimates of impacts, and as such the figures should be treated as indicative only. Noting that it is acknowledged that there is limited evidence regarding auk entanglement, the entanglement mortalities upon which this measure focusses appear to be relatively high. In particular, for guillemot, the high rate of mortality from entanglement is estimated as 11,053 per annum, however there is limited evidence provided to support this species being at high risk of entanglement.	Noted. Additional information will be included in AEIR Chapter 6: Shadow Derogation.

Consultee's response	Response from applicant
Gannet deaths are estimated at 484 – 2728 per annum, as there is evidence available to support entanglement impacts on gannets, this figure can be assessed more effectively. A study at Grassholm in 2011 (Votier et al., 2011)27 reported an average of 65.63 gannets entangled with plastic nesting material each year, over the 8-year period of the study. More recent news reports from this site indicates 30-100 entangled birds per year28.	Noted.
Alderney Wildlife Trust data indicates approximately 20 birds dying each year from entanglement29. We are not currently aware of data from other sites, but from considering just these two, while the lower figure of 484 deaths from Northeast Scotland sites may be possible, the high figure of 2728 appears to be a large overestimation. Further justification and explanation of the NEEOG figures should be provided, or other evidence of entanglement, to support the values presented.	BOW acknowledges the comments raised by NatureScot and confirms that further detail on this matter is presented in AEIR Chapter 6: Shadow Derogation Case
Table 4-4 provides estimates of the annual mortality reduction from entanglement only. Ingestion is not considered further and estimates of associated annual mortality reduction from this impact mechanism are not provided. Estimates of reduction are based on annual removal of 1%, 5% and 10% of marine litter; this assumes that 5% less plastic equates to 5% less mortality. From the information provided, we cannot be sure that this assumption of a linear relationship is realistic. Furthermore, there is no clear indication of what the baseline is; for example, the percentage of litter is already being removed by other projects (i.e. the pre-existing Fishing for Litter scheme mentioned in the Implementation and Monitoring Plan as one of two mechanisms of implementation) is not discussed.	Noted. Additional information will be included in AEIR Chapter 6: Shadow Derogation.
Paragraph 30 discusses the scale of Measure 1 and the ability of this measure to meet compensation requirements of the project. We highlight uncertainties around the predictions of benefit and consider that in order to determine the effectiveness of the measure, further work is required in order to improve the accuracy of the calculations.	Noted. Additional information will be included in AEIR Chapter 6: Shadow Derogation.

Consultee's response	Response from applicant
We have some confidence in taking forward this measure for gannet, as evidence exists to support entanglement being an issue for this species. However, we consider that for other species further evidence is required regarding entanglement to be convinced that it could be effective for kittiwake, razorbill, puffin and guillemot.	Noted. Additional information will be included in AEIR Chapter 6: Shadow Derogation.
Should this measure be relied upon to compensate for impacts arising from the Proposed Development, then we require further clarification on the points discussed above. Noting that marine litter is one of the LOTs being considered as part of the Portfolio of Seabird Compensation Measures.	Noted.
Two mechanisms are proposed to implement this measure: • funding will be provided to Fishing for Litter (FFL), or a similar marine litter removal fund, to actively remove marine macro-litter at sea; and • funding will be provided to employ a full time, permanent (i.e. for the lifetime of the development) seabird warden for the Buchan Ness to Collieston Coast SPA, focusing on removal of macro litter within the SPA and public education/outreach on marine litter. Limited detail is provided on each mechanism.	Noted.
Without further detail, we are unable to assess the effectiveness of a warden role. For example, only minimal information is provided regarding the scale of litter at Buchan Ness to Collieston Coast SPA and its likely impact on seabirds. This relies on information provided from a site visit to Buchan Ness to Collieston Coast SPA described in Section 5.1.5.	Noted. Additional information will be included in AEIR Chapter 6: Shadow Derogation.
Paragraph 21 states the success of this measure cannot be determined through colony counts to determine if population sizes have increased following the provision of funding. Instead, this will be reported through the tonnage of litter removed and extrapolated to determine the positive impacts this may have on colonies. While we can agree that colony counts are not an appropriate way to assess the success of this measure, in our view, the accuracy of the approach proposed needs to be considered further before we could support this approach.	Noted. Additional information will be included in AEIR Chapter 6: Shadow Derogation.

Consultee's response	Response from applicant
The Applicant proposes to provide additional habitat for kittiwake via suitable nesting ledges incorporated into the design of the Intermediate Reactive Compensation (IRC) platform, proposed within the project design envelope. Compensation evidence plan Current evidence The compensation evidence plan provides a short summary of evidence regarding kittiwake use of artificial structures. Section 4.2.2 discusses existing structures that are used opportunistically, and Section 4.2.3 discusses designed structures that have been specifically provided as an artificial nesting structure.	Noted.
Section 4.2.2 is very brief. Examples are highlighted from other projects and studies; no specific examples have been presented of opportunistic use in Scotland. The structures designed for kittiwakes, which have been set out in Section 4.2.3 are largely onshore, or fairly close to shore. As above, no examples (offshore) from Scotland are provided. As set out in Paragraph 44, two offshore structures were installed in 2023 as compensation for predicted impacts from the Hornsea 3 project. These structures were installed approximately 1km from shore. So far only one pair of kittiwake have nested on one of these structures. Although yet to be determined, it is expected that the Buchan IRC platform will be roughly half-way between the Array and shore, which would be approximately 43km offshore. This is a very different situation to the structures described in Paragraph 44, which are approximately 1km offshore.	Noted. A full account of the measures proposed within the shadow derogation case is outlined in AEIR Chapter 6: Shadow Derogation Case. In relation to artificial kittiwake nesting structures, and based on the updated predicted level of impact that may require compensation (see AEIR), BOW does not consider that this measure is necessary nor proportionate to the risk from the Proposed Offshore Development to the UK SPA site network. As such this measure has been removed from the package of compensation measures being proposed. The AEIR concludes that the need for compensation is small, and it is therefore likely that the measures proposed therein would be sufficient and proportionate. Following any further advice from stakeholders, and upon completion of the Appropriate Assessment by the Competent Authority, the Compensation Evidence Plan and Implementation and Monitoring Plan will be updated.

Consultee's response	Response from applicant
Paragraph 46 argues that there may be suitable locations for artificial nesting structures between large colonies in Scotland and that artificial nesting colonies would provide kittiwakes with nesting opportunities with lower competition and therefore higher breeding success. We set out our view regarding the use of artificial nesting structures (ANS) for kittiwake in Scotland within the bullet points below: • Most kittiwake colonies in Scotland have been declining and therefore availability of nesting space is not of concern.	Noted. A full account of the measures proposed within the shadow derogation case is outlined in AEIR Chapter 6: Shadow Derogation Case. In relation to artificial kittiwake nesting structures, and based on the updated predicted level of impact that may require compensation (see AEIR), BOW does not consider that this measure is necessary nor proportionate to the risk from the Proposed Offshore Development to the UK SPA site network. As such this measure has been removed from the package of compensation measures being proposed.
Offshore ANS may provide a refuge from some predators prevalent onshore e.g. mammalian predators and corvids. However, gulls are known to roost on offshore structures. It was noted in the Christensen-Dalsgaard et al. (2020) paper30 that crews on two oil rigs reported periodically high numbers of great black-backed gulls and herring gulls targeting the kittiwakes and their offspring. Post consent monitoring at Kincardine Offshore Wind Farm also reported roosting gulls on structures.	Noted. A full account of the measures proposed within the shadow derogation case is outlined in AEIR Chapter 6: Shadow Derogation Case. In relation to artificial kittiwake nesting structures, and based on the updated predicted level of impact that may require compensation (see AEIR), BOW does not consider that this measure is necessary nor proportionate to the risk from the Proposed Offshore Development to the UK SPA site network. As such this measure has been removed from the package of compensation measures being proposed.
There is the possibility that food availability may be an advantage for nesting offshore, for instance if the birds breeding offshore profited from a shorter distance to the best foraging areas at sea. However, there is no detailed evidence on distribution of foraging kittiwake provided to confirm this and it is likely to vary depending on distribution of prey species, their availability and density throughout the breeding season.	Noted. A full account of the measures proposed within the shadow derogation case is outlined in AEIR Chapter 6: Shadow Derogation Case. In relation to artificial kittiwake nesting structures, and based on the updated predicted level of impact that may require compensation (see AEIR), BOW does not consider that this measure is necessary nor proportionate to the risk from the Proposed Offshore Development to the UK SPA site network. As such this measure has been removed from the package of compensation measures being proposed.

Consultee's response	Response from applicant
The Christensen-Dalsgaard et al. (2020) paper found improved productivity of kittiwakes on oil rigs compared with coastal nest sites in the Barents and Norwegian Seas, but there is no data from the North Sea provided and the paper indicates this may be because no kittiwake were found nesting on the North Sea rigs. Conditions in the further north sites may differ considerably from the Southern North Sea and the increase in productivity may not be relevant to the location of the proposed Development. Kittiwakes in Norway are already frequently using man-made locations onshore, which may indicate that natural sites have significant pressures such as predation to deter kittiwake from nesting there. This does not seem to be the case at Scottish natural colonies, as cliffs are still their prime nesting habitat.	Noted. A full account of the measures proposed within the shadow derogation case is outlined in AEIR Chapter 6: Shadow Derogation Case. In relation to artificial kittiwake nesting structures, and based on the updated predicted level of impact that may require compensation (see AEIR), BOW does not consider that this measure is necessary nor proportionate to the risk from the Proposed Offshore Development to the UK SPA site network. As such this measure has been removed from the package of compensation measures being proposed.
The potential effect of exposure at offshore nesting sites is not discussed. The variability of cliff nesting habitats along coastlines often provides some shelter in terms of exposure to wind and sea, whereas an isolated offshore structure will be more exposed to weather conditions which could affect productivity (we note this could be partly reduced through design).	Noted. A full account of the measures proposed within the shadow derogation case is outlined in AEIR Chapter 6: Shadow Derogation Case. In relation to artificial kittiwake nesting structures, and based on the updated predicted level of impact that may require compensation (see AEIR), BOW does not consider that this measure is necessary nor proportionate to the risk from the Proposed Offshore Development to the UK SPA site network. As such this measure has been removed from the package of compensation measures being proposed.
There is no indication of what will occur during periodic maintenance requirements at the IRC platform during the breeding season or what will happen upon the cessation of the windfarm operation and during decommissioning.	Noted. A full account of the measures proposed within the shadow derogation case is outlined in AEIR Chapter 6: Shadow Derogation Case. In relation to artificial kittiwake nesting structures, and based on the updated predicted level of impact that may require compensation (see AEIR), BOW does not consider that this measure is necessary nor proportionate to the risk from the Proposed Offshore Development to the UK SPA site network. As such this measure has been removed from the package of compensation measures being proposed.

Consultee's response	Response from applicant
As such, we do not currently support this measure.	Noted. A full account of the measures proposed within the shadow derogation case is outlined in AEIR Chapter 6: Shadow Derogation Case. In relation to artificial kittiwake nesting structures, and based on the updated predicted level of impact that may require compensation (see AEIR), BOW does not consider that this measure is necessary nor proportionate to the risk from the Proposed Offshore Development to the UK SPA site network. As such this measure has been removed from the package of compensation measures being proposed.
Section 4.2.4 sets out the Applicants consideration of the size of the colony that would be needed to provide compensation. The method used by the Hornsea 3 project has been applied to estimate the number of pairs of kittiwakes nesting on an artificial nesting structure needed to compensate for the predicted number of kittiwakes per annum, that would be impacted by the proposed Development (as calculated by the Applicant). This approach appears to be reasonable; the approach is described in more detail within Appendix A – Calculation of additional pairs on ANS to compensate for predicted impacts. The results suggest that between 144 and 166 additional kittiwake pairs would be needed on an ANS to create sufficient recruits to compensate for a predicted mortality of 26 adults per annum from the UK SPA network. It would take 10 years to reach this annual rate.	Noted.
The results indicate that the Applicant considers compensation to be required for 26 adults per annum, however, in Table 2-1 of the evidence plan, the total requiring compensation for kittiwake is listed as 2.928 breeding adults per annum. This is confusing and without further clarification of Table 2-1 we are unable to interpret the results in a meaningful way.	The AEIR provides additional clarity on the required compensation, based on revised assessments undertaken during this AEIR phase. The AEIR concludes that the need for compensation is small, and it is therefore likely that the measures proposed therein would be sufficient and proportionate.

Consultee's response	Response from applicant
Within Paragraph 63 it is stated that the primary aim of Measure 2 is not to create a new colony in Scotland, but to create recruits to colonies nesting on natural sites, most of which are SPAs, thus increasing the number of breeding birds within the UK SPA site network. There is no guarantee that birds from an ANS approx.40km offshore would disperse to Scottish SPAs.	Noted. A full account of the measures proposed within the shadow derogation case is outlined in AEIR Chapter 6: Shadow Derogation Case. In relation to artificial kittiwake nesting structures, and based on the updated predicted level of impact that may require compensation (see AEIR), BOW does not consider that this measure is necessary nor proportionate to the risk from the Proposed Offshore Development to the UK SPA site network. As such this measure has been removed from the package of compensation measures being proposed.
Furthermore, we do not consider there to be sufficient relevant evidence provided to be convinced that an offshore ANS would have a higher productivity than a coastal cliff site. The Horswill & Robinson (2015) data used to support this argument (Paragraph 48) is relatively old and more up to date breeding success data from the SMP database should be used to provide more relevant productivity values for nearby SPAs, such as Buchan Ness to Collieston Coast, Fowlsheugh and Troup, Pennan & Lion's Heads SPAs.	Noted. A full account of the measures proposed within the shadow derogation case is outlined in AEIR Chapter 6: Shadow Derogation Case. In relation to artificial kittiwake nesting structures, and based on the updated predicted level of impact that may require compensation (see AEIR), BOW does not consider that this measure is necessary nor proportionate to the risk from the Proposed Offshore Development to the UK SPA site network. As such this measure has been removed from the package of compensation measures being proposed.
In our view, an offshore ANS is not required to boost recruitment and the suggested increased productivity for such a structure is not evidenced sufficiently in the Compensation Evidence Plan.	Noted. A full account of the measures proposed within the shadow derogation case is outlined in AEIR Chapter 6: Shadow Derogation Case. In relation to artificial kittiwake nesting structures, and based on the updated predicted level of impact that may require compensation (see AEIR), BOW does not consider that this measure is necessary nor proportionate to the risk from the Proposed Offshore Development to the UK SPA site network. As such this measure has been removed from the package of compensation measures being proposed.

Consultee's response	Response from applicant
Paragraph 64 states that recruitment to the offshore ANS would be expected from the pool of immature birds within the wider population, that would include birds dispersing from natal colonies within the UK SPA network. We can see no advantage to encouraging dispersal away from Scottish coastal colonies by providing an offshore ANS, when there is no shortage of coastal nest sites they can disperse to.	Noted. A full account of the measures proposed within the shadow derogation case is outlined in AEIR Chapter 6: Shadow Derogation Case. In relation to artificial kittiwake nesting structures, and based on the updated predicted level of impact that may require compensation (see AEIR), BOW does not consider that this measure is necessary nor proportionate to the risk from the Proposed Offshore Development to the UK SPA site network. As such this measure has been removed from the package of compensation measures being proposed.
It is proposed that this measure would provide suitable nesting structures to the underside of the IRC that is proposed as part of the design envelope. This structure would be superficially similar to an Offshore Substation Platform but would be located along the Export Cable Corridor (ECC) between the Array Area and the Landfall Area. It is stated that this location would be much closer to suitable kittiwake foraging areas than onshore colonies, thus reducing the energetic requirements of breeding adult birds. We do not consider that enough evidence has been provided to support this.	Noted. A full account of the measures proposed within the shadow derogation case is outlined in AEIR Chapter 6: Shadow Derogation Case. In relation to artificial kittiwake nesting structures, and based on the updated predicted level of impact that may require compensation (see AEIR), BOW does not consider that this measure is necessary nor proportionate to the risk from the Proposed Offshore Development to the UK SPA site network. As such this measure has been removed from the package of compensation measures being proposed.
Four management measures are proposed in Measure 3: • Reduction of disturbance from anthropogenic sources; • Management of breeding habitat; • Suppression of terrestrial mammal predators; and • Management of Highly Pathogenic Avian Influenza (HPAI) outbreaks.	Noted.
The intention is that all of these management measures would be integrated into a single improved management application approach. In reviewing the information provided, we consider: • Very little detail is provided about this measure to enable us to make an assessment of its value.	A full account of the measures proposed within the shadow derogation case is outlined in AEIR Chapter 6: Shadow Derogation Case. The AEIR concludes that the need for compensation is small, and it is therefore likely that the measures proposed therein would be sufficient and proportionate. Following any further advice from stakeholders, and upon completion of the Appropriate Assessment by the Competent Authority, the Compensation Evidence Plan and Implementation and

Consultee's response	Response from applicant
	Monitoring Plan will be updated. An account of the compensatory measures are nevertheless provided, in order to address NatureScot's concerns
Some general evidence is provided to support the need for these management measures. We can accept that anthropogenic disturbance can be an issue, but more detail is required about impacts at specific sites to be targeted by this measure.	Noted.
Invasive non-native plant species seem unlikely to be of particular concern for cliff nesting seabirds and no specific examples are given. Although we note the impact on puffin from tree mallow on the Forth Islands.	Based upon the NatureScot feedback, BOW intends to remove these management actions from Measure 3 - Additional Management measures at Protected Sites. Further detail of retained measures is included in AEIR Chapter 6: Shadow Derogation Case.
Fly tipping also seems likely to be only of minor concern with isolated occurrences and would be a reactive measure, making it hard to estimate its benefits.	Based upon the NatureScot feedback, BOW intends to remove these management actions from Measure 3 - Additional Management measures at Protected Sites. Further detail of retained measures is included in AEIR Chapter 6: Shadow Derogation Case.
Eradication/suppression of mammalian predators is a measure being adopted widely amongst Offshore Windfarm developers. Only very general evidence is provided here to support the measure.	Noted. Further detail and evaluation of this measure is included in the AEIR Chapter 6: Shadow Derogation Case
Alteration of watercourses draining onto sea cliffs to provide additional nesting habitat is mentioned, with reference to GreenVolt's compensation measure. No further detail is provided.	Based upon the NatureScot feedback, BOW intends to remove these management actions from Measure 3 - Additional Management measures at Protected Sites. Further detail of retained measures is included in AEIR Chapter 6: Shadow Derogation Case.
A compensation measure targeted at HPAI impact minimisation would be reactive and dependent on outbreaks occurring in the future at specific sites. As	Based upon the NatureScot feedback, BOW intends to remove these management actions from Measure 3 - Additional Management measures at Protected Sites.

Consultee's response	Response from applicant
such its benefits are not really identifiable or measurable.	Further detail of retained measures is included in AEIR Chapter 6: Shadow Derogation Case
This measure would comprise of implementing additional management at sites where compensation is needed, through providing funding for a full-time warden (for the lifetime of the proposed Development) to implement site specific compensation measures and monitoring.	Noted.
Our understanding is that the employed warden would identify the additional management needed once in post. However, in our view, for this to act as a compensation measure the management will need to be identified in advance of implementation so that the sufficiency and effectiveness of the proposed management measures can be determined and quantified at an early stage. This would need to be provided in a detailed seabird compensation plan, post consent. At present, there is no information which quantifies the benefits of the measure.	Further detail of retained measures is included in the AEIR Chapter 6: Shadow Derogation Case
Section 5.1.1 describes a site visit to Buchan Ness to Collieston Coast SPA, however little detail is provided, with some indications that disturbance could be an issue, but no evidence of nesting birds being disturbed. Improved signage/interpretation and visitor management are identified as potential management options, but evidence of need should be established first. Management of breeding habitat seems to be in terms of path management, but it is difficult from the information provided to see how this would directly benefit cliff nesting bird habitat. No useful evidence of predator impact is provided from the site visit.	Further detail of retained measures is included in the AEIR Chapter 6: Shadow Derogation Case
Monitoring and reporting are described in Section 5.1.7. Baseline monitoring will be required in advance of implementing any management measures to establish the need for the measures and the baseline conditions. This is the approach undertaken by other Offshore Windfarm projects and is now generally accepted as standard practice. This should be undertaken as soon as possible.	Noted.

Consultee's response	Response from applicant
Overall, we consider this measure to be very poorly developed and in its current form does not provide sufficient confidence that it could be effective.	Further detail of retained measures is included in the AEIR Chapter 6: Shadow Derogation Case
All the options included in Measure 4 – nature inclusive design, restoration of seagrass beds and restoration of oyster beds are described as improving seabird prey populations and therefore likely to benefit seabird populations. However, the Applicant identifies that these benefits, whilst measurable will not be quantifiable in terms of seabird productivity or survival. As a result, they are included alongside other measures with the intention of reducing the uncertainty that the whole package of measures would be sufficient to compensate for the predicted impacts.	Noted.
We agree that they are not feasible as stand-alone measures but could add to a package of measure in a qualitative way and that there could be merit in some of elements of these options. However, we are unable to come to view based on the information provided. Should the Applicant need to rely on project specific compensation rather than their preferred option of the MRF, then we advise this measure is revisited.	Noted.
Table 4-8 in Section 4.6 of the Offshore Ornithology Compensation Evidence Plan summaries the proposed measures and their predicted benefit. Only Measures 1 and 2 (marine litter and ANS) have quantifiable benefits, the remaining measures act as an adaptive management 'back up'.	Noted.
Notwithstanding the need to revisit the mortality values upon which compensation will be required, we have reviewed the values in Table 4-8 against our own calculations and note the following: • For marine litter - the upper values provided well exceed the compensation requirements as estimated by NatureScot. As we have considerable doubts about the entanglement impacts for all species except gannet, and consider the benefits to guillemot, razorbill, puffin and kittiwake are uncertain and potentially are overestimated, it will be important that the benefits are well in excess of what is required. In principle, the marine litter measure is appropriate, but further work is required to better understand which species will benefit from it and to what extent.	Noted.

Consultee's response	Response from applicant
ANS kittiwake – this measure may provide sufficient benefit to meet kittiwake compensation requirements. However, as described earlier we have a number of fundamental concerns about this measure and its efficacy in Scotland.	Noted. A full account of the measures proposed within the shadow derogation case is outlined in AEIR Chapter 6: Shadow Derogation Case. In relation to artificial kittiwake nesting structures, and based on the updated predicted level of impact that may require compensation (see AEIR), BOW does not consider that this measure is necessary nor proportionate to the risk from the Proposed Offshore Development to the UK SPA site network. As such this measure has been removed from the package of compensation measures being proposed. The AEIR concludes that the need for compensation is small, and it is therefore likely that the measures proposed therein would be sufficient and proportionate. Following any further advice from stakeholders, and upon completion of the Appropriate Assessment by the Competent Authority, the Compensation Evidence Plan and Implementation and Monitoring Plan will be updated.