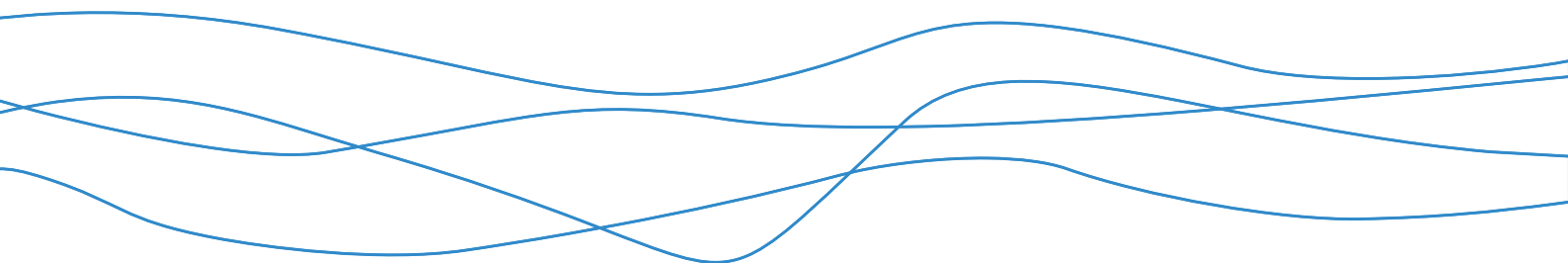




Bowdun Offshore Wind Farm, Report to Inform Appropriate Assessment

Part 3 - Special Protection Areas and Ramsar
Sites

TWP-BOW-RPS-ENV-RPT-00015 | April 2026



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Glossary

Defined term	Definition
Additional Mitigation	Also referred to as secondary mitigation which is defined by The Institute of Sustainability and Environmental Professionals (ISEP) (formerly Institute of Environmental Management and Assessment (IEMA)) as: Actions that will require further activity in order to achieve the anticipated outcome. These may be imposed as part of the planning consent, or through inclusion in the Environmental Impact Assessment (EIA) Report (sic).
Air Gap	The distance between the sea surface and the blade tip. This can be measured from Highest Astronomical Tide (HAT), Lowest Astronomical Tide (LAT) and Mean High Water Springs (MHWS). Regardless of parameter used, conversion factors are applied to ensure the distance will always be the same. Air gap is an important parameter in Collision Risk Modelling (CRM).
Annex I	Habitats of community interest whose conservation requires the designation of Special Areas of Conservation (SACs), as identified in Annex I of the Habitats Directive (Council Directive 92/43/EEC).
Applicant (the)	Bowdun Offshore Wind Farm Limited (BOWFL).
Appropriate Assessment (AA)	An assessment to determine the implications of a plan or project for a European site in view of that site's conservation objectives. An Appropriate Assessment forms part of the Habitats Regulations Appraisal (HRA) and is required when a plan or project (either alone or in combination with other plans or projects) is likely to have a significant adverse effect on a European site.
Array Area	The Array Area is the area in which the Offshore Generation Assets will be located.
Barrier Effects	The effect by which an animal or bird has to make longer transits between a breeding or roosting location to an area of foraging. An Offshore Wind Farm (OWF) could act as a barrier in which a species has to fly around to reach the other side, some species are unlikely to travel through or over.
Bowdun Offshore Wind Farm Limited (BOWFL)	A Special Purpose Vehicle (SPV) (legal entity) for the purpose of developing the Project. BOWFL are the Applicant for the Offshore Application.
Collision	The effect by which a bird may be impacted by direct collision. Birds passing through an OWF are at risk of colliding with the Wind Turbines (moving and stationary parts).
Commercial Fishing	Any form of fishing activity legally undertaken where the catch is sold for taxable profit.
Cumulative Effects	The effects of the Proposed Development assessed together with effects from the Onshore Infrastructure forming the Project as well as one or more different projects on the same receptor/resource.
Digital Aerial Surveys (DAS)	A method for undertaking baseline ornithological and marine mammal data collection surveys. Usually undertaken over a period of 24 months.
Displacement	An impact that occurs when an animal is forced away from an area of habitual usage. This can be temporary (i.e. a ship moving) or permanent (i.e. the placement of offshore infrastructure).

Defined term	Definition
Effect	Term used to express the consequence of an impact (i.e. the result of change or changes on specific environmental resources or receptors). The significance of an effect is determined by correlating the magnitude of the impact with the importance, or sensitivity of the receptor or resource in accordance with defined significance criteria.
Embedded Mitigation	Measures that are adopted as part of the Proposed Development and therefore assessed within the EIA. The proposed approach for the EIA for the Proposed Development is that Embedded Mitigation includes both primary mitigation and tertiary mitigation. These are defined by the ISEP as follows: Primary: Modifications to the location or design of the development made during the pre-application phase that are an inherent part of the project, and do not require additional action to be taken. Tertiary: Actions that would occur with or without input from the EIA feeding into the design process. These include actions that will be undertaken to meet other existing legislative requirements, or actions that are considered to be standard practices used to manage commonly occurring environmental effects.
Environmental Impact Assessment (EIA)	Process for the assessment of likely significant environmental effects of a project on the physical, biological and human environment during construction, Operation and Maintenance (O&M) and decommissioning.
European Sites	This term recognises SACs, candidate SACs (cSACs), Sites of Community Importance (SCIs), Special Protection Areas (SPAs), possible SACs (pSACs), potential SPAs (pSPAs) and Ramsar sites (where also designated as another European Site), which protect species and habitats shared across Europe and were originally designated under European legislation.
Export Cable Corridor	The area seaward of MHWS which connects the Array Area with the Landfall within which the Offshore Export Cables will be installed.
Ground Survey Distance	During the digital aerial survey the still images are captured at a set resolution. The ground survey distance is the distance between the centre of two adjacent pixels.
Habitats Regulations	A term that refers to the collective legislation that translates the Habitats Directive into specific legal obligations in Scotland, namely: The Conservation (Natural Habitats, &c.) Regulations 1994; The Conservation of Habitats and Species Regulations 2017; and The Conservation of Offshore Marine Habitats and Species Regulations 2017 (in each case as amended).
Habitats Regulations Appraisal (HRA)	An assessment carried out under the Habitats Regulations to determine if a plan or project could adversely affect the integrity of a European Site.
Impact	A change caused by an action that occurs during a project's lifetime.
Inter-Array Cables (IAC)	Cables which link the Wind Turbines to each other and with the OSPs.

Defined term	Definition
Inter-Related Effects	The potential effects of multiple impacts from the construction, O&M and decommissioning of the Project, affecting one receptor.
Interconnector Cables	Cables which will connect individual OSPs to each other to provide redundancy against cable failure elsewhere.
Intertidal Area	The area between MHWS and Mean Low Water Springs (MLWS).
Landfall	The area in which the Offshore Export Cables make landfall and is also the transitional area between the Offshore Transmission Assets and the Onshore Transmission Assets. Located in the Intertidal Area at Benholm.
Likely Significant Effect (LSE)	A significant effect on a designated site that has the potential to occur as a result of the Proposed Development (as determined by the LSE Screening Report). Where a LSE cannot be ruled out, further assessment is needed as part of the AA.
Marine Directorate (MD)	The Marine Directorate of the Scottish Government, formerly known as Marine Scotland. The planning and licensing authority for Scotland's seas and custodian of Scotland's National Marine Plan (NMP). The Marine Directorate - Licensing Operations Team (MD-LOT) are specifically responsible for managing Section 36 Consent and Marine Licence Applications seaward of MHWS.
Maximum Design Scenario (MDS)	The scenario within the design envelope likely to result in the greatest impact on a particular topic receptor, and therefore the one that should be assessed for that topic receptor.
Micro/Meso/Macro Avoidance	Three scales of avoidance that may be shown by birds in response to OWFs and the individual turbines. Microavoidance is avoidance within metres of the turbine, Mesoavoidance is avoidance within the footprint of the wind farm from turbines and Macroavoidance is avoidance of the whole wind farm.
Mitigation	Measures to avoid, prevent, reduce or control effects on the environment. See also definitions for Embedded Mitigation and Additional Mitigation.
Offshore Infrastructure	All of the Offshore Infrastructure associated with the Proposed Development that is located seaward of MHWS, comprising the Offshore Generation Assets and the Offshore Transmission Assets.
Offshore Scoping Report	The report that presents the findings of the EIA scoping process undertaken for the Proposed Development with the purpose of obtaining a Scoping Opinion. The Offshore Scoping Report defines what is intended to be assessed and reported as part of the EIA.
Operation and Maintenance (O&M)	The phase of the Proposed Development following completion of construction. This phase of development includes routine inspections, repairs and replacement of infrastructure and equipment (including Interconnector Cables and IACs), Scour Protection replenishment or replacement, major component replacement, painting and/or other coating works, removal of marine growth, and replacement of access ladders.
Pathway	Describes the means or route by which a receptor (such as the seabed) can be affected by an identified impact source (such as Wind Turbine foundations).
Plan Option Area (POA)	A location identified in the SMP as a preferred area for commercial scale offshore wind development.

Defined term	Definition
Population Viability Analysis (PVA)	Numerical modelling of a population which looks at the difference between the baseline (counterfactual) and impacted scenarios. PVA is used to understand how the population growth rate and population size is affected by the predicted impact.
Project (the)	An overarching term for the Bowdun Offshore Wind Farm (Bowdun OWF) comprising the offshore and onshore infrastructure required to generate and transmit electricity from the Array Area to the onshore GCP. The Project includes the Offshore Generation Assets, the Offshore Transmission Assets and the Onshore Transmission Assets.
Project Design Envelope (PDE)	A description of the range of possible elements that make up the design options for the Proposed Development under consideration when the exact engineering parameters are not yet known.
Proposed Development	Term used to define the Offshore Infrastructure associated with the Project seaward of MHWS for which consent is being sought. Further details of the parameters are included in the Report to Inform Appropriate Assessment (RIAA), Part 1: Introduction.
Qualifying Features	The features for which a European Site has been officially designated to protect.
Ramsar Site	Wetlands of international importance, designated under the Ramsar Convention on Wetlands of International Importance 1971.
Report to Inform Appropriate Assessment (RIAA)	The RIAA provides detailed information to support the process of AA (undertaken by the competent authority) as part of the HRA, which evaluates the potential impacts of a project or plan on European Sites.
Sectoral Marine Plan (SMP)	A plan developed by the Scottish Government which provide the strategically planned spatial footprint for offshore wind development in Scotland.
Sectoral Marine Plan Iterative Plan Review (SMP IPR)	The iterative plan review process as new information becomes available (e.g. consented projects, environmental data, cumulative effects assessment, etc.).
Special Areas of Conservation (SACs)	SACs are areas designated for the conservation of certain plant and animal species listed in the Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.
Special Protection Areas (SPAs)	SPAs are sites that are designated to protect rare or vulnerable birds (as listed on Annex I of the Directive 2009/147/EC on the conservation of wild birds), as well as regularly occurring migratory species.
Statutory Nature Conservation Body (SNCB)	A statutory adviser to the UK and Scottish Governments on Scottish, UK and international nature conservation.
Study Area	For each environmental topic, the baseline environment will be characterised, and the potential environmental impacts will be described within a topic-specific study area. Specific study areas are defined for each topic and are based on the maximum spatial extent across which potential impacts of the Project may be experienced by the relevant receptors (i.e. Zone of Influence).
Thistle Wind Partners (TWP)	Company established for the development of the Project.
Wind Turbines	Structures comprising of a tubular tower, rotor blades, and a nacelle which houses the Wind Turbine generator.

Acronyms

Acronym	Definition
AA	Appropriate Assessment
AEOSI	Adverse Effect on Site Integrity
AON	Apparently Occupied Nests
BDMPS	Biologically Defined Minimum Population Scales
CEF	Cumulative Effects Framework
CEH	Centre for Ecology & Hydrology
CMS	Construction Method Statement
CoCP	Code of Construction Practice
CRM	Collision Risk Modelling
DAERA	Department of Agriculture, Environment and Rural Affairs
DAS	Digital Aerial Surveys
DSLp	Development Specification and Layout Plan
EIA	Environmental Impact Assessment
EPS	European Protected Species
HDD	Horizontal Directional Drilling
HPAI	Highly Pathogenic Avian Influenza
HRA	Habitats Regulations Appraisal
HSE	Health and Safety Executive
IAC	Inter-Array Cable
IPR	Iterative Plan Review
JNCC	Joint Nature Conservation Committee
LAT	Lowest Astronomical Tide
LiDAR	Light Detection and Ranging
LSE	Likely Significant Effects
mCRM	Migratory Collision Risk Model
MDS	Maximum Design Scenario
MD-LOT	Marine Directorate-Licensing Operations Team
MD-SEDD	Marine Directorate – Science Evidence, Data and Digital
MHWS	Mean High Water Spring
NEEOG	North-East and Eastern Ornithology Group
MRSea	Marine Renewables Strategic environmental assessment
MSP	Mean Seasonal Peak
NMPi	National Marine Plan Interactive
NPWS	National Parks and Wildlife Service
NSVMP	Navigational Safety and Vessel Management Plan
OSP	Offshore Substation Platform
OWF	Offshore Wind Farm

Acronym	Definition
O&M	Operation and Maintenance
PDE	Project Design Envelope
PVA	Population Viability Analysis
RIAA	Report to Inform Appropriate Assessment
RSPB	Royal Society for the Protection of Birds
sCRM	Stochastic Collision Risk Model
ScotMER	Scottish Marine Energy Research
SD	Standard Deviation
SMP	Sectoral Marine Plan
SNCB	Statutory Nature Conservation Bodies
SPA	Special Protection Area
SSC	Suspended Sediment Concentrations
TWP	Thistle Wind Partners Limited
UXO	Unexploded Ordnance
Zol	Zone of Influence

Table of Units

Units	Definition
%	Percent
ha	Hectare
kg	Kilogram
kJ	Kilojoule
km	Kilometre
km ²	Square kilometre
kts	knots
m	Metre
m ²	Square Metre
m ³	Cubed Metre
MW	MegaWatt

1 Introduction

1.1 The Purpose of this Report to Inform Appropriate Assessment

1.1.1 This Habitats Regulations Appraisal (HRA) Stage 2 Report to Inform Appropriate Assessment (RIAA) supports Bowdun Offshore Wind Farm Limited's (BOWFLs) (hereafter referred to as 'the Applicant') application submission to the Marine Directorate-Licensing and Operations Team (MD-LOT), acting on behalf of Scottish Ministers, for the offshore elements of the Bowdun Offshore Wind Farm (hereafter known as the 'Proposed Development'). This RIAA has been prepared by Tetra Tech RPS Energy and Tetra Tech RPS Consulting on behalf of the Applicant to support the HRA of the Proposed Development in the determination of the implications upon European Sites and Ramsar sites. For the purpose of this RIAA, European Sites refer to Special Protection Areas (SPAs) designated to protect species and habitats across Europe, originally designated under European legislation. Whereas Ramsar sites refer to those designated under the Convention on Wetlands of International Importance (1971). It builds upon the Proposed Development HRA Stage 1 Likely Significant Effects (LSE) Screening Report (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report), completed and submitted to MD-LOT in October 2024, and incorporates the subsequent advice from stakeholders in the Proposed Development Scoping Opinion received in November 2024 (MD-LOT, 2024).

1.1.2 This RIAA assesses the LSEs of the Proposed Development as they relate to the integrity of the relevant European Sites, assessing whether the Proposed Development could have an Adverse Effect on Site Integrity (AEOSI), either alone, or in-combination with other plans and projects. This RIAA has been undertaken in regard to NatureScot's Guidance Notes 1 to 11 (NatureScot, 2023a to 2023f; 2025a to 2025b), the Interim Guidance Note for apportioning during the breeding season (NatureScot, 2018) and the joint advice note from the Statutory Nature Conservation Bodies (SNCBs) for Collision Risk Modelling (CRM) (Joint Nature Conservation Committee (JNCC) *et al.*, 2024). This RIAA will provide the Competent Authority with the information required to undertake an HRA Stage 2 Appropriate Assessment (AA).

1.1.3 The scope of the RIAA Part Three Special Protection Area (SPA) and Ramsar Site Assessments covers all relevant SPAs and Ramsar Sites and their qualifying features where an LSE has been identified in the HRA Stage 1 LSE Screening Report (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report).

1.2 Structure of the RIAA

1.2.1 As detailed in Section 1.5 of Part One, for clarity and ease of navigation, this RIAA has been structured and reported as follows:

- Part One: Introduction;
- Part Two: Special Area of Conservation (SAC) Assessments; and
- Part Three (this document): SPA and Ramsar Site Assessments.

1.3 Structure of this Document

- 1.3.1 As stated in Paragraph 1.2.1, this document constitutes Part Three of the RIAA and presents consideration of the implications of the Proposed Development on SPAs and Ramsar Sites.
- 1.3.2 This document is structured as follows:
- Section 1: Introduction, which details the purpose and structure of the RIAA;
 - Section 2: Consultation, which provides a summary of relevant consultation undertaken to date, the responses provided and how these have been addressed within this Part of the RIAA;
 - Section 3: Summary of the HRA Stage 1 LSE Screening Conclusions for SPAs and Ramsar sites;
 - Section 4: Information to inform the AA, which includes the Maximum Design Scenario (MDS), information on Embedded Mitigation measures, and an outline of the baseline data on the SPAs;
 - Section 5: Assessment of adverse effects on integrity on European sites designated for ornithological features, both for the Proposed Development alone and in-combination with other plans and projects; and
 - Section 6: Overall summary of this Part of the RIAA.
- 1.3.3 This Part of the RIAA also contains the following appendices:
- Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038); and
 - Appendix 3B: Offshore Ornithology Special Protection Area Population Viability Analysis Technical Report (TWP-BOW-RPS-ENV-RPT-00027).
- 1.3.4 The scope of this Part Three of the RIAA covers all relevant SPAs and Ramsar sites and relevant Qualifying Features where LSEs have been identified due to impacts arising from the Proposed Development.

2 Consultation

- 2.1.1 Consultation has been undertaken with statutory stakeholders with regards to the ornithological features of SPAs. A summary of all relevant consultation undertaken to date is presented in Table 2.1.

Table 2.1: Summary of Key Consultations on Relevant to Part Three of the RIAA

Date	Consultee and Type of Consultation	Summary of Consultation	Where Addressed in this Document/Further Action Undertaken	Change Required to Screening Outcomes?
11/03/2022	MD-LOT, NatureScot: 2022 conference call	Introductory meeting where the Applicant provided an overview of the Proposed Development and proposed site characterisation surveys.	The Applicant to provide regular updates at the MD-LOT quarterly meetings.	No
03/2022	North-East and Eastern ScotWind Developer Groups: 2022 conference call	Collaboration via the North-East and Eastern Ornithology Group (NEEOG) developing targeted surveys and desk-based research to address the evidence gaps in the Ornithology Roadmap. Active collaboration between North-East Ornithology Group and the Eastern Ornithology Group to financially contribute to and support scope of works for census, sample plot and tagging projects at several SPAs in north and northeast Scotland.	N/A	No
18/07/2022	MD-LOT, NatureScot: 2022 Quarterly catch-up conference call	The Applicant provided an update on the Proposed Development. Clarification provided as to timeframe expectations which have been used by the applicant in programme working. Digital Aerial Surveys (DAS) to date were summarised. MD-LOT requested early sight of any reports. MD-LOT acknowledged timings of DAS can be difficult due to poor weather. The DAS scope, timings and surveys to date were agreed to be appropriate and sufficient by MD-LOT and NatureScot.	The Applicant provided interim reports to MD-LOT and NatureScot.	No
08/11/2022	MD-LOT, NatureScot: 2022 Quarterly catch-up conference call	MD-LOT confirmed that the Sectoral Marine Plan (SMP) Iterative Plan Review (IPR) is looking for developer input. MD-LOT also provided an update on the Cumulative Effects Framework (CEF) and strategic compensation measures. MD-LOT highlighted evidence gaps that Scottish Marine Energy Research (ScotMER) are looking to fill.	The Applicant provided input to the SMP IPR and confirmed its willingness to assist with the evidence gap filling of ScotMER.	No

Date	Consultee and Type of Consultation	Summary of Consultation	Where Addressed in this Document/Further Action Undertaken	Change Required to Screening Outcomes?
20/01/2023	Marine Directorate – Science Evidence, Data and Digital (MD-SEDD): 2023 Developer Strategic Ornithology Research Meeting	MD-SEDD provided updates to the SMP scope of work and associated ScotMER projects. MD-SEDD will confirm how developers could assist in providing data to review some of the uncertainty for these projects.	Developers, as part of NEEOG, have undertaken census surveys of North Caithness Cliffs SPA in 2023 and East Caithness Cliffs SPAs in 2024 and 2025, with sample surveys also completed at both in 2024 and 2025. NEEOG has and continues to support kittiwake tracking from Buchan Ness to Collieston SPA, and guillemot and razorbill tracking at Copinsay SPA, Fowlsheugh SPA, Troup Head SPA and other colonies, along with targeted seabird counts and productivity monitoring. The baseline data, and developments in survey methods and coverage have been used to help inform the monitoring proposals set out in the Offshore Environmental Impact Assessment (EIA) Report.	No
14/02/2023	Royal Society for the Protection of Birds (RSPB): conference call	Introducing the Project.	N/A	No
03/03/2023	MD-LOT, NatureScot: 2023 Quarterly catch-up conference call	MD-LOT confirmed CEF workshop will happen in March 2023. NatureScot provided an update on new guidance published in January 2023.	The Applicant attended the CEF workshop. The assessment presented within the Offshore EIA Report uses NatureScot's guidance (NatureScot, 2020; 2023a to 2023h; 2025a to 2025b).	No

Date	Consultee and Type of Consultation	Summary of Consultation	Where Addressed in this Document/Further Action Undertaken	Change Required to Screening Outcomes?
12/06/2023	MD-LOT, NatureScot: 2023 Quarterly catch-up conference call	MD-LOT provided update to the new structure with ScotMER now under the Offshore Wind Directorate. Also, an update on ScotMER projects. The migratory CRM (mCRM) update undertaken by Centre for Ecology & Hydrology (CEH) will be published soon.	The Applicant sent first breeding season DAS bird results and initial Light Detection and Ranging (LiDAR) survey results. MD-LOT to send links mentioned in update. The mCRM tool provided by CEH will be used as described in Section 5.2 of this RIAA and Volume 3, Technical Appendix 11.5: Offshore Ornithology Migratory Bird CRM Technical Report (TWP-BOW-RPS-OFE-RPT-00023) of the Offshore EIA Report.	No
11/09/2023	MD-LOT, NatureScot: 2023 Quarterly catch-up conference call	MD-LOT provided an update on the cumulative effects framework that testing has started. MD-LOT confirmed the next ScotMER symposium would be in February 2024 with updates on specific projects undertaken. The SMP IPR is due to be adopted in 2024. Plan level derogation required in north-east Scotland.	The Applicant sent the first breeding season DAS bird results and initial LiDAR survey results. The Applicant continued to work with other developers via NEEOG and to provide additional data to aid MD and NatureScot to understand the HRA risks and potential for adverse projects.	No
11/12/2023	MD-LOT, NatureScot: 2023 Quarterly catch-up conference call	MD-LOT provided updates on the cumulative effects framework, the streamlining team, ScotMER, strategic compensation, the Energy Bill, the SMP IPR, and resourcing. The pre-meeting questions were discussed. These included questions on scoping workshops, Wind Turbine layout and ornithology assessment.	The Applicant sent a doodle poll to stakeholders for the scoping workshop and sent ornithology questions to NatureScot, who were unable to attend the quarterly catch-up.	No

Date	Consultee and Type of Consultation	Summary of Consultation	Where Addressed in this Document/Further Action Undertaken	Change Required to Screening Outcomes?
11/03/2024	MD-LOT, NatureScot: 2024 Quarterly catch-up conference call	MD-LOT provided an update on the cumulative effects framework and mentioned that it will be completed in summer 2024. They also provided an update on: • The work of the streamlining team and the marine renewable licensing and consenting guidance; • ScotMER; • The Energy Act and strategic compensation; • The National Marine Plan 2; and • The SMP Iterative Plan Review. The Applicant gave a general project update and feedback on the recent Ayre scoping workshop on the 06 March 2024.	N/A	No
03/04/2024	NatureScot: Email sent	Update note regarding discrepancy between raw seabird counts in APEM report and RPS 12-month interim survey report.	Data points included in the APEM report APEM report beyond the 12 km buffer were excluded to ensure consistency.	No
25/04/2024	MD-SEDD, Orkney Islands Council, MD-LOT, NatureScot, RSPB, Scottish Government: Bowdun Offshore Scoping Workshop – Offshore Ornithology section	• The Applicant was advised to ensure that vessel traffic disturbance is addressed within the application. • It was discussed that separate CRM will be carried out using both generic flight heights and site-specific data where appropriate. • NatureScot advised that guidance for PVA will be updated and the Applicant will be made aware when this becomes available. • It was also noted that updated values for demographic rates may be available before the submission of EIA. • NatureScot and RSPB informed that guidance and studies regarding CRM will be published within the next six months.	The Applicant has followed this advice accordingly. The Applicant included the additional impact pathway for “Disturbance to Birds from Vessel Movements” as requested (see Sections 5.2, 5.5 and 5.7). The Applicant used the latest available NatureScot guidance for the assessment. The Applicant used the best available displacement analysis but was unable to commit to using SeabORD because of the	Yes, inclusion of disturbance to birds from vessel movements as an impact pathway is addressed in Section 3.5 and described in more detail in Section 5.2.

Date	Consultee and Type of Consultation	Summary of Consultation	Where Addressed in this Document/Further Action Undertaken	Change Required to Screening Outcomes?
		All stakeholders would like to see SeabORD used for displacement analysis, however they acknowledged its unavailability.	difficulties acknowledged by NatureScot in running the current version of the software. Demographic rates from Horswill and Robinson (2015) were used as updated rates were not published at the time PVA was carried out	
26/04/2024	NatureScot: Email response	Email response providing clarifications to the points raised by NatureScot on the DAS methodology and survey results from the first 12 months.	N/A	No
10/06/2024	NatureScot: 2024 Bowdun Quarterly meeting (NatureScot, 2024) Bowdun Offshore Wind Farm is also being developed by the Applicant. The Quarterly meeting provided relevant advice for the Proposed Development.	NatureScot provided the following advice in relation to PVAs for ornithology: - PVAs will be required for all sites and species where the combined breeding and non-breeding season threshold of 0.02% point change for adult annual survival rate was met or exceeded for project alone or in-combination impacts. - A PVA of the in-combination effect is not required where the project alone impact is less than 0.2 birds per annum. In this instance a table should be provided that details by site and species what the point change in adult survival rate are and number of birds impacted per annum.	The Applicant followed NatureScot advice accordingly, as set out in Section 5.2. The 0.02% threshold has been used in the PVA carried out in support of this assessment (see Appendix 3B: Offshore Ornithology Special Protection Area Population Viability Analysis Technical Report (TWP-BOW-RPS-ENV-RPT-00027)).	No
09/09/2024	MD-LOT, NatureScot: 2024 Quarterly catch-up conference call	Quarterly catchup to enable updates on project, teams, timelines and requirements.	N/A	No

Date	Consultee and Type of Consultation	Summary of Consultation	Where Addressed in this Document/Further Action Undertaken	Change Required to Screening Outcomes?
11/09/2024	MD-LOT, NatureScot, RSPB: Conference call	Discussion on the HRA Compensation approach for seabirds.	N/A	No
24/09/2024	RSPB: Conference call	Project update call and discussion on seabird surveys. Other points raised were the same as in the Scoping Opinion (see below).	N/A	No
23/10/2024	NatureScot: Email	Consultation with NatureScot on the results of the 24 month DAS baseline data. NatureScot noted lack of post-breeding dispersal in guillemot	See response to consultation on 24 February 2025	No
20/11/2024	NatureScot: Email	NatureScot provided advice on Year 1 and 2 DAS. It is recommended that SPA populations are derived from the Seabirds Count census (Burnell <i>et al.</i>, 2023) It is highlighted that foraging ranges have been inconsistently applied and recommended foraging ranges from Woodward <i>et al.</i> (2019) should be used during screening.	Colony counts have derived from the Seabirds Count census (Burnell <i>et al.</i>, 2023) have been used within the assessment (Section 5.7) and during apportioning (Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038)). Recommended foraging ranges have been used, and a review of screening outcomes has been undertaken in Section 3.3.	Yes, see Section 3.3.
25/11/2024	MD-LOT, NatureScot, RSPB: Combined Scoping Opinion and Screening Response	Study Area and Data - Study areas and data sources are generally acceptable but require clearer descriptions of key resources. - Regional Study Area to be defined using breeding season foraging ranges during the breeding season and BDMPS regions (Furness, 2015) during the non-breeding season.	Study Area and Data - Data sources further clarified in throughout report, in particular within Section 5.3 to 5.6. - Species-specific breeding season foraging ranges and BDMPS regions (Furness,	Yes, fulmar no longer assessed for collision risk as addressed in Section 3.3.

Date	Consultee and Type of Consultation	Summary of Consultation	Where Addressed in this Document/Further Action Undertaken	Change Required to Screening Outcomes?
		- Breeding season foraging range to be used for guillemot and herring gull during the non-breeding season. - LiDAR can be used for comparison, but generic flight height information from Johnston <i>et al.</i> (2014) should be primarily used. - Avoid relying on the West of Orkney 2023 application for ornithology due to ongoing amendments.	2015) used to determine regional study areas in the breeding and non-breeding season for all species except guillemot and herring gull. - Guillemot and herring gull breeding foraging ranges were used year-round. - LiDAR data was used for comparison for kittiwake only as set out in Section 5.2 with results for both methods presented in Section 5.7. - West of Orkney has now been consented, updated data submitted as part of the Additional Information for the project (submitted in 2024) used.	
		Impacts and Assessment - Broadly content with scoped in impacts; pleased that disturbance to birds from vessel movements and the extent of the assessment required will depend on ports used. - Direct impacts to birds from Unexploded Ordnance (UXO) detonations should be included alongside indirect underwater noise effects. - Nocturnal species (European storm petrel, Leach's petrel, Manx shearwater) are vulnerable to light attraction and disorientation; qualitative assessments of lighting impacts are expected.	Impacts and Assessment - The methodology and assessment for vessel disturbance impacts and direct impacts from UXO are presented in Section 5.2 and Section 5.5 respectively. Species relevant for the assessment of attraction to light have been screened out for the RIAA (see Section 3). - Impacts to birds from UXO are presented in Section 5.5	

Date	Consultee and Type of Consultation	Summary of Consultation	Where Addressed in this Document/Further Action Undertaken	Change Required to Screening Outcomes?
		- Noted that updated availability bias correction factors for auks and red-throated diver (Dunn <i>et al.</i>, 2024) may become available. - Collision Risk Modelling (CRM) guidance is updated; both stochastic and deterministic outputs are required; fulmar is excluded from CRM due to low collision risk. - Migratory CRM tools are under development; strategic assessments are ongoing and may be applied. - Use SeabORD to assess distributional effects during chick rearing for guillemot, razorbill, puffin, and kittiwake. - A 0.02 percentage point decrease in survival should be used to determine whether PVAs are required for the PVA, with three periods (25 year, operational lifespan and 50 year) modelled. - Effects of Highly Pathogenic Avian Influenza (HPAI) should be qualitatively considered, considering surveys by RSPB (Tremlett <i>et al.</i>, 2024).	and indirect effects as part of Section 5.5. - Attraction to light has been assessed as part of the EIA. However, the relevant species have been screened out for the RIAA (see Section 3). - Review of availability bias correction factors had not been completed at the time of data analysis. - CRM impact methodology presented In Section 5.2, fulmar excluded. - Migratory collision risk methodology presented in Section 5.2. - Further consultation on the 30 April 2025, NatureScot advised the use of the matrix approach rather than SeabORD. - PVA threshold of 0.02% reduction in survival implemented. Following further consultation, only the operational lifespan and 50-year period presented (see Quarterly Call on 9/06/25). - Effects of HPAI qualitatively considered throughout.	
		In-combination Effects	In-combination Effects	

Date	Consultee and Type of Consultation	Summary of Consultation	Where Addressed in this Document/Further Action Undertaken	Change Required to Screening Outcomes?
		• Use CEF when available. • Model Berwick Bank both consented and unconsented. • Scope out transboundary impacts.	• CEF was unavailable as of September 2025 • Berwick Bank consented as of July 2025, but both scenarios still presented. • Transboundary impacts scoped out.	
		Mitigation and Monitoring • Specify concrete mitigation measures beyond general plans. • Develop protocols for monitoring and managing birds affected by lighting. • Include vessel management plan to minimise disturbance.	Mitigation and Monitoring • Embedded Mitigation proposed in Section 4.3.	
09/12/2024	MD-LOT, NatureScot: Conference call	Quarterly catchup to enable updates on project, teams, timelines and requirements.	See response to consultation on 24 February 2025	No
27/01/2025	NatureScot: Email	Consultation seeking advice on EIA Methodology and ornithology.	Issues discussed for the EIA overlap with those used in the HRA, e.g. displacement rates for fulmar. The final methodology used to assess impacts are discussed in Section 5.2. Also, see response to consultation on 24/02/2025 for further details.	No
03/02/2026	Natural England: Email	The Applicant followed up on advice regarding differing guidance on the apportioning guidance from NatureScot and Natural England for guillemot and razorbill. Noting, that within the screening response Natural England advised to follow NatureScot guidance in Scottish waters.	The Applicant has followed NatureScot guidance and found that AEOSI could be ruled out for all English guillemot features for the Proposed Development alone	

Date	Consultee and Type of Consultation	Summary of Consultation	Where Addressed in this Document/Further Action Undertaken	Change Required to Screening Outcomes?
		Natural England advised that they do not expect a separate assessment for SPAs within Scottish waters unless and AEOSI is found or cannot be ruled out.	or in-combination with other projects. It was determined that for the razorbill feature of Flamborough and Filey Coast SPA, AEOSI could not be ruled out.	
24/02/2025	NatureScot: Email	NatureScot responds to the Applicant's request for further advice and clarifications from NatureScot following responses to the Ayre Scoping Report, HRA Screening Report and the APEM Limited DAS annual survey reports. The following points raised are considered to be relevant for Bowdun Offshore Wind Farm (OWF): • NatureScot will accept Natural England macro-avoidance rates for gannet in the non-breeding season only, as there is insufficient evidence regarding gannet behaviour around wind farms near Scottish SPAs in the breeding season. • Displacement and barrier effects should be considered together in the displacement assessments as there is not enough evidence to separate and apportion them separately. • A quantitative displacement assessment should be undertaken for fulmar given the high abundance of this species in the first year DAS data, both for project alone and in-combination with West of Orkney using a 20% displacement rate and 1% & 3% mortality rates for fulmar as advised by RSPB. • Principles for reducing direct impacts from UXO clearance on marine mammals can also be effective for diving birds, such as visually observing the area prior to a detonation occurring and delaying operations could be applied to rafts of diving birds as well.	The Applicant has followed this advice accordingly, as set out in Section 5.2 under the relevant impact pathway headings.	No

Date	Consultee and Type of Consultation	Summary of Consultation	Where Addressed in this Document/Further Action Undertaken	Change Required to Screening Outcomes?
		NatureScot guidance on foraging ranges should be used in assessments, but additional data can be included to refine foraging ranges for species.		
10/03/2025	MD-LOT, NatureScot: 2025 Quarterly catch-up conference call	Quarterly catchup to enable updates on project, teams, timelines and requirements.	N/A	No
30/04/2025	NatureScot: email	Consultation regarding the use of SeabORD for displacement assessment and the CEF. NatureScot confirmed (30 April 2025) the use of the matrix approach for the displacement assessment, if the new SeabORD R model is not published in time, and that the interim CEF, development on behalf of NEEOG could be used.	Matrix displacement method used in the assessment, as R-based SeabORD was unavailable, agreed by NatureScot as described in Section 5.2.	No
09/06/2025	MD-LOT, NatureScot: 2025 Quarterly catch-up conference call	Quarterly catchup to enable updates on project, teams, timelines and requirements. NatureScot advised the 25 year period was no longer necessary to present for PVAs.	PVAs in EIA and HRA presented for Project lifetime (30 years) and 50 years within Appendix 3B: Offshore Ornithology Special Protection Area Population Viability Analysis Technical Report (TWP-BOW-RPS-ENV-RPT-00027).	No
08/09/2025	MD-LOT, NatureScot: 2025 Quarterly catch-up conference call	MD-LOT gave update on the Energy Act 2023, Electricity Act 1989 amendments, CEF, streamlining team, ScotMER, Strategic Compensation, NMP2 and SMP IPR. No formal update from NatureScot.	Due to the application deadline and as the CEF is unavailable at the time of preparing this report, the interim CEF has been used as detailed in Section 5.6.	No
02/12/2025	NatureScot: Email	Response to the Applicants Response to the Scoping Opinion.	Due to the application deadline and as the CEF is unavailable at the time of preparing this report,	No

Date	Consultee and Type of Consultation	Summary of Consultation	Where Addressed in this Document/Further Action Undertaken	Change Required to Screening Outcomes?
		NatureScot stated that it is appropriate for the interim CEF to be used given the CEF is not available, unless the CEF is made available in the short term. When responding to queries regarding apportioning method, it is NatureScot's opinion that as Bowdun is located in Scottish waters, NatureScot guidance/assessment methods are recommended.	the interim CEF has been used as detailed in Section 5.6. Apportioning has been carried out follow NatureScot guidance (2018), as detailed in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).	
08/12/2025	MD-LOT, NatureScot: 2025 Quarterly catch-up conference call	Quarterly catchup to enable updates on project, teams, timelines and requirements.	N/A	No
03/02/2026	Natural England: email	The Applicant contacted Natural England regarding diverging guidance from NatureScot and Natural England on the apportioning of impacts to SPAs. The Applicant suggested following NatureScot guidance, following the Scoping Response where Natural England advised deferring to NatureScot for projects within Scottish waters. Natural England noted that they do not expect Applicants to carry out a full assessment using both methods, but noted that a separate assessment would be required where applicants identify or are unable to rule out and AEOSI for an English SPA or feature.	The Applicant has followed NatureScot guidance as advised within the Scoping Opinion. However, it should be noted that no AEOSI was recognised for any guillemot feature of English SPAs. For razorbill, an AEOSI could not be ruled out for Flamborough and Filey Coast SPA.	No
13/02/2026	NatureScot: email	Review of the Volume 3, Technical Appendix 11.1: Offshore Ornithology Baseline Characterisation Report (TWP-BOW-RPS-OFE-RPT-00020) (and associated Annexes A-E) and Volume 3, Technical Appendix 11.2: Nearshore, Intertidal and Offshore Ornithology Along	The Applicant notes that NatureScot have recently (early 2026) updated the recommended correction	No

Date	Consultee and Type of Consultation	Summary of Consultation	Where Addressed in this Document/Further Action Undertaken	Change Required to Screening Outcomes?
		the Export Cable Corridor Baseline Report (TWP-BOW-RPS-OFE-RPT-00084). The main points raised within NatureScot’s response include: • NatureScot now advise a correction factor of 1.49 from Burnell <i>et al.</i>, (rather than 1.34) to be applied to guillemot counts measured in individuals. • MRSea should be used to generate abundance estimates when the number of observations is 10 or more. • NatureScot now accept monthly availability correction factors published in Dunn <i>et al.</i> (2024). • Where LiDAR has been used within CRM, NatureScot recommend the presentation of CRM using general flight height distributions (Johnston <i>et al.</i>, 2014) are also presented. • Discrepancies in the presented distances of the Proposed Development to SPAs were highlighted including Troup, Pennan and Lion’s Heads SPA, North Caithness Cliffs SPA and SPAs found in Shetland. • It is highlighted that Fair Isle SPA is not within foraging range of kittiwake, and Mousa SPA, Seas off Foula SPA, Seas off St Kilda SPA and Outer Firth of Forth and St Andrews Bay Complex SPA are within foraging range of the Proposed Development. • It was noted that tables presenting monthly density estimates of flying birds for CRM and seasonal mean peaks required updating.	factor. Due to the timing, the Applicant was unable to adopt this updated correction factor at the time of data analysis and has used the recommended correction factor at the time of analysis. • MRSea has been used for surveys with 10 observations or more where possible. However, it should be noted that as MRSea requires observations to be aggregated into a grid, in some cases this can lead to less than 10 data points, making data unsuitable for modelling. • The acceptance of Dunn <i>et al.</i> (2024) availability bias corrections occurred late within the application process. Therefore the Application has used the most up to date guidance at the time of data analysis. • Both Option 1 (LiDAR) and Option 2 (generic flight heights) have been run during CRM. • Distances for SPAs were reviewed. However, it should be noted that by-sea distances have been used for	

Date	Consultee and Type of Consultation	Summary of Consultation	Where Addressed in this Document/Further Action Undertaken	Change Required to Screening Outcomes?
		It was recommended for guillemot and razorbill that seasonal definitions be adjusted to account for post-breeding season dispersal peak.	Troup, Pennan and Lion's Head SPA and North Caithness Cliffs SPA within the assessment. Changes were made to some Northern Isle SPA distances. - The Applicant notes that Fair Isle SPA is not within range of kittiwake and Mousa SPA is within range of fulmar. The remaining SPAs are within foraging range, however it should be noted that marine SPAs have not been included within data analysis e.g. apportioning. - Tables within the baselines have been updated. - The Applicant has followed the recommended seasonal definitions. It should be noted that following NatureScot's feedback on the baseline, the number of mortalities for guillemot and razorbill would be reduced.	
19/02/2026	MD-LOT: email	MD-LOT response to the following questions: - How should consented projects be considered within the CEA and in-combination assessments for Bowdun? - Should projects considered to have a mortality of 0 if the project has approved compensation measures?	The Applicant has presented assessments including and excluding Berwick Bank within the in-combination assessment. It should be noted that the data analysis had been undertaken before the Applicant received a	No

Date	Consultee and Type of Consultation	Summary of Consultation	Where Addressed in this Document/Further Action Undertaken	Change Required to Screening Outcomes?
		MD-LOT provided a response with the main points summarised: - MD-LOT noted that with and without Berwick Bank scenarios have been provided following advice given before Berwick Bank was granted consent, but this is not required for other consented projects. - Bowdun can exclude the effects from Scottish projects with consents where there is a conclusion of AEOSI (or unable to conclude no AEOSI) which have resulted in derogation and secured compensatory measures. - Projects which have secured compensatory measures include Green Volt, Salamander, West of Orkney and Berwick Bank.	response to the question. Therefore, all projects have been included and, in some cases, the in-combination assessment may provide an overestimation of impacts given MD-LOT's response.	

3 Summary of HRA Screening Conclusions

3.1 Overview

- 3.1.1 This section summarises all pathways for potential LSE on ornithological features identified for SPA or Ramsar sites (arising alone or in-combination with other projects).

3.2 Screening Outcomes for the Proposed Development Alone

- 3.2.1 An initial list of SPAs and Ramsar sites with the potential for LSE as a result of the Proposed Development alone were identified within the HRA Stage 1 LSE Screening Report (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report). The initial list presented was informed by the first 12 months of DAS and identified 86 SPAs, of which five are also Ramsar sites, that have the potential for LSE due to impacts on marine ornithological features.

- 3.2.2 Following the completion of the DAS programme, the full 24-month DAS dataset was analysed and the conclusions drawn in the Proposed Development HRA Stage 1 LSE Screening Report (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report) were reviewed. Following a review of the DAS dataset and the initial screening exercise, the following changes were included:

- the removal of species as Qualifying Features with potential for LSE due to absence or low number of observations within the full 24-month DAS dataset;
- changes to sites taken forward for assessment during the breeding season; and
- changes to sites taken forward for assessment during the non-breeding season.

- 3.2.3 The changes made to the initial list of sites only impacted SPAs and Ramsar Sites identified for seabirds. Thus, no changes were made to sites identified for impacts to migratory birds (Table 4.7 in Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report).

- 3.2.4 The changes are described in more detail in the following sections, with a summary of the changes made presented in Table 3.6.

3.3 Review of the Screening Outcomes

Changes to Species Included Within Screening Process

- 3.3.1 The HRA Stage 1 LSE Screening Report (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report) reports the sites and associated qualifying features that have the potential for LSE due to impacts from the Proposed Development. As only 12 months of DAS had been undertaken at the time of writing the HRA Stage 1 LSE Screening Report (in Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report), a precautionary approach was undertaken with

species that were absent or observed in low numbers during this period screened in. This was due to the potential for these species to be recorded in greater numbers during the second year of the DAS programme. Thus, it was ensured that no Qualifying Features or sites were screened out prematurely.

3.3.2 The DAS Area covered the E3 Plan Option Area plus a 12 km buffer with the Extended DAS Area extended to the Aberdeenshire coastline from April to August inclusive (Figure 3.1). The full DAS programme consisted of 24 DAS surveys. Further information regarding the DAS programme can be found in Section 2 of the Volume 3, Technical Appendix 11.1: Offshore Ornithology Baseline Characterisation Report (TWP-BOW-RPS-OFE-RPT-00020) of the Offshore EIA Report.

3.3.3 Following a review of the full 24-month DAS dataset, it was found that nine species previously determined to have the potential for LSE at various sites (based on the preliminary analysis of the first 12 months of DAS data) were absent or observed in low numbers (Table 3.1) within the Offshore Ornithology Study Area (Figure 3.1). It was also found that these species were absent or recorded in low numbers within the area covered by DAS surveys varied depending on the season flown. The DAS Area (E3 POA plus a 12 km buffer) was covered by all DAS, with the Extended DAS Area (DAS Area extended to the Aberdeenshire coastline) flown from April to August inclusive (see Section 2 and Figure 1.1 of the Volume 3, Technical Appendix 11.1: Offshore Ornithology Baseline Characterisation Report (TWP-BOW-RPS-OFE-RPT-00020) of the Offshore EIA Report).

3.3.4 Nine species were recorded in low numbers within the DAS Area, Extended DAS Area (Table 3.1) and the Export Cable Corridor Study Area the (Export Cable Corridor plus 10 km buffer up to Mean High Water Spring (MHWS), selected as a precautionary measure with regards to the potential presence of red-throated diver, which may be displaced up to 10 km, as recommended by NatureScot (2023a); Table 3.2). These species are:

- red-throated diver *Gavia stellata*;
- Manx shearwater *Puffinus puffinus*;
- European storm petrel *Hydrobates pelagicus*, hereafter ‘storm petrel’;
- Leach’s storm petrel *H. leucorhous*;
- great cormorant *Phalacrocorax carbo*, hereafter ‘cormorant’;
- European shag *Gulosus aristotelis*, hereafter ‘shag’;
- sandwich tern *Thalasseus sandvicensis*;
- great skua *Stercorarius skua*; and
- Arctic skua *S. parasiticus*.

- 3.3.5 Due to the small number of individuals within the vicinity of the Array Area or Export Cable Corridor of the Proposed Development for each of these species, the impacts are expected to be negligible. Moreover, the DAS results for the Export Cable Corridor Study Area are further supported by low and high tide intertidal surveys which only recorded cormorant, shag and lesser black-backed gull, with the peak count across all surveys not exceeding six for any of the three recorded species. Moreover, the results of surveys were found to align with Wetland Bird Survey database (Volume 3, Technical Appendix 11.2: Nearshore, Intertidal and Offshore Ornithology Along the Export Cable Corridor Baseline Report (TWP-BOW-RPS-OFE-RPT-00084) of the Offshore EIA Report).
- 3.3.6 Therefore, the potential for LSE to any site during the breeding and non-breeding season due to impacts to any of these nine species can be screened out for both the Array Area and Export Cable Corridor of the Proposed Development. These changes impact sites which have any of the nine species recorded in low numbers listed as a Qualifying Feature or named component of a seabird assemblage. The full list is presented in Table 3.6.
- 3.3.7 However, it should be noted that although sandwich tern were recorded in low numbers, the sandwich tern feature of Ythan Estuary, Sands of Forvie and Meikle Loch SPA and Ramsar Site has been screened in for the assessment of disturbance to birds due to vessel movements (see Paragraph 3.5.3).
- 3.3.8 During consultation (Table 2.1), NatureScot reviewed Section 4.3 of the Volume 3, Technical Appendix 11.1: Offshore Ornithology Baseline Characterisation Report (TWP-BOW-RPS-OFE-RPT-00020) of the Offshore EIA Report which outlines the species taken forward for the assessment of collision risk and distributional responses, agreeing with the Applicants approach. A summary of the changes described within this section are presented in Table 3.6.

Table 3.1: The Number of Observations Recorded Across the Full DAS Dataset in the Array Area, Array Area Plus a 2 km Buffer, DAS Area and Extended DAS Area for Species Screened Out for Potential LSE

Species	Number of observations			
	Array Area	Array Area plus 2 km buffer	DAS Area	Extended DAS Area ¹
Red-throated diver	0	0	10	32
Manx shearwater	3	3	16	55
Storm petrel	9	14	43	16
Leach's storm petrel	0	1	1	0
Cormorant	0	0	0	15
Shag	0	0	2	9
Sandwich tern	0	0	2	135
Great skua	0	1	5	8
Arctic skua	0	0	5	5

¹ The Extended DAS Area was only covered by flights flown from April to August (inclusive)

Table 3.2: The Number of Observations Recorded Across the Full DAS Dataset in the Nearshore, Mid and Offshore Section of the Export Cable Corridor for Species Screened Out for Potential LSE

Species	Number of observations			
	Nearshore Section	Mid Section	Offshore Section	Full Export Cable Corridor Study Area
Red-throated diver	6	1	0	7
Manx shearwater	21	8	8	37
Storm petrel	0	0	2	2
Leach's storm petrel	0	0	0	0
Cormorant	4	0	0	4
Shag	3	2	0	5
Sandwich tern	0	0	0	0
Great skua	1	2	1	4
Arctic skua	0	1	2	3

¹ The Extended DAS Area did not cover the full extent of the Export Cable Corridor Study Area (Figure 3.1)

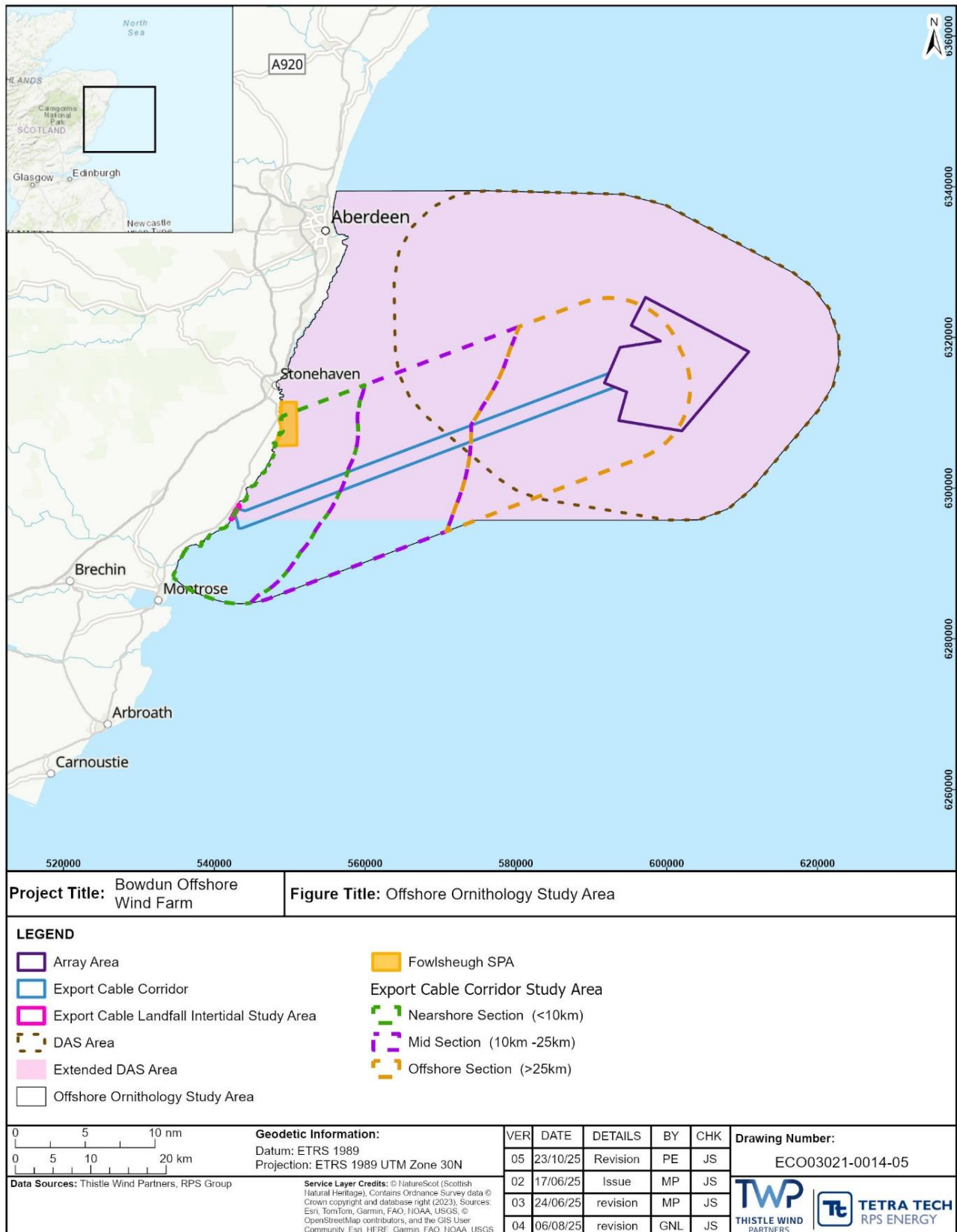


Figure 3.1: Offshore Ornithology Area

Changes to SPAs and Ramsar Sites Deemed to Have Connectivity With the Proposed Development During the Breeding Season

- 3.3.9 Once the list of species with the potential for LSE due to impacts from the Proposed Development was reviewed, the following nine seabird species observed within the 24-month DAS dataset were assessed in the RIAA:
- northern fulmar *Fulmarus glacialis*, hereafter ‘fulmar’;
 - northern gannet *Morus bassanus*, hereafter ‘gannet’;
 - black-legged kittiwake *Rissa tridactyla*, hereafter ‘kittiwake’;
 - great black-backed gull *L. marinus*;
 - European herring gull *L. argentatus*, hereafter ‘herring gull’;
 - Arctic tern *Sterna paradisaea*;
 - common guillemot *Uria aalge*, hereafter ‘guillemot’;
 - razorbill *Alca torda*; and
 - Atlantic puffin *Fratercula arctica*, hereafter ‘puffin’.
- 3.3.10 For each species, the list of sites identified to have connectivity with the Proposed Development, and therefore the potential for LSE, during the breeding season were reviewed.
- 3.3.11 For the purpose of this RIAA, sites are determined to have connectivity, and therefore the potential for LSE, if the distance to the Array Area or Export Cable Corridor is less than or equal to the foraging range of any of the sites Qualifying Features or named components of a qualifying assemblage. Seabird features may have connectivity with only one section of the Proposed Development (e.g. guillemot at Forth Islands SPA have connectivity with the Export Cable Corridor, but not the Array Area).
- 3.3.12 Connectivity has been determined by measuring the by-sea distance from the closest edge of the Array Area or Export Cable Corridor to the closest edge of the seabird colony following NatureScot guidance (2023c). The relevant recommended foraging ranges used are presented in Table 3.3.

Table 3.3: Species- and Site-specific Foraging Ranges Used to Determine Connectivity with the Array Area

Species	Relevant SPAs	Recommended foraging range (km) (NatureScot, 2023c)
Fulmar	All SPAs	1,200.2
Gannet	All SPAs excluding Forth Islands SPA, Grassholm SPA and St Kilda SPA	509.4
	Forth Islands SPA	590.0
	Grassholm SPA	516.7
	St Kilda SPA	709.0
Kittiwake	All SPAs	300.6
Herring gull	All SPAs	85.6

Species	Relevant SPAs	Recommended foraging range (km) (NatureScot, 2023c)
Guillemot	All SPAs excluding Northern Isle SPAs	95.2
	Northern Isle SPAs	153.7
Puffin	All SPAs	265.4
Razorbill	All SPAs excluding Northern Isle SPAs	122.2
	Northern Isles SPAs	164.6
Great black-backed gull	All SPAs	73.0
Arctic tern	All SPAs	40.5

3.3.13 During a review of the HRA Stage 1 LSE Screening Report (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report), it was found that the foraging ranges recommended by NatureScot (NatureScot, 2023b; Table 3.3) were not consistently applied. Due to this, a full review of the list of sites with potential for LSE was undertaken and 13 changes were made to the European Sites deemed to have connectivity with the Proposed Development during the breeding season (based on recommended foraging ranges), as shown in Table 3.4. It should also be noted the list of sites with connectivity to the Array Area during the breeding season matches the list presented in Table 3.15 of Volume 3, Technical Appendix 11.1: Offshore Ornithology Baseline Characterisation (TWP-BOW-RPS-OFE-RPT-00020) of the Offshore EIA Report, which has been reviewed by NatureScot (Table 2.1). Feedback received has been considered during this review.

Table 3.4: Details of the Changes Made to European Sites Determined to Have Connectivity with the Proposed Development During the Breeding Season in the HRA Stage 1 LSE Screening Report (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report)

Species	SPA	Recommended foraging range (km) (NatureScot 2023c)	By-sea distance from the Array Area (km) ¹	Proposed to be taken forward for assessment in the HRA Stage 1 LSE Screening Report?	Taken forward for assessment in this RIAA following review?
Fulmar	Deenish Island and Scariff Island	1,200.2	1,194.02	No	Yes
	Iveragh Peninsula		1,161.11	No	Yes
	Puffin Island		1,182.79	No	Yes
	Skelligs		1,189.68	No	Yes
Kittiwake	Cape Wrath	300.6	311.08	Yes	No
	East Caithness Cliffs		180.44	No	Yes
	Flamborough and Filey Coast		300.38	No	Yes

Species	SPA	Recommended foraging range (km) (NatureScot 2023c)	By-sea distance from the Array Area (km) ¹	Proposed to be taken forward for assessment in the HRA Stage 1 LSE Screening Report?	Taken forward for assessment in this RIAA following review?
	Handa		351.31	Yes	No
Razorbill	St Abb's Head to Fast Castle	122.2	117.18	No	Yes
Guillemot	Farne Islands	95.2	140.24	Yes	No
	Forth Islands		101.40	Yes	No
	St Abb's Head to Fast Castle		117.18	Yes	No
	Troup, Pennan and Lion's Heads		96.95	Yes	No

¹Distances as presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038), Annex A: Colony Distances from the Array Area. Distances may differ from those presented within the HRA Stage 1 LSE Screening Report (Part 1, Appendix 1A; Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report) as distances were remeasured using R v 4.2.2 (R Core Team, 2024).

3.3.14 Where relevant, all SPAs found to have connectivity with either the Array Area, Export Cable Corridor or both components of the Proposed Development during the breeding season have been taken forward for assessment of potential LSE during both the breeding and non-breeding season.

Species with Connectivity to the Export Cable Corridor only

3.3.15 Two SPAs had features with connectivity with Export Cable Corridor only using distances presented in the HRA Stage 1 LSE Screening Report (Part 1, Appendix 1A; Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report). These SPAs are:

- Forth Islands SPA for guillemot and herring gull; and
- St Abb's Head to Fast Castle SPA for guillemot.

3.3.16 As these species do not have connectivity with the Array Area, the aforementioned species have not been assessed for collision risk or distributional responses as these impacts are not relevant to the Export Cable Corridor.

Changes to SPAs and Ramsar Sites Deemed to Have Connectivity With the Array Area During the Non-breeding Season

3.3.17 During the non-breeding season, breeding adult seabirds foraging ranges are no longer constrained by the need to provision for chicks. As breeding adults can travel much further during the non-breeding season, NatureScot (2023c) advises the use of the relevant Biologically Defined Minimum Population Scales (BDMPS), presented in Furness (2015), to determine connectivity during the non-breeding season for all species taken forward for screening of potential

LSE during the non-breeding season except for guillemot, herring gull and puffin.

- 3.3.18 Unlike the majority of species screened in for assessment, both guillemot and herring gull have been found to stay within the vicinity of their breeding colonies during the non-breeding season (NatureScot, 2023c; MD-LOT, 2024). Thus, instead of the Furness (2015) approach, NatureScot (2023c) recommends that connectivity and apportioning for these species is carried out per the same approach used during the breeding season. Therefore, the list of sites with the potential for LSE during the breeding season is the same as those identified within the non-breeding season for guillemot and herring gull. Further detail on determining connectivity during the non-breeding season can be found in Part Three, Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 3.3.19 In addition to the two previously mentioned species, puffin have not been assessed during the non-breeding season. As the CEF was unavailable at the time of writing this report, in order to assess the impact of the Proposed Development in-combination with other projects the predicted mortalities were collated by Grant (2025). This collation of impacts does not include impacts to puffin during the non-breeding season following advice received within the Scoping Opinion for Berwick Bank OWF (MD-LOT, 2021), which recommends that potential impacts on puffin during the non-breeding season did not require assessment due to the highly dispersive nature of the species.
- 3.3.20 It is recommended by NatureScot (2023c) to use the Furness approach during the non-breeding season for the remaining species. Therefore, the species screened in for the potential for LSE during the non-breeding season were reviewed for:
- Arctic tern;
 - fulmar;
 - gannet;
 - kittiwake;
 - great black-backed gull; and
 - razorbill.
- 3.3.21 As noted in the Proposed Development's Scoping Opinion (MD-LOT, 2024), sites with connectivity during the non-breeding season can be excluded if they have a negligible contribution to the BDMPS population. Following this advice, SPAs that contribute less than 1% of the adults found within the BDMPS during all relevant non-breeding periods presented in Furness (2015) and do not have connectivity during the breeding season have been screened out for assessment of potential LSE.

- 3.3.22 The proportion of adults from each site within the relevant BDMPS for each species is shown in Table 3.5. The information provided in this table supersedes information presented in Tables 4.4 and 4.5 of the HRA Stage 1 LSE Screening Report (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report) which presented the proportion of breeding adults from each SPA that are present within the BDMPS, as opposed to the proportion of breeding adults within the BDMPS associated with each SPA.
- 3.3.23 To apportion impacts assessed quantitatively, sites found to have connectivity with the Array Area during the breeding season but that do not form part of the BDMPS presented in Furness (2015), have been incorporated into the Furness (2015) method as described in Section 4 of Part Three, Appendix 3A: Offshore Ornithology Special Protected Areas Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).

Table 3.5: Proportion of Adults Found Within the Relevant BDMPS from Each SPA Presented in Furness (2015). SPAs Which Meet the Threshold of 1% and are Screened in for Assessment During the Non-breeding Season are Highlighted in Boldface Font

SPA	Kittiwake		Gannet		Arctic tern	Razorbill		Fulmar		Great black-backed gull
	UK North Sea and Channel Waters BDMPS							UK North Sea Waters BDMPS		
	Autumn migration	Spring migration	Autumn migration	Spring migration	Migration	Migration	Winter	Winter	Migration	Non-breeding
Ailsa Craig	0.0%	0.0%	0.0%	0.0%	-	-	-	-	-	-
Auskerry	-	-	-	-	1.2%	-	-	-	-	-
Buchan Ness to Collieston Coast	3.1% ¹	4.0% ¹	-	-	-	-	-	0.5% ¹	0.5% ¹	-
Calf of Eday	0.2% ¹	0.2% ¹	-	-	-	-	-	0.6% ¹	0.6% ¹	1.8%
Canna and Sanday	0.0%	0.0%	-	-	-	-	-	-	-	-
Cape Wrath	0.0%	0.1%	-	-	-	0.0%	0.4%	0.0% ¹	0.0% ¹	-
Copinsay	0.2% ¹	0.2% ¹	-	-	-	-	-	0.6% ¹	0.5% ¹	1.4%
Coquet Island	-	-	-	-	2.1%	-	-	-	-	-
East Caithness Cliffs	10.1% ¹	12.9% ¹	-	-	-	8.3%	7.1%	4.9% ¹	5.0% ¹	1.1%
Fair Isle	0.2%	0.2%	2.6% ¹	3.4% ¹	0.0%	0.6%	0.5%	10.2% ¹	9.3% ¹	-
Farne Islands	0.9% ¹	1.1% ¹	-	-	3.3%	-	-	-	-	-
Fetlar	-	-	-	-	0.0%	-	-	3.1% ¹	2.8% ¹	-
Flamborough and Filey Coast	9.4% ¹	12.0% ¹	9.1% ¹	9.5% ¹	-	6.6%	5.7%	0.3% ¹	0.3% ¹	-
Flannan Isles	0.0%	0.0%	-	-	-	0.0%	0.2%	0.1% ¹	0.0% ¹	-
Forth Islands	0.8% ¹	1.0% ¹	45.8% ¹	47.4% ¹	0.5%	1.7% ¹	1.5% ¹	-	-	-
Foula	0.1%	0.1%	-	-	0.0%	0.2%	0.2%	0.3% ¹	0.3% ¹	-
Fowlsheugh	2.3% ¹	3.0% ¹	-	-	-	2.3% ¹	2.0% ¹	6.8% ¹	6.2% ¹	-

SPA	Kittiwake		Gannet		Arctic tern	Razorbill		Fulmar		Great black-backed gull
	UK North Sea and Channel Waters BDMPS							UK North Sea Waters BDMPS		
	Autumn migration	Spring migration	Autumn migration	Spring migration	Migration	Migration	Winter	Winter	Migration	Non-breeding
Grassholm	-	-	0.0%	0.0%	-	-	-	-	-	-
Handa	0.0%	0.0%	-	-	-	0.1%	1.0%	0.1% ¹	0.1% ¹	-
Hermaness, Saxa Vord and Valla Field	0.1%	0.1%	16.1% ¹	20.8% ¹	-	-	-	0.0% ¹	0.0% ¹	-
Hoy	0.1% ¹	0.1% ¹	-	-	-	-	-	2.4% ¹	2.2% ¹	0.4%
Isles of Scilly	-	-	-	-	-	-	-	-	-	0.1%
Marwick Head	0.1% ¹	0.2% ¹	-	-	-	-	-	-	-	-
Mingulay and Berneray	0.0%	0.0%	-	-	-	0.1%	1.9%	6.7% ¹	6.1% ¹	-
Mousa	-	-	-	-	0.0%	-	-	-	-	-
North Caithness Cliffs	2.5% ¹	3.2% ¹	-	-	-	1.1%	1.0%	0.1% ¹	0.0% ¹	-
North Colonsay and Western Cliffs	0.0%	0.0%	-	-	-	-	-	-	-	-
North Rona and Sula Sgeir	0.0%	0.0%	0.8% ¹	0.0% ¹	-	0.0%	0.2%	4.9% ¹	4.5% ¹	0.0%
Noss	0.1%	0.2%	6.4% ¹	8.4% ¹	-	-	-	0.0% ¹	0.0% ¹	-
Papa Stour	-	-	-	-	1.8%	-	-	-	-	-
Papa Westray	-	-	-	-	0.3%	-	-	-	-	-
Pentland Firth Islands	-	-	-	-	0.0%	-	-	-	-	-
Rathlin Island	0.0%	0.0%	-	-	-	0.2%	1.4%	1.8% ¹	1.6% ¹	-

SPA	Kittiwake		Gannet		Arctic tern	Razorbill		Fulmar		Great black-backed gull
	UK North Sea and Channel Waters BDMPS							UK North Sea Waters BDMPS		
	Autumn migration	Spring migration	Autumn migration	Spring migration	Migration	Migration	Winter	Winter	Migration	Non-breeding
Rousay	0.4% ¹	0.6% ¹	-	-	0.1%	-	-	0.0% ¹	0.0% ¹	-
Rum	0.0%	0.0%	-	-	-	-	-	-	-	-
Shiant Isles	0.0%	0.0%	-	-	-	0.1%	0.8%	0.4% ¹	0.3% ¹	-
Skomer, Skokholm and the Seas off Pembrokeshire	0.0%	0.0%	-	-	-	0.1%	0.6%	-	-	-
St Abb’s Head to Fast Castle	0.8% ¹	1.1% ¹	-	-	-	0.8% ¹	0.7% ¹	-	-	-
St Kilda	0.0%	0.0%	4.9% ¹	0.0% ¹	-	0.0%	0.3%	0.0% ¹	0.0% ¹	-
Strangford Lough					0.0%					
Sule Skerry and Sule Stack	-	-	0.4% ¹	0.0% ¹	-	-	-	-	-	-
Sumburgh Head	0.1%	0.1%	-	-	0.3%	-	-	0.6% ¹	0.0% ¹	-
Troup, Pennan and Lion’s Head	3.7% ¹	4.8% ¹	-	-	-	1.2% ¹	1.0% ¹	0.1% ¹	0.1% ¹	-
West Westray	3.0% ¹	3.8% ¹	-	-	0.8%	0.3%	0.3%	0.6% ¹	0.6% ¹	-

¹ SPA found to have connectivity during the breeding season and therefore assessed during the non-breeding season irrespective of the proportion of adults contributed to BDMPS.

3.3.24 After reviewing the proportions presented in Table 3.5, the following qualifying species previously reported to have potential for LSE during the non-breeding season (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report) were screened out:

- kittiwake at Canna and Sanday SPA, Cape Wrath SPA, Handa SPA, Mingulay and Berneray SPA and North Colonsay and Western Cliffs SPA;
- razorbill at Skomer, Skokholm and the Seas off Pembrokeshire SPA; and
- great black-backed gull at the Isles of Scilly SPA.

Changes to Existing Impact Pathways

3.3.25 Although it was proposed within the HRA Stage 1 LSE Screening Report (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report), fulmar was not assessed for collision risk mortality due to collision risk with rotor blades within this RIAA following advice presented within the Scoping Opinion (MD-LOT, 2024). This is due to the relatively low risk of collision impact, as fulmar flight heights are generally close to the sea surface and below potential collision height (Johnston *et al.*, 2014). However, fulmar was assessed for distributional responses following advice within the Scoping Opinion (MD-LOT, 2024).

3.3.26 Within the HRA Stage 1 LSE Screening Report (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report) Arctic tern was screened in for assessment of both distributional response and collision risk. However, Arctic tern has not been assessed for distributional responses within this RIAA due to the low number of observations and sensitivity of the species to the impact (further described in Section 2.1 of Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report). Moreover, this change was supported within feedback from NatureScot on Volume 3, Technical Appendix 11.1: Offshore Ornithology Baseline Characterisation (TWP-BOW-RPS-OFE-RPT-00020) of the Offshore EIA Report (Table 2.1).

3.3.27 It is also noted that multiple marine SPAs were screened in for the assessment of breeding seabird features. Marine SPAs are designated for breeding seabirds as they provide important habitat for behaviours such as foraging and are functionally linked to a non-marine SPA counterpart (e.g. the Seas off Foula SPA and Foula SPA). As the seabird colony is present within the non-marine SPA, with the marine SPA being functionally linked to the non-marine counterpart, breeding seabirds have not been assessed separately for any marine SPAs screened in during the HRA Stage 1 LSE Screening Report (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report). The only marine SPA screened in for assessment is Moray Firth SPA due to displacement and disturbance to birds due to vessel movements (see Paragraph 3.5.3).

3.4 Summary of Changes and Updated Screening Conclusions

- 3.4.1 A summary of the changes made to the conclusions of the initial screening exercise, presented in HRA Stage 1 LSE Screening Report (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report), following a review of the full 24 month DAS dataset (Section 3.3) are presented in Table 3.6.
- 3.4.2 Following the review of the initial screening list, 61 SPAs, of which four are also Ramsar Sites, were found to have qualifying marine ornithological features that could not be ruled out for LSE. Of these 61 SPAs, 11 sites were taken forward for assessment of potential LSE to migratory birds and non-breeding waterbird assemblages only.

Table 3.6: Summary of the Changes Made to the Initial List of ‘All SPAs and Ramsar Sites for Which the Potential for LSE Could not be Discounted, and for Which an AA is Required’ Following a Review of the Full 24 month Dataset and HRA Screening Response (MD-LOT, 2024)

Description of Change	Qualifying feature	Sites impacted
Species included in the HRA Stage 1 LSE Screening Report (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report). However, following a review of the full 24-month dataset it was determined there was no likelihood of potential LSE due to the absence or low number of observations recorded.	Manx shearwater	• Aberdaron Coast and Bardsey Island SPA; • Blasket Islands SPA; • Copeland Islands SPA; • Cruagh Island SPA; • Deenish Island and Scariff Island SPA; • Outer Ards Ramsar Site; • Puffin Island SPA; • Rum SPA; • Skelligs SPA; • Skomer, Skokholm and the Seas off; Pembrokeshire SPA; and • St Kilda SPA.
	Lesser black-backed gull	• Ailsa Craig SPA; • Alde-Ore Estuary SPA; • Bowland Fells SPA; • Forth Islands SPA; • Isles of Scilly SPA; • Lough Neagh and Lough Beg SPA; and • Ribble and Alt Estuaries SPA.
	Storm petrel	• Auskerry SPA; • Priest Island (Summer Isles) SPA; and • Sule Skerry and Sule Stack SPA.

Description of Change	Qualifying feature	Sites impacted
	Leach's storm petrel	• Flannan Isles SPA; • Foula SPA; • North Rona and Sula Sgeir SPA; • Ramna Stacks and Gruney SPA; • St Kilda SPA; • Stags of Broad Haven SPA; and • Sule Skerry and Sule Stack SPA.
	Shag	• Buchan Ness to Collieston Coast SPA; • Farne Island SPA; and • St Abb's Head to Fast Castle SPA.
	Red-throated diver	• Caithness and Sutherland Peatlands SPA; • Lewis Peatlands SPA; • Mointeach Scadabhaigh SPA; • Orkney Mainland Moors SPA; • Otterswick and Graveland SPA; and • Ronas Hill – North Roe and Tingon SPA.
	Cormorant	• Farne Islands SPA.
	Great skua	• Fair Isle SPA; • Fetlar SPA; • Foula SPA; • Handa SPA; • Hermaness, Saxa Vord and Valla Field SPA; • Hoy SPA; • Noss SPA; • Ronas Hill – North Roe and Tingon SPA; and • St Kilda SPA.
	Arctic skua	• Papa Westray SPA.

Description of Change	Qualifying feature	Sites impacted
	Sandwich tern	Ythan Estuary, Sands of Forvie and Meikle Loch SPA and Ramsar Site¹
Site determined to have connectivity, and therefore potential for LSE, during the breeding season in the HRA Stage 1 LSE Screening Report (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report). Following a review, the site was found to be outside the species foraging range and therefore was screened out for potential for LSE during the breeding season.	Kittiwake	- Cape Wrath SPA; and - Handa SPA.
	Guillemot	- Farne Islands SPA; - Forth Islands SPA; - St Abb's Head to Fast Castle SPA; and - Troup, Pennan and Lion's Head SPA.
Site not presented within the HRA Stage 1 LSE Screening Report (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report) but found to have connectivity with the Proposed Development during the breeding season, and therefore the non-breeding season also.	Fulmar	- Deenish Island and Scariff Island SPA; - Iveragh Peninsula SPA; - Puffin Island SPA; and - Skelligs SPA.
	Kittiwake	- East Caithness Cliffs SPA; and - Flamborough and Filey Coast SPA.
	Razorbill	St Abb's Head to Fast Castle SPA.
SPA not screened in for assessment during the non-breeding season within in the HRA Stage 1 LSE Screening Report (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report). However, following advice provided within the Scoping Opinion (MD-LOT, 2024), sites which contribute >1% of adults found within the relevant BDMPS should be assessed.	Arctic tern	- Auskerry SPA; - Coquet Island SPA; - Farne Islands SPA; and - Papa Stour SPA.
	Razorbill	- East Caithness Cliffs SPA; - Forth Islands SPA; - Handa SPA; - North Caithness Cliffs SPA; and - Rathlin Island SPA.

Description of Change	Qualifying feature	Sites impacted
	Great black-backed gull	• Calf of Eday SPA; • Copinsay SPA; and • East Caithness Cliffs SPA.
Site determined to have connectivity, and therefore potential for LSE, during the non-breeding season only in the HRA Stage 1 LSE Screening Report (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report). Following advice provided within the Scoping Opinion (MD-LOT, 2024), sites which contribute a negligible proportion of adults (<1%) found within the relevant BDMPS and do not have connectivity with the Proposed Development during the breeding season were not assessed for assessment within this RIAA	Kittiwake	• Canna and Sanday SPA; • Cape Wrath SPA; • Handa SPA; • Mingulay and Berneray SPA; and • North Colonsay and Western Cliffs SPA.
	Razorbill	• Skomer, Skokholm and the Seas off; and Pembrokeshire SPA.
	Great black-backed gull	• Isles of Scilly SPA.
As stated within the Scoping Opinion (MD-LOT, 2024) for herring gull and NatureScot (2023c) for guillemot, it was determined that the recommended foraging range should be used to determine connectivity during the non-breeding season. Therefore, SPAs outside the relevant ranges were screened out for assessment during the non-breeding season only.	Herring gull	• Ailsa Craig SPA; • Alde-Ore Estuary SPA; • Buchan Ness to Collieston Coast SPA; • Canna and Sanday SPA; • Flamborough and Filey Coast SPA; • Morecambe Bay and Duddon Sands Estuary SPA; and • St Abb's Head to Fast Castle SPA.
	Guillemot	• Farne Islands SPA; and • Skomer, Skokholm and the Seas off Pembrokeshire SPA.

Description of Change	Qualifying feature	Sites impacted
As presented in the interim CEF (Grant, 2025), following advice within the Scoping Opinion for Berwick Bank Offshore Wind Farm (MD-LOT, 2021), puffin was not assessed during the non-breeding season due to high levels of dispersal.	Puffin	• Canna and Sanday SPA; • Coquet Island SPA; • Farne Islands SPA; • Flamborough and Filey Coast SPA; • Forth Islands SPA; • Hoy SPA; • North Caithness Cliffs SPA; and • Skomer, Skokholm and the Seas off Pembrokeshire SPA.
Marine SPAs are only assessed for disturbance and displacement to birds due to vessel disturbance, therefore any marine SPAs not screened due to the potential for LSE due to this impact having been screened out for assessment	NA	• Irish Sea Front SPA; • Northumberland Marine SPA; • Outer Firth of Forth and St Andrews Bay Complex SPA; • Seas off Foula SPA; and • Seas off St Kilda SPA.

¹ Although sandwich tern were recorded in low numbers, the feature has been screened in for assessment for disturbance to birds due to vessel movements (see Paragraph 3.5.3).

3.5 Review of Impact Pathways

- 3.5.1 A review of the impact pathways with the potential to result in LSE has been undertaken following advice from NatureScot in the Scoping Opinion (MD-LOT, 2024).
- 3.5.2 Following advice, impacts that were previously omitted from the HRA Stage 1 LSE Screening Report (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report) were screened in for assessment. These impacts are:
- disturbance and displacement to birds from vessel movements for guillemot and razorbill;
 - direct impacts from UXO clearance for diving seabirds (guillemot, razorbill, puffin and gannet); and
 - indirect impacts from construction/decommissioning noise for all seabirds screened in for assessment within the RIAA.
- 3.5.3 Within the Scoping Opinion (MD-LOT, 2024), it was recommended to assess any marine SPA for which there was a possibility for vessel movements to overlap with the SPA boundaries. Although the ports to be used are yet to be determined, two potential ports which may overlap with SPA boundaries have been identified, namely Inverness and Cromarty Firth Green Freeport (a group of developments including Port of Cromarty Firth, Port of Nigg, Port of Inverness, Highland Deephaven, Ardersier Energy Transition Facility (hereafter ‘Ardersier’) and Inverness Campus) and the Port of Aberdeen. It is expected that vessel movements from Inverness and Cromarty Firth Green Freeport have the potential to cross the Moray Firth SPA. However, it should be noted that of the developments which make up Inverness and Cromarty Firth Green Freeport, it is expected that the Port of Cromarty Firth, Port of Nigg and Ardersier are the most likely ports to be used during the Proposed Development’s lifetime. It is also expected that vessel movements from the Port of Aberdeen are likely to come within 15 km of Ythan Estuary, Sands of Forvie and Meikle Loch SPA and Ramsar Site. Therefore, following NatureScot guidance (2023c) a qualitative assessment has been carried out for the SPA.
- 3.5.4 Finally, within the initial screening exercise (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report), the potential for LSE due to attraction to light was identified for storm petrel, Leach’s storm petrel and Manx shearwater. However, as these species were screened out for assessment (Section 3.3, Table 3.1) due to the low numbers of observations recorded by the DAS this impact has been screened out for assessment.
- 3.5.5 A more detailed discussion, including the relevant phases and species impact, of the additional impact pathways screened in for assessment is provided in Section 5.2, with a summary of the updated screening conclusions presented in Table 3.7 and Figure 3.2.

Table 3.7: All SPAs and Ramsar Sites for Which the Potential for LSE Could not be Discounted, and for Which an AA is Required for all Phases of the Proposed Development (C = Construction, O&M = Operation and Maintenance, D = Decommissioning)

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment	
Seabirds						
UK9002381	Auskerry SPA	• Arctic tern (breeding); and • storm petrel (breeding).	C	Disturbance to prey species and their habitats	• Arctic tern¹.	
				Temporary habitat loss and/or habitat disturbance		
				Indirect impacts from construction/decommissioning noise		
			O&M	Collision risk mortality due to collision with rotor blades		Disturbance to prey species and their habitats
				Disturbance to prey species and their habitats		
			D	Disturbance to prey species and their habitats		Temporary habitat loss and/or habitat disturbance
				Temporary habitat loss and/or habitat disturbance		
				Indirect impacts from construction/decommissioning noise		
			004008	Blasket Islands SPA		• Arctic tern (breeding); • chough (breeding); • shag (breeding); • storm petrel (breeding); • fulmar (breeding); • herring gull (breeding); • kittiwake (breeding);
Disturbance to prey species and their habitats						
Temporary habitat loss and/or habitat disturbance						
Indirect impacts from construction/decommissioning noise						

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
		• lesser black-backed gull (breeding); • Manx shearwater (breeding); • puffin (breeding); • razorbill (breeding); and • breeding seabird assemblage including the above species.	O&M	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
			D	Disturbance to prey species and their habitats	
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
UK9002491	Buchan Ness to Collieston Coast SPA	• Breeding seabird assemblage including the following named components: • fulmar; • guillemot; • herring gull; • kittiwake; and • shag.	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; • guillemot; and • kittiwake.
				Disturbance to prey species and their habitats	• fulmar; • guillemot; • herring gull; and • kittiwake.
				Temporary habitat loss and disturbance	• fulmar; • guillemot; and • kittiwake.
				Direct impacts from UXO clearance	• guillemot.
				Indirect impacts from construction/decommissioning noise	• fulmar; • guillemot;

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
					• herring gull; and • kittiwake.
			O&M	Collision risk mortality due to collision with rotor blades	• herring gull; and • kittiwake.
				Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; • guillemot; and • kittiwake.
				Disturbance to prey species and their habitats	• fulmar; • guillemot; • herring gull; and • kittiwake.
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• kittiwake; • fulmar; and • guillemot.
				Disturbance to prey species and their habitats	• fulmar; • guillemot; • herring gull; and • kittiwake.
				Temporary habitat loss and/or habitat disturbance	• fulmar; • guillemot; and

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
					kittiwake.
				Indirect impacts from construction/decommissioning noise	- fulmar; - guillemot; - herring gull; and - kittiwake.
UK9002431	Calf of Eday SPA	Breeding seabird assemblage including the following named components: fulmar; - cormorant; great black-backed gull; - guillemot; and kittiwake.	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	- fulmar; and - kittiwake.
				Disturbance to prey species and their habitats	- fulmar; - kittiwake; and - great black-backed gull¹.
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
			O&M	Collision risk mortality due to collision with rotor blades	- Kittiwake; and - great black-backed gull¹.
				Distributional responses, displacement and barrier effects from Offshore Infrastructure	- fulmar; and - kittiwake.
				Disturbance to prey species and their habitats	- fulmar; - kittiwake; and - great black-backed gull¹.

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; and • kittiwake.
				Disturbance to prey species and their habitats	• fulmar; • kittiwake; - and • great black-backed gull¹
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
UK9001231	Cape Wrath SPA	• Breeding seabird assemblage including the following named components: • fulmar; • guillemot; • kittiwake; • puffin; and • razorbill.	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
			O&M	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
004136	Clare Island SPA	• chough (breeding); • common gull <i>Larus canus</i> (breeding); • shag (breeding); • fulmar (breeding); • guillemot (breeding); • kittiwake (breeding); and • razorbill (breeding).	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
			O&M	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
004005	Cliffs of Moher SPA	• chough (breeding); • fulmar (breeding); • guillemot (breeding); • kittiwake (breeding); • puffin (breeding); • razorbill (breeding); and	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
UK9002151	Copinsay SPA	• breeding seabird assemblage including the species named above.	O&M	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
			C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; and • kittiwake.
				Disturbance to prey species and their habitat	• fulmar; • kittiwake; and • great black-backed gull¹.
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
UK9002151	Copinsay SPA	• breeding seabird assemblage including the following named components: • fulmar; • great black-backed gull; • guillemot; and • kittiwake.	O&M	Collision risk mortality due to collision with rotor blades	• great black-backed gull¹; and • kittiwake.
				Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; and • kittiwake.

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
				Disturbance to prey species and their habitats	• fulmar; • kittiwake; and • great black-backed gull¹.
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; and • kittiwake.
				Disturbance to prey species and their habitats	• fulmar; • kittiwake; and • great black-backed gull¹
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
UK9006031	Coquet Island SPA	• common tern (breeding); • Arctic tern (non- breeding); • Roseate tern (breeding); • Sandwich tern (breeding); and • breeding seabird assemblage including the following named components: • puffin; and • black-headed gull.	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• puffin.
				Disturbance to prey species and their habitats	• Arctic tern¹; and • puffin.
				Indirect impacts from UXO clearance	• puffin.
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	• Arctic tern¹; and • puffin.
			O&M	Collision risk mortality due to collision with rotor blades	• Arctic tern¹.

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment			
				Distributional responses, displacement and barrier effects from Offshore Infrastructure	puffin.			
				Disturbance to prey species and their habitats	- Arctic tern¹; and - puffin.			
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	puffin.			
				Disturbance to prey species and their habitats	- Arctic tern¹; and - puffin.			
				Temporary habitat loss and/or habitat disturbance	puffin.			
				Indirect impacts from construction/decommissioning noise	- Arctic tern¹; and - Puffin.			
			004175	Deenish Island and Scariff Island SPA	- Arctic tern (breeding); - storm petrel (breeding); fulmar (breeding); - lesser black-backed gull (breeding); and - Manx shearwater (breeding).	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	fulmar.
							Disturbance to prey species and their habitats	
Temporary habitat loss and/or habitat disturbance								
Indirect impacts from construction/decommissioning noise								
O&M	Distributional responses, displacement and barrier effects from Offshore Infrastructure							
	Disturbance to prey species and their habitats							

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure Disturbance to prey species and their habitats Temporary habitat loss and/or habitat disturbance Indirect impacts from construction/decommissioning noise	
004153	Dingle Peninsula SPA	• chough (breeding); • fulmar (breeding); and • peregrine (breeding).	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure Disturbance to prey species and their habitats Temporary habitat loss and/or habitat disturbance Indirect impacts from construction/decommissioning noise	• fulmar.
			O&M	Distributional responses, displacement and barrier effects from Offshore Infrastructure Disturbance to prey species and their habitats	
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure Disturbance to prey species and their habitats Temporary habitat loss and/or habitat disturbance Indirect impacts from construction/decommissioning noise	

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
004111	Duvillaun Islands SPA	• fulmar (breeding); • storm petrel (breeding); and • Barnacle goose <i>Branta leucopsis</i>.	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
			O&M	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
UK9001182	East Caithness Cliffs SPA	• guillemot (breeding); • herring gull (breeding); • kittiwake (breeding); • peregrine <i>Falco peregrinus</i> (breeding); • razorbill (breeding); • shag (breeding); and	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; • kittiwake; - and • razorbill¹.
				Disturbance and displacement to birds from vessel movements	• razorbill¹.
				Disturbance to prey species and their habitats	• fulmar;

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
		• breeding seabird assemblage including the above species (except peregrine) and the following named components: • fulmar; • great black-backed gull; and • cormorant.			• kittiwake; • great black-backed gull¹; and • razorbill¹.
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from UXO clearance	• razorbill¹.
				Indirect impacts from construction/decommissioning noise	• fulmar; • kittiwake; • great black-backed gull¹; and • razorbill¹.
			O&M	Collision risk mortality due to collision with rotor blades	• kittiwake; • great black-backed gull¹
				Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; • kittiwake; - and • razorbill¹.
				Disturbance and displacement to birds from vessel movements	• razorbill¹.
				Disturbance to prey species and their habitats	• fulmar; • kittiwake; • great black-backed gull¹; and • razorbill¹.

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
			D	Distributional responses, displacement and barrier effects	• fulmar; • kittiwake; - and • razorbill¹.
				Disturbance and displacement to birds from vessel movements	• razorbill¹.
				Disturbance to prey species and their habitats	• fulmar; • kittiwake; • great black-backed gull¹; - and • razorbill¹.
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
UK9002091	Fair Isle SPA	• Arctic tern (breeding); • Fair Isle wren <i>Troglodytes troglodytes fridariensis</i> (breeding); • guillemot (breeding); and • breeding seabird assemblage including all species above (except Fair Isle wren) and the following named components: • Arctic skua; • fulmar; • gannet; • great skua; • kittiwake; • puffin;	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; • kittiwake; - and • gannet.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from UXO clearance	• gannet
				Indirect impacts from construction/decommissioning noise	• fulmar; • kittiwake; - and • gannet.
			O&M	Collision risk mortality due to collision with rotor blades	• kittiwake; - and • gannet.

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment			
		• razorbill; and • shag.		Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; • kittiwake; and • gannet.			
				Disturbance to prey species and their habitats				
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; • kittiwake; and • gannet.			
				Disturbance to prey species and their habitats				
				Temporary habitat loss and/or habitat disturbance				
				Indirect impacts from construction/decommissioning noise				
			UK9006021	Farne Islands SPA	• Arctic tern (breeding); • common tern (breeding); • guillemot (breeding); • sandwich tern (breeding); • roseate tern (breeding); • breeding seabird assemblage including the above species and the following named components: • shag; • cormorant; • kittiwake; and • puffin.	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• kittiwake; and • puffin.
							Disturbance to prey species and their habitats	• kittiwake; • Arctic tern¹; and • puffin.
Temporary habitat loss and/or habitat disturbance	• kittiwake; and • puffin.							
Indirect impacts from construction/decommissioning noise	• Kittiwake; • Arctic tern¹; and • puffin.							

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
			O&M	Collision risk due to mortality due to collision with rotor blades	• kittiwake; and • Arctic tern¹.
				Distributional responses, displacement and barrier effects from Offshore Infrastructure	• kittiwake; and • puffin.
				Disturbance to prey species and their habitats	• Kittiwake; • Arctic tern¹; and • puffin.
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• kittiwake; and • puffin.
				Disturbance to prey species and their habitats	• Kittiwake; • Arctic tern¹; and • puffin.
				Temporary habitat loss and/or habitat disturbance	• Kittiwake; and • puffin.
				Indirect impacts from construction/decommissioning noise	• Kittiwake; • Arctic tern¹; and

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
					puffin.
UK9004171	Fetlar SPA	- Arctic tern (breeding); - dunlin <i>Calidris alpina</i> (breeding); - great skua <i>Stercorarius skua</i> (breeding); - red-necked phalarope <i>Phalaropus lobatus</i> (breeding); - whimbrel <i>Numenius phaeopus</i> (breeding); and breeding seabird assemblage including all species above (except whimbrel and dunlin) and the following named components: - Arctic skua; and fulmar.	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	fulmar.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and disturbance	
				Indirect impacts from construction/decommissioning noise	
			O&M	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
UK9006101	Flamborough and Filey Coast SPA	gannet (breeding); - guillemot (breeding); kittiwake (breeding); razorbill (breeding); and	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	- fulmar; - gannet; - kittiwake; and - razorbill¹.

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
		- breeding seabird assemblage including the above species and the following named component: fulmar		Disturbance and displacement to birds from vessel movements	razorbill¹.
				Disturbance to prey species and their habitats	- fulmar; - gannet; - kittiwake; - and - razorbill¹.
				Temporary habitat loss and/or habitat disturbance	razorbill¹.
				Indirect impacts from UXO clearance	- Gannet; and - razorbill ¹.
				Indirect impacts from construction/decommissioning noise	- fulmar; - gannet; - kittiwake; - and - razorbill¹.
			O&M	Collision risk due to mortality due to collision with rotor blades	- gannet; and - kittiwake.
				Distributional responses, displacement and barrier effects from Offshore Infrastructure	- fulmar; - gannet; - kittiwake; - and - razorbill¹.
				Disturbance and displacement to birds from vessel movements	razorbill¹.
				Disturbance to prey species and their habitats	- fulmar; - gannet;

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
					• kittiwake; and • razorbill¹.
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; • gannet; • kittiwake; and • razorbill¹.
				Disturbance and displacement to birds from vessel movements	• razorbill¹.
				Disturbance to prey species and their habitats	• fulmar. • Gannet; • kittiwake; and • razorbill¹.
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
UK9001021	Flannan Isles SPA	• Leach's storm petrel (breeding); and • breeding seabird assemblage including the following named components: • fulmar; • guillemot; • kittiwake; • puffin; and • razorbill.	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
			O&M	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
UK9004171	Forth Islands SPA	- Arctic tern (breeding); - common tern <i>Sterna hirundo</i> (breeding); gannet (breeding); - lesser black-backed gull (breeding); puffin (breeding); - roseate tern <i>S dougallii</i> (breeding); - sandwich tern <i>S. sandvicensis</i> (breeding); - shag (breeding); and breeding seabird assemblage including the above species and the following named components: - cormorant; guillemot; herring gull; kittiwake; razorbill; and	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	- gannet; - kittiwake; - razorbill¹; and - puffin.
				Disturbance and displacement to birds from vessel movements	- guillemot²; and - razorbill¹.
				Disturbance to prey species and their habitats	- gannet; - kittiwake; - herring gull²; - guillemot²; - razorbill¹; and - puffin.
				Temporary habitat loss and/or habitat disturbance	- gannet; - kittiwake; - herring gull²; - guillemot²; - razorbill¹; and - puffin.
				Indirect impacts from UXO clearance	gannet;

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
		sandwich tern			- guillemot²; and - razorbill¹.
				Indirect impacts from construction/decommissioning noise	- gannet; - kittiwake; - herring gull²; - guillemot²; - razorbill¹; and - puffin.
			O&M	Collision risk due to mortality due to collision with rotor blades	- gannet; and - kittiwake.
				Distributional responses, displacement and barrier effects from Offshore Infrastructure	- gannet; - kittiwake; - razorbill¹; and - puffin.
				Disturbance and displacement to birds from vessel movements	- guillemot²; and - razorbill¹.
				Disturbance to prey species and their habitats	- gannet; - kittiwake; - guillemot²;

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
			D		• razorbill¹; and • puffin.
				Distributional responses, displacement and barrier effects from Offshore Infrastructure	• gannet; • kittiwake; • razorbill¹; and • puffin.
				Disturbance and displacement to birds from vessel movements	• guillemot²; and • razorbill¹.
				Disturbance to prey species and their habitats	• gannet; • kittiwake; • guillemot²; • razorbill¹; and • puffin.
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
UK9002061	Foula SPA	• Arctic tern (breeding); • great skua (breeding); • guillemot (breeding); • Leach's storm petrel (breeding); • puffin (breeding); • red-throated diver (breeding);	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
		- shag (breeding); and breeding seabird assemblage including all species above (excluding red-throated diver) and the following named components: - Arctic skua; - kittiwake; - razorbill; and fulmar.	O&M	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
			D	Disturbance to prey species and their habitats	
				Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
UK9002271	Fowlsheugh SPA	guillemot (breeding); kittiwake (breeding); and breeding seabird assemblage including and species above and the following named components: fulmar; herring gull; and razorbill.	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	- fulmar; - kittiwake; - razorbill; and - guillemot.
				Disturbance and displacement to birds from vessel movements	- razorbill; and - guillemot.
				Disturbance to prey species and their habitats	- fulmar; - kittiwake; - razorbill; - herring gull; and - guillemot.
				Temporary habitat loss and/or habitat disturbance	- fulmar; - kittiwake; - razorbill; and

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
					• guillemot.
				Indirect impacts from UXO clearance	• razorbill; and • guillemot.
				Indirect impacts from construction/decommissioning noise	• fulmar; • kittiwake; • razorbill; • herring gull; and • guillemot.
			O&M	Collision risk due to mortality due to collision with rotor blades	• Kittiwake; and • herring gull.
				Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; • kittiwake; • razorbill; and • guillemot.
				Disturbance and displacement to birds from vessel movements	• razorbill; and • guillemot.
				Disturbance to prey species and their habitats	• Fulmar; • kittiwake; • razorbill; • herring gull; and • guillemot.
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar;

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
					• kittiwake; • razorbill; and • guillemot.
				Disturbance and displacement to birds from vessel movements	• razorbill; and • guillemot.
				Disturbance to prey species and their habitats	• fulmar; • kittiwake; • razorbill; • herring gull; and • guillemot.
				Temporary habitat loss and/or habitat disturbance	• fulmar; • kittiwake; and • razorbill.
				Indirect impacts from construction/decommissioning noise	• fulmar; • kittiwake; • razorbill; • herring gull; and • guillemot.
UK9001241	Handa SPA	• guillemot (breeding); • razorbill (breeding); and • breeding seabird assemblage including the above species and the	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; and • razorbill'.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
		following named components: - great skua; - kittiwake; and fulmar.		Disturbance and displacement to birds from vessel movements	razorbill¹.
				Direct impacts from UXO clearance	
				Indirect impacts from construction/decommissioning noise	- fulmar; and - razorbill¹.
			O&M	Distributional responses, displacement and barrier effects from Offshore Infrastructure	- fulmar; and - razorbill¹.
				Disturbance to prey species and their habitats	
				Disturbance and displacement to birds from vessel movements	razorbill¹.
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	- fulmar; and - razorbill¹.
				Disturbance to prey species and their habitats	
				Disturbance and displacement to birds from vessel movements	razorbill¹.
				Temporary habitat loss and/or habitat disturbance	- fulmar; and - razorbill¹.
				Indirect impacts from construction/decommissioning noise	
UK9002011	Hermaness, Saxa Vord and Valla Field SPA	gannet (breeding); - great skua (breeding); - puffin (breeding); - red-throated diver (breeding); and	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	- fulmar; and - gannet.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
		• breeding seabird assemblage including the following named components: • fulmar; • guillemot; • kittiwake; and • shag.		Indirect impacts from UXO clearance	• gannet.
				Indirect impacts from construction/decommissioning noise	• fulmar; and • gannet.
			O&M	Collision risk due to mortality due to collision with rotor blades	• gannet.
				Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; and • gannet.
				Disturbance to prey species and their habitats	
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; and • gannet.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
004144	High Island, Inishshark and Davillaun SPA	• Arctic tern (breeding); • barnacle goose (breeding); and • fulmar (breeding).	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
			O&M	Distributional responses, displacement and barrier effects from Offshore Infrastructure	

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
				Disturbance to prey species and their habitats	
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
004194	Horn Head to Fanad Head SPA	• barnacle goose (breeding); • chough (breeding); • shag (breeding); • fulmar (breeding); • cormorant (breeding); • Greenland white-fronted goose <i>Answer albifrons flavirostris</i> (breeding); • guillemot (breeding); • kittiwake (breeding); • peregrine (breeding); • razorbill (breeding); and • breeding seabird assemblage including the above species.	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
			O&M	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
				Indirect impacts from construction/decommissioning noise	
UK9002141	Hoy SPA	- great skua (breeding); - peregrine (breeding); - red-throated diver (breeding); and breeding seabird assemblage including the following named components: - Arctic skua; fulmar; - great black-backed gull; - guillemot; kittiwake; and puffin.	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	- fulmar; - kittiwake; and - puffin.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
			O&M	Collision risk due to mortality due to collision with rotor blades	kittiwake.
				Distributional responses, displacement and barrier effects from Offshore Infrastructure	- fulmar; - kittiwake; and - puffin.
				Disturbance to prey species and their habitats	
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	- fulmar; - kittiwake; and - puffin.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
004154	Iveragh Peninsula SPA	fulmar (breeding);	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	fulmar.

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
		- peregrine (breeding); - kittiwake (breeding); - guillemot (breeding); and - chough (breeding).		Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
			O&M	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
004189	Kerry Head SPA	- chough (breeding); and fulmar (breeding).	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	fulmar.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
			O&M	Distributional responses, displacement and barrier effects from Offshore Infrastructure	

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
				Disturbance to prey species and their habitats	
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
004069	Lambay Island SPA	- shag (breeding); fulmar (breeding); - cormorant (breeding); - greylag goose <i>Anser anser</i> (non-breeding); - guillemot (breeding); - herring gull (breeding); - kittiwake (breeding); - lesser black-backed gull (breeding); - puffin (breeding); - razorbill (breeding); and breeding seabird assemblage including the above species.	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	fulmar.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
			O&M	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
				Indirect impacts from construction/decommissioning noise	
UK9002121	Marwick Head SPA	• guillemot (breeding); and • breeding seabird assemblage including the species above and the following named components: • kittiwake.	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• kittiwake.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
			O&M	Collision risk due to mortality due to collision with rotor blades	
				Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
				Temporary habitat loss Disturbance to prey species and their habitats	
				Indirect impacts from construction/decommissioning noise	
UK9001121	Mingulay and Berneray SPA	• razorbill (breeding); and	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; and

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
		• breeding seabird assemblage including the following named components: • fulmar; • guillemot; • kittiwake; • puffin; and • shag.		Disturbance to prey species and their habitats	• razorbill ¹ .
				Temporary habitat loss and/or habitat disturbance	
				Disturbance and displacement to birds from vessel movements	• razorbill ¹ .
				Direct impacts from UXO clearance	
				Indirect impacts from construction/decommissioning noise	• fulmar; and • razorbill ¹ .
			O&M	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; and • razorbill ¹ .
				Disturbance to prey species and their habitats	
				Disturbance and displacement to birds from vessel movements	• razorbill ¹ .
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; and • razorbill ¹ .
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Disturbance and displacement to birds from vessel movements	• razorbill ¹ .
				Indirect impacts from construction/decommissioning noise	• fulmar; and • razorbill ¹ .
UK9001181	North Caithness Cliffs SPA	• guillemot (breeding);	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar;

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
		- peregrine (breeding); and breeding seabird assemblage including the above species (excluding peregrine) and the following named components: fulmar; kittiwake; puffin; and razorbill.			- kittiwake; - razorbill'; and - puffin.
				Disturbance and displacement to birds from vessel movements	razorbill¹.
				Disturbance to prey species and their habitats	- fulmar; - kittiwake; - razorbill'; and - puffin.
				Temporary habitat loss Disturbance to prey species and their habitats	- razorbill'; and - puffin.
				Indirect impacts from UXO clearance	- razorbill'; and - puffin.
				Indirect impacts from construction/decommissioning noise	- fulmar; - kittiwake; - razorbill'; and - puffin.
			O&M	Collision risk due to mortality due to collision with rotor blades	kittiwake.
				Distributional responses, displacement and barrier effects from Offshore Infrastructure	- fulmar; - kittiwake; - razorbill'; and - puffin.

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
				Disturbance and displacement to birds from vessel movements	• razorbill¹.
				Disturbance to prey species and their habitats	• fulmar; • kittiwake; • razorbill¹; and • puffin.
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; • kittiwake; • razorbill¹; and • puffin.
				Disturbance and displacement to birds from vessel movements	• razorbill¹.
				Disturbance to prey species and their habitats	• fulmar; • kittiwake; • razorbill¹; and • puffin.
				Temporary habitat loss Disturbance to prey species and their habitats	
UK9001011	North Rona and Sula Sgeir SPA	• gannet (breeding); • guillemot (breeding); • Leach's storm petrel (breeding); and • storm petrel (breeding);	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; and • gannet.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
		- breeding seabird assemblage including the following named components: fulmar; - great black-backed gull; - kittiwake; - razorbill; and - puffin.		Indirect impacts from UXO clearance	gannet.
				Indirect impacts from construction/decommissioning noise	- fulmar; - gannet.
			O&M	Collision risk due to mortality due to collision with rotor blades	gannet.
				Distributional responses, displacement and barrier effects from Offshore Infrastructure	- fulmar; and - gannet.
				Disturbance to prey species and their habitats	
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	- fulmar; and - gannet.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
UK9002081	Noss SPA	gannet (breeding); - great skua (breeding); - guillemot (breeding); breeding seabird assemblage including the above species and the following named components: fulmar; - kittiwake; and	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	- fulmar; and - gannet.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from UXO clearance	gannet.
				Indirect impacts from construction/decommissioning noise	- fulmar; and - gannet.

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
		puffin.	O&M	Collision risk due to mortality due to collision with rotor blades	gannet.
				Distributional responses, displacement and barrier effects from Offshore Infrastructure	- fulmar; and - gannet.
				Disturbance to prey species and their habitats	
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	- fulmar; and - gannet.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
UK9002051	Papa Stour SPA	Arctic tern (breeding); and - ringed plover (migratory).	C	Disturbance to prey species and their habitats	Arctic tern¹.
				Indirect impacts from construction/decommissioning noise	
			O&M	Collision risk mortality due to collision with rotor blades	
				Disturbance to prey species and their habitats	
			D	Disturbance to prey species and their habitats	
				Indirect impacts from construction/decommissioning noise	
004003	Puffin Island SPA	storm petrel (breeding);	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	fulmar.

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
		• fulmar (breeding); • lesser black-backed gull (breeding); • Manx shearwater (breeding); • puffin (breeding); • razorbill (breeding); and • breeding seabird assemblage including the above species and the following named components: • great black-backed gull; • guillemot; • kittiwake; and • shag.		Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
			O&M	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
UK9020011	Rathlin Island SPA	• guillemot (breeding); • kittiwake (breeding); • peregrine (breeding); • razorbill (breeding); and • breeding seabird assemblage including the above species and the following named components:	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; and • razorbill¹.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Disturbance and displacement to birds from vessel movements	• razorbill¹.
				Direct impacts from UXO clearance	

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
		• common eider <i>Somateria mollissima mollissima</i>; • common gull; • shag; • fulmar; • herring gull; • lesser black-backed gull; and • puffin.		Indirect impacts from construction/decommissioning noise	• fulmar; and • razorbill¹.
			O&M	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
				Disturbance and displacement to birds from vessel movements	• razorbill¹.
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; and • razorbill¹.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Disturbance and displacement to birds from vessel movements	• razorbill¹.
				Indirect impacts from construction/decommissioning noise	• fulmar; and • razorbill¹.
UK9002371	Rousay SPA	• Arctic tern (breeding); and • breeding seabird assemblage including the species above and the following named components: • Arctic skua; • kittiwake; • guillemot; and • fulmar.	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; and • kittiwake.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
			O&M	Collision risk due to mortality due to collision with rotor blades	• kittiwake.

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
				Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; and • kittiwake.
				Disturbance to prey species and their habitats	
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; and • kittiwake.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
			C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
004007	Saltee Islands SPA		O&M	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
		- storm petrel (breeding); fulmar (breeding); - gannet (breeding); - guillemot (breeding); - kittiwake (breeding); - Manx shearwater (breeding); - cormorant (breeding); - shag (breeding); - lesser black-backed gull (breeding); - herring gull (breeding); - razorbill (breeding); - puffin (breeding); and breeding seabird assemblage including the above species.		Temporary habitat loss and/or habitat disturbance Indirect impacts from construction/decommissioning noise	
UK9001041	Shiant Isles SPA	- Greenland barnacle goose <i>Branta leucopsis</i> (non-breeding); - puffin (breeding); - razorbill (breeding); and - shag (breeding); breeding seabird assemblage including the following named components:	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	fulmar.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
			O&M	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
		• fulmar; • guillemot; and • kittiwake.	D	Distributional responses, displacement and barrier effects from Offshore Infrastructure Disturbance to prey species and their habitats Temporary habitat loss and/or habitat disturbance Indirect impacts from construction/decommissioning noise	
004007	Skelligs SPA	• storm petrel (breeding); • fulmar (breeding); • gannet (breeding); • kittiwake (breeding); • Manx shearwater (breeding); • guillemot (breeding); • puffin (breeding); and • breeding seabird assemblage including the above species and the following named component: • razorbill.	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure Disturbance to prey species and their habitats Temporary habitat loss and/or habitat disturbance Indirect impacts from construction/decommissioning noise	• fulmar.
				Distributional responses, displacement and barrier effects from Offshore Infrastructure Disturbance to prey species and their habitats	
				Distributional responses, displacement and barrier effects from Offshore Infrastructure Disturbance to prey species and their habitats Temporary habitat loss and/or habitat disturbance Indirect impacts from construction/decommissioning noise	
				Distributional responses, displacement and barrier effects from Offshore Infrastructure Disturbance to prey species and their habitats Temporary habitat loss and/or habitat disturbance Indirect impacts from construction/decommissioning noise	
			O&M	Distributional responses, displacement and barrier effects from Offshore Infrastructure Disturbance to prey species and their habitats	
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure Disturbance to prey species and their habitats Temporary habitat loss and/or habitat disturbance Indirect impacts from construction/decommissioning noise	
				Distributional responses, displacement and barrier effects from Offshore Infrastructure Disturbance to prey species and their habitats Temporary habitat loss and/or habitat disturbance Indirect impacts from construction/decommissioning noise	
				Distributional responses, displacement and barrier effects from Offshore Infrastructure Disturbance to prey species and their habitats Temporary habitat loss and/or habitat disturbance Indirect impacts from construction/decommissioning noise	

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UK9004271	St Abb's Head to Fast Castle SPA	• breeding seabird assemblage including the following named components: • guillemot; • herring gull; • kittiwake; • razorbill; and • shag.	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• kittiwake; and • razorbill.
				Disturbance and displacement to birds from vessel movements	• guillemot²; and • razorbill.
				Disturbance to prey species and their habitats	• kittiwake; • guillemot²; and • razorbill.
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from UXO clearance	• guillemot²; and • razorbill.
				Indirect impacts from construction/decommissioning noise	• kittiwake; • guillemot²; and • razorbill.
			O&M	Collision risk due to mortality due to collision with rotor blades	• kittiwake.
				Distributional responses, displacement and barrier effects from Offshore Infrastructure	• kittiwake; and • razorbill.
				Disturbance and displacement to birds from vessel movements	• guillemot²; and • razorbill.

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
				Disturbance to prey species and their habitats	• kittiwake; • guillemot²; and • razorbill.
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• kittiwake; and • razorbill.
				Disturbance and displacement to birds from vessel movements	• guillemot²; and • razorbill.
				Disturbance to prey species and their habitats	• kittiwake; • guillemot²; and • razorbill.
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
UK9001031	St Kilda SPA	• gannet (breeding); • great skua (breeding); • Leach's storm petrel (breeding); • puffin (breeding); • storm petrel (breeding); and • breeding seabird assemblage including all the above species and the following named components:	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; and • gannet.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from UXO clearance	
				Indirect impacts from construction/decommissioning noise	
			O&M	Collision risk due to mortality due to collision with rotor blades	• gannet.

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment			
		• fulmar; • guillemot; • kittiwake; • Manx shearwater; and • razorbill.		Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; and • gannet.			
				Disturbance to prey species and their habitats				
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; and • gannet.			
				Disturbance to prey species and their habitats				
				Temporary habitat loss and/or habitat disturbance				
				Indirect impacts from construction/decommissioning noise				
			UK9002181	Sule Skerry and Sule Stack SPA	• storm petrel (breeding); • gannet (breeding); • Leach’s storm petrel (breeding); • puffin (breeding); and • breeding seabird assemblage including all the above species and the following named components: • guillemot; and • shag.	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• gannet.
							Disturbance to prey species and their habitats	
Temporary habitat loss and/or habitat disturbance								
Indirect impacts from UXO clearance								
Indirect impacts from construction/decommissioning noise								
O&M	Collision risk due to mortality due to collision with rotor blades							
	Distributional responses, displacement and barrier effects from Offshore Infrastructure							
	Disturbance to prey species and their habitats							

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure Disturbance to prey species and their habitats Temporary habitat loss and/or habitat disturbance Indirect impacts from construction/decommissioning noise	
UK9002511	Sumburgh Head SPA	- Arctic tern (breeding); breeding seabird assemblage including the following named components: fulmar; - guillemot; and - kittiwake.	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure Disturbance to prey species and their habitats Temporary habitat loss and/or habitat disturbance Indirect impacts from construction/decommissioning noise	fulmar.
			O&M	Distributional responses, displacement and barrier effects from Offshore Infrastructure Disturbance to prey species and their habitats	
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure Disturbance to prey species and their habitats Temporary habitat loss and/or habitat disturbance Indirect impacts from construction/decommissioning noise	

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004073	Tory Island SPA	• corncrake <i>Crex crex</i> (breeding); • fulmar (breeding); • puffin (breeding); and • razorbill (breeding).	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
			O&M	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
UK9002471	Troup, Pennan and Lion's Heads SPA	• guillemot (breeding); • kittiwake (breeding); and • breeding seabird assemblage including the following named components: • fulmar; • herring gull; and	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; • kittiwake; and • razorbill.
				Disturbance and displacement to birds from vessel movements	• razorbill.
				Disturbance to prey species and their habitats	• fulmar;

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
		razorbill.		Temporary habitat loss and/or habitat disturbance	- kittiwake; and - razorbill.
				Indirect impacts from UXO clearance	razorbill.
				Indirect impacts from construction/decommissioning noise	- fulmar; - kittiwake; and - razorbill.
			O&M	Collision risk due to mortality due to collision with rotor blades	kittiwake
				Distributional responses, displacement and barrier effects from Offshore Infrastructure	- fulmar; - kittiwake; and - razorbill.
				Disturbance and displacement to birds from vessel movements	razorbill.
				Disturbance to prey species and their habitats	- fulmar; - kittiwake; and - razorbill.
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	- fulmar; - kittiwake; and - razorbill.
				Disturbance and displacement to birds from vessel movements	razorbill.

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
				Disturbance to prey species and their habitats	• fulmar; • kittiwake; and • razorbill.
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
004150	West Donegal Coast SPA	• chough (breeding); • shag (breeding); • fulmar (breeding); • cormorant (breeding); • herring gull (breeding); • kittiwake (breeding); • peregrine (breeding); and • razorbill (breeding).	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
			O&M	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
UK9002101	West Westray SPA	• Arctic tern (breeding);	C	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; and

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
		• guillemot (breeding); and • breeding seabird assemblage including the following named components: • Arctic skua; • fulmar; • kittiwake; and • razorbill.		Disturbance to prey species and their habitats	• kittiwake.
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
			O&M	Collision risk due to mortality due to collision with rotor blades	• kittiwake.
				Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; and • kittiwake.
				Disturbance to prey species and their habitats	
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure	• fulmar; and • kittiwake.
				Disturbance to prey species and their habitats	
				Temporary habitat loss and/or habitat disturbance	
				Indirect impacts from construction/decommissioning noise	
UK9020311	East Mainland Coast, Shetland SPA	• great northern diver <i>Gavia immer</i> (non-breeding); • red-throated diver (breeding); and • Slavonian grebe <i>Podiceps auritus</i> (non-breeding).	O&M	Migratory collision risk	• great-northern diver; • red-throated diver; and • Slavonian grebe.

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
UK9020329	Greater Wash SPA	• red-throated diver (non-breeding); • little gull (non-breeding); • common scoter (non-breeding); • little tern (breeding); • common tern (breeding); • Sandwich tern (breeding); and • non-breeding waterfowl assemblage including the above species.	O&M	Migratory collision risk	• red-throated diver; • little gull; and • common scoter.
UK9004411	Firth of Forth SPA and Ramsar Site	• red-throated diver (non-breeding); • Slavonian grebe (non-breeding); • Golden plover <i>Pluvialis apricaria</i> (non-breeding); • Bar-tailed godwit (non-breeding); • Sandwich tern (non-breeding); • Pink-footed goose (non-breeding); • Shelduck <i>Tadorna tadorna</i> (non-breeding); • knot <i>Calidris canutus</i> (non-breeding); • redshank <i>Tringa totanus</i> (non-breeding);	O&M	Migratory collision risk	• red-throated diver; • Slavonian grebe; • common scoter; • cormorant; • common goldeneye; • long-tailed duck; • red-breasted merganser; • scaup; and • velvet scoter.

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
		• turnstone (non-breeding); • non-breeding waterfowl assemblage including the above species (excluding sandwich tern) and the following named components: • scaup; • great crested grebe; • cormorant; • curlew; • eider; • long-tailed duck; • common scoter; • velvet scoter; • common goldeneye; • red-breasted merganser; • oystercatcher; • ringed plover; • grey plover; • dunlin; • mallard; • lapwing; and • wigeon.			
UK9004121	Firth of Tay and Eden Estuary SPA and Ramsar Site	• bar-tailed godwit (non-breeding); • greylag goose (non-breeding); • little tern (breeding);	O&M	Migratory collision risk	• common scoter; • cormorant; • long-tailed duck;

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
		- marsh harrier <i>Circus aeruginosus</i> (breeding); - pink-footed goose (non-breeding); - redshank (non-breeding); and non-breeding waterfowl assemblage including above species (except marsh harrier and little tern) and the following named components: - black-tailed godwit <i>Limosa limosa islandica</i>; common scoter; - dunlin; - grey plover; common goldeneye; - goosander <i>Mergus merganser</i>; cormorant; long-tailed duck; red-breasted merganser; - oystercatcher; - sanderling <i>Calidris alba</i>; - shelduck; common eider; and velvet scoter.			- red-breasted merganser; - common eider; - common goldeneye; and - velvet scoter.
UK9001624	Inner Moray Firth SPA and Ramsar Site	bar-tailed godwit (non-breeding);	O&M	Migration collision risk	common tern;

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
		• common tern (breeding); • greylag goose (non-breeding); • osprey <i>Pandion haliaetus</i> (breeding); • red-breasted merganser (non-breeding); • redshank (non-breeding); and • non-breeding waterfowl assemblage including the above species (excluding common tern and osprey) and the following named components: • curlew; • cormorant; • goosander; • common goldeneye; • oystercatcher; • scaup; • teal <i>Anas crecca</i>; and • wigeon.			• red-breasted merganser; • cormorant; • common goldeneye; and • scaup.
UK9006011	Lindisfarne SPA	• little tern (breeding); • roseate tern (breeding); • bar-tailed godwit (non-breeding); • light-bellied brent goose (non-breeding);	O&M	Migratory collision risk	• Common scoter; • Long-tailed duck; and • Red-breasted merganser.

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
		• common scoter (non-breeding); • dunlin (non-breeding); • eider (non-breeding); • golden plover (non-breeding); • grey plover (non-breeding); • greylag goose (non-breeding); • long-tailed duck (non-breeding); • red-breasted merganser (non-breeding); • redshank (non-breeding); • ringed plover (non-breeding); • Sanderling (non-breeding); • Shelduck (non-breeding); • whooper swan (non-breeding); and • wigeon (non-breeding) • non-breeding waterfowl assemblage including the above species			
UK9020313	Moray Firth SPA	• common eider (non-breeding); • common scoter (non-breeding);	C	Disturbance and displacement to birds from vessel movements	• common eider; • common scoter;

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
		• shag (non-breeding); • common goldeneye (non-breeding); • great northern diver (non-breeding) • long-tailed duck (non-breeding); • red-breasted merganser (non-breeding); • red-throated diver (non-breeding); • scaup (non-breeding); • Slavonian grebe (non-breeding); and • velvet scoter (non-breeding).	O&M	Migratory collision risk	• shag; • common goldeneye; • long-tailed duck; • red-breasted merganser; • great northern diver; • red-throated diver; • scaup; • Slavonian grebe; and • velvet scoter.
				Disturbance and displacement to birds from vessel movements	
			D	Disturbance and displacement to birds from vessel movements	
UK9020314	North Orkney SPA	• great northern diver (non-breeding); • red-throated diver (breeding); • Slavonian grebe (non-breeding); and • velvet scoter (non-breeding).	O&M	Migratory collision risk	• great northern diver; • red-throated diver; • Slavonian grebe; and • velvet scoter.
UK9020316	Outer Firth of Forth and St Andrews Bay Complex SPA	• Arctic tern (breeding); • common tern (breeding); • common eider (non-breeding); • gannet (breeding); • shag (non-breeding);	O&M	Migratory collision risk	• common eider; • little gull; • red-throated diver;

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
		• little gull (non-breeding); • red-throated diver (non-breeding); • Slavonian grebe (non-breeding); • non-breeding waterfowl assemblage consisting of the following named components: • common scoter; • shag; • common goldeneye; • long tailed duck; • red-breasted merganser; and • velvet scoter. • breeding seabird assemblage consisting of the following named components: • puffin; • kittiwake; • Manx shearwater; • guillemot; and • herring gull. • non-breeding seabird assemblage consisting of the following named components: • black-headed gull; • common gull;			• common scoter; • common goldeneye; • long tailed duck; • red-breasted merganser; and • velvet scoter.

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
		• herring gull; • guillemot; • shag; • kittiwake; and • razorbill.			
UK9020321	Scapa Flow SPA	• black-throated diver (non-breeding); • common eider (non-breeding); • shag (non-breeding); • great northern diver (non-breeding); • long-tailed duck (non-breeding); • red-breasted merganser (non-breeding); • red-throated diver (breeding); and • Slavonian grebe (non-breeding).	O&M	Migratory collision risk	• black-throated diver; • common eider; • shag; • great northern diver; • long-tailed duck; • red-breasted merganser; • red-throated diver; and • Slavonian grebe.
UK9002221	Ythan Estuary, Sands of Forvie and Meikle Loch SPA and Ramsar Site	• sandwich tern (breeding); • common tern (breeding); • little tern (breeding); • pink footed goose (non-breeding); and	C	Disturbance and displacement to birds from vessel movements	• sandwich tern; • common tern; • little tern; • pink footed goose;

Site ID	Site Name	Relevant Qualifying Features (features with potential LSE highlighted in bold)	Project Phase	Potential Impacts	Relevant species for assessment
		• non-breeding waterfowl assemblage consisting of the following named components: • pink-footed goose; • common eider; • redshank; and • lapwing			• common eider; • redshank; and • lapwing.
			O&M	Migratory collision risk	• pink footed goose; • common eider; • redshank; and • lapwing.
			D	Disturbance and displacement to birds from vessel movements	• sandwich tern; • common tern; • little tern; • pink footed goose; • common eider; • redshank; and • lapwing.

¹ Feature found to have connectivity during the non-breeding season only. As Arctic tern were only observed during the non-breeding season all Arctic tern features have been assessed for the non-breeding season only, even if connectivity was identified during the breeding season

² Assessed due to connectivity with the Export Cable Corridor only.

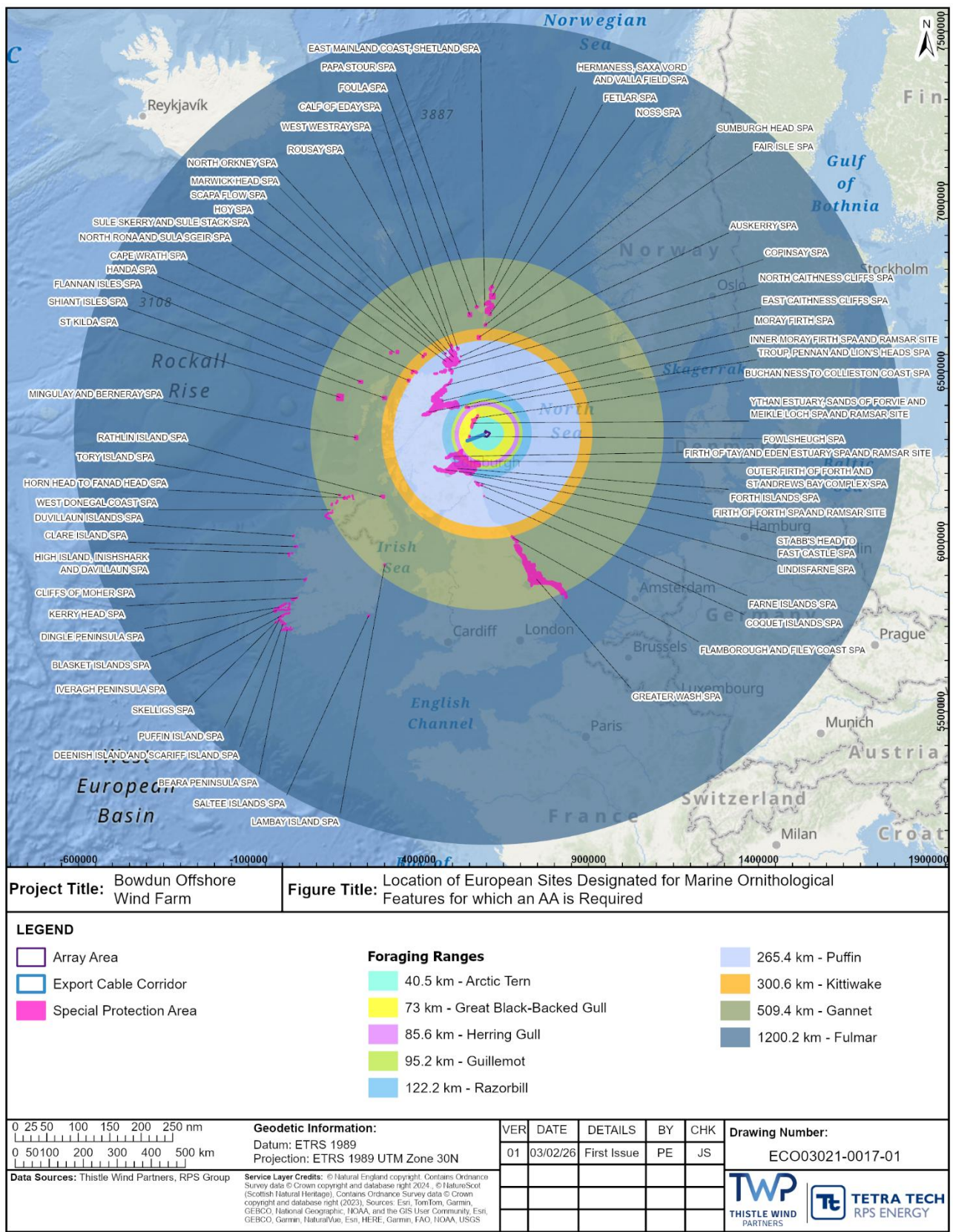


Figure 3.2: Location of European Sites Designated for Marine Ornithological Features for which an AA is Required

4 Information to Inform the Appropriate Assessment

4.1 Introduction

- 4.1.1 As described in Part One of the RIAA, a European Site is progressed to the AA stage (Stage 2 of the HRA process) where it is not possible to exclude an LSE on one or more of its Qualifying Features in view of the site's conservation objectives. European Sites, features and potential impacts requiring an AA for the Proposed Development are therefore those for which LSE could not be ruled out during the screening exercise, review of the screening exercise, and following consultation.
- 4.1.2 Information to help inform the AA for SPAs and Ramsar Sites is provided in Sections 4.2 to 4.6 of this Part Three of the RIAA. The information provided includes a description of the SPAs and Ramsar Sites under consideration, their Qualifying Features, and an assessment of potential effects on site integrity in light of the conservation objectives of each site. A cross-referencing approach has been adopted to aide readability and reduce repetition where relevant, but this has been carefully carried out to ensure that all information required for a robust HRA of each site is presented.

4.2 Maximum Design Scenarios

- 4.2.1 The assessments for all SPAs and Ramsar Sites considered in this Part Three of the RIAA have been based on a realistic Maximum Design Scenario (MDS), which was derived from the Project Description presented in the RIAA Part One: Introduction (TWP-BOW-RPS-ENV-RPT-00013) (see Section 4). The final design will be no greater than the parameters set out in the MDS. An overview of the MDS considered for the assessment of potential impacts on ornithological features is considered in this Part Three of the RIAA for each impact assessed in their respective sections (see Section 5.4 and 5.5). This MDS is consistent with that used for the ornithology assessment in the Offshore EIA Report (Volume 2, Chapter 11: Offshore Ornithology (TWP-BOW-RPS-OFE-RPT-00026)).

4.3 Embedded Mitigation

- 4.3.1 As part of the project design process, a number of Embedded Mitigation measures have been included in the Proposed Development and are committed to be delivered by the Applicant as part of the Proposed Development. These Embedded Mitigation measures are integrated into the project design for the Proposed Development and are not considered as mitigation measures intended to specifically avoid or reduce effects on European sites.
- 4.3.2 Measures intended specifically to avoid or reduce effects on European Sites were not considered during the HRA Stage 1 LSE Screening but are included within the HRA Stage 2 AA for determination of AEOSI. Within the Offshore EIA Report (Volume 2, Chapter 11: Offshore Ornithology (TWP-BOW-RPS-OFE-RPT-00026)) it was identified that no Additional Mitigation for ornithology was required for the Proposed Development.

4.4 Baseline Information

4.4.1 Baseline information on the SPAs identified for further assessment within the HRA Stage 2 RIAA has been collated through site-specific surveys, in addition to a desktop study of existing studies and datasets. A summary for each identified SPA and the relevant data sources is presented in Section 5. In addition to this, baseline information is presented in further detail in Offshore EIA Report, Volume 2, Chapter 11: Offshore Ornithology (TWP-BOW-RPS-OFE-RPT-00026) and accompanying technical reports. Technical reports relevant to Part Three of the RIAA include:

- Volume 3, Technical Appendix 11.1: Offshore Ornithology Baseline Characterisation Technical Report (TWP-BOW-RPS-OFE-RPT-00020);
- Volume 3, Technical Appendix 11.2: Nearshore, Intertidal and Offshore Ornithology Along the Export Cable Corridor Baseline Report (TWP-BOW-RPS-OFE-RPT-00084);
- Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021);
- Volume 3, Technical Appendix 11.4: Offshore Ornithology Collision Risk Model Technical Report (TWP-BOW-RPS-OFE-RPT-00022); and
- Volume 3, Technical Appendix 11.5: Offshore Ornithology Migratory Bird CRM Technical Report (TWP-BOW-RPS-OFE-RPT-00023).

4.4.2 Any additional sources of information used in the HRA Stage 2 RIAA are summarised within the main body of this Part Three of the RIAA.

4.5 Conservation Objectives and Conservation Advice

4.5.1 Conservation objectives for each Qualifying Feature of a European Site, in this case SPAs, are set by the relevant SNCBs. These conservation objectives provide a framework for establishing appropriate conservation measures and a benchmark against which plans and projects are assessed. The conservation advice produced by each SNCB provides supplementary information on sites and features, and although the content provided is similar, the format of the advice provided varies between the different SNCBs.

4.5.2 The majority of European Sites included within this assessment are located in Scotland and thus fall under the statutory remit of NatureScot. For each site, NatureScot has produced Conservation and Management Advice documents (CMAs), which contain revised and updated conservation objectives for the relevant features and site-specific clarifications and advice for the conservation objectives to be achieved.

4.5.3 European Sites within England fall under the statutory remit of Natural England. Natural England produce Supplementary Advice to the conservation objectives, which provide site-specific attributes and targets specific to the features of the site for some SPAs.

- 4.5.4 In Northern Ireland, European Sites fall under the statutory remit of the Department of Agriculture, Environment and Rural Affairs (DAERA), which provides advice on management and monitoring alongside conservation objectives.
- 4.5.5 Conservation objectives for SPAs within the Republic of Ireland are provided by the National Parks and Wildlife Service (NPWS).
- 4.5.6 For sites that are classified as both a SPA and a Ramsar Site, the advice for overlapping designations is considered to be sufficient to support the management of the Ramsar interests. Therefore, the conservation objectives are referenced for both designations.
- 4.5.7 A description of each SPA, including the conservation objectives, for each site included within this RIAA is presented in Section 5.3. All of the conservation objectives have been considered throughout Sections 5.4, 5.5 and 5.7 when determining whether AEOSI could be ruled out.

4.6 Approach to the In-Combination Assessment

- 4.6.1 The approach taken for the assessment of in-combination impacts has been partly informed by the Cumulative Effects Assessment carried out for relevant topics in the Offshore EIA Report, Volume 2, Chapter 11: Offshore Ornithology (TWP-BOW-RPS-OFE-RPT-00026). The methodology for the in-combination assessment is compliant with HRA guidance and is summarised in the following paragraphs.
- 4.6.2 Projects, plans or activities for which there is the potential for an interaction to occur are identified in a process known as ‘screening’. Screening consists of a staged process that considers the level of detail available for projects, as well as the potential for interactions on a conceptual, physical and temporal basis. This section of the report provides a summary of the Proposed Development in-combination, whereas screening for the Proposed Development alone is summarised in Section 3. It has been assumed that if potential for an LSE has been identified within the Proposed Development alone screening, then there is also potential for LSE in-combination with other projects.
- 4.6.3 The Proposed Development in-combination assessment has been undertaken using a tiered approach. Using a tiered approach provides a framework for placing relative weight on the potential for each project or plan to be included in the in-combination assessment. The weightings take into account the current stage of maturity and certainty in the project’s parameters. The allocation of each project, plan and activity into tiers is not affected by the screening process but is merely a categorisation applied to all projects, plans and activities that have been screened in for assessment.
- 4.6.4 The tiers used within the in-combination assessment are as follows:
- Tier 1 – The onshore elements of the Project;
 - Tier 2 – Projects that have an application submitted, are consented, under construction or operational to the extent not already captured within the baseline;

- Tier 3 – Projects which have submitted a Scoping Report and/or have received a Scoping Opinion; and
- Tier 4 – Reasonably foreseeable projects including those with Crown Estate Scotland option or lease agreements (and for which there is information in the public domain to allow for a meaningful assessment).

- 4.6.5 An overview of the projects or activities considered for each receptor group are tabulated separately in each of the receptor chapters within the Offshore EIA Report according to the effect-pathway under consideration. Due to the lack of quantitative assessment for projects identified within Tier 3 and the uncertainty surrounding projects identified within Tier 4, these projects have only been considered qualitatively within the assessment. The projects, and their relevant tier, screened in as part of the in-combination assessment are presented in Table 4.1.
- 4.6.6 Tier 1, which refers to the onshore elements of the Project, has no direct pathway with the species considered in this RIAA, and is not included in the in-combination assessment.
- 4.6.7 Although the in-combination assessment only includes impacts from offshore wind farms, impacts from other types of plans or projects were initially considered.
- 4.6.8 For tidal farms, plans and projects were excluded partly due to uncertainty around the effects of displacement (Isaksson *et al.*, 2020) and limitations surrounding assessing collision using traditional methods, such as the Band Models, which do not account for animals' underwater behaviours (Horne *et al.*, 2023). The main reason, however, was due to the relatively small number and scale of active tidal farms, it is reasonable to infer the impacts from these developments are expected to be inconsequential, so they have been excluded from in-combination assessment.
- 4.6.9 Within the in-combination assessment, consideration has been given to plans and projects in other sectors, including oil and gas activities, aggregate extraction, disposal sites, coastal protection, infrastructure, subsea cables and transmission assets. After consideration, no plans or projects were identified to be carried forward for in-combination assessment. This is due to many developments (e.g. oil and gas activities) being present before the Proposed Development's construction and therefore captured within the baseline environment or due to a lack of overlap in impact pathways associated with other projects or plans (e.g. repairing subsea cables is unlikely to cause significant impacts to seabirds). Due to this, these activity sectors have been excluded from in-combination assessment.
- 4.6.10 At the time of writing this RIAA, the EIA Report for MarramWind OWF has been made publicly available and therefore has been included within the cumulative assessment within the Offshore EIA Report for the Proposed Development. However, as the RIAA for the project was not publicly available at the time of carrying out the quantitative assessment for the in-combination assessment, MarramWind OWF has been included qualitatively within the in-combination assessment within this RIAA where relevant.

- 4.6.11 The full list of relevant projects included within the in-combination assessment are presented in Table 4.1. For each species, the projects screened in for assessment have been determined using the foraging ranges as described in Section 5.5.

Table 4.1: Projects Included in the In-combination Assessment

Project	Project Status
Tier 2	
Aberdeen	Operational
Aspen	Application submitted but not yet determined
Ayre	Application submitted but not yet determined
Beatrice	Operational
Berwick Bank	Consented
Blyth Demo Phase 1	Operational
Blyth Demo Phase 2	Consented/Discontinued
Buchan	Application submitted but not yet determined
Caledonia (North and South)	Application submitted but not yet determined
Cenos	Application submitted but not yet determined
Dogger Bank A	Under Construction
Dogger Bank B	Under Construction
Dogger Bank C	Under Construction
Dogger Bank South East	Application submitted but not yet determined
Dogger Bank South West	Application submitted but not yet determined
Dudgeon	Operational
Dudgeon Extension	Consented
East Anglia One	Operational
East Anglia One North	Consented
East Anglia Two	Consented
East Anglia Three	Under Construction
Five Estuaries	Consented
Forthwind	Consented
Galloper	Operational
Greater Gabbard	Operational
Green Volt	Consented
Gunfleet Sands I	Operational

Project	Project Status
Gunfleet Sands II	Operational
Gunfleet Sands Demo	Operational
Hornsea One	Operational
Hornsea Project Two	Operational
Hornsea Project Three	Under Construction
Hornsea Project Four	Consented/Discounted
Humber Gateway	Operational
Hywind Scotland	Operational
Inch Cape	Under Construction
Inner Dowsing	Operational
Kentish Flats	Operational
Kentish Flats Extension	Operational
Kincardine	Operational
Lincs	Operational
London Array	Operational
Lynn	Operational
Moray East	Operational
Moray West	Operational
Muir Mhor	Application submitted but not yet determined
Neart Na Gaoithe	Operational
Norfolk Boreas	Consented
Norfolk Vanguard East	Consented
Norfolk Vanguard West	Consented
North Falls	Application submitted but not yet determined
Ossian	Application submitted but not yet determined
Outer Dowsing	Application submitted but not yet determined
Pentland	Consented
Race Bank	Operational
Rampion	Operational
Rampion 2	Consented
Salamander	Consented
Seagreen 1	Operational

Project	Project Status
Seagreen 1A	Consented
Sheringham Shoal	Operational
Sheringham Shoal Extension	Consented
Sofia	Under Construction
Teesside	Operational
Thanet	Operational
Triton Knoll	Operational
West of Orkney	Consented
Westermost Rough	Operational
Tier 3	
Arven	Pre-Application
Bellrock	Pre-Application
Broadshore	Pre-Application
Dogger Bank D	Pre-Application
Havbredey	Pre-Application
MachairWind	Pre-Application
Morven North	Pre-Application
Morven South	Pre-Application
Scaraben	Pre-Application
Sinclair	Pre-Application
Spiorad na Mara	Pre-Application
Stromar	Pre-Application
Stoura	Pre-Application
Talisk	Pre-Application
Tier 4	
Beech	Pre-planning
Cedar	Pre-planning
Floating Offshore Wind Leasing Round 5 - Project Development Area 2	Pre-planning
Floating Offshore Wind Leasing Round 5 - Project Development Area 3	Pre-planning
Flora Floating Wind Farm	Pre-planning
Gwynt Glas Floating Offshore Wind Farm	Pre-planning

Project	Project Status
Judy	Pre-planning
Malin Sea Wind	Pre-planning

- 4.6.12 As the CEF was not available at the time of writing this report, in order to assess the impact of the Proposed Development in-combination with other projects, the predicted mortalities for the relevant projects were collated using information provided by Grant (2025) as recommended by NatureScot (Table 2.1). Information provided in Berwick Bank Offshore Wind Farm (SSE Renewables, 2022) was used as the basis of the work carried out by Grant (2025), with numbers updated using the most recently submitted applications as well as Preliminary Environmental Information Reports (PEIR) when necessary.
- 4.6.13 Following the work by Grant (2025), applications for Aspen OWF (Cerulean Winds Aspen Project Limited, 2025), Ayre OWF (TWP, 2025) and Buchan OWF (Buchan Offshore Wind, 2025) have been submitted. In order to include these reports within the assessment the number of mortalities for the relevant sites were taken direct from those projects' RIAAs.
- 4.6.14 Two scenarios are presented where appropriate within this RIAA. The 'consented' scenario refers to the number of mortalities as presented within applications. However, as some projects are built to a smaller scale than presented within applications the actual number of mortalities may be lower. To account for this Grant (2025) applied 'as-built' corrections. This is referred to as the 'as-built' scenario throughout the report and only has the potential to impact projects that are already operational.

5 Assessment of Potential Adverse Effects on Integrity

5.1 Introduction

- 5.1.1 This section provides background information and an explanation for the approach taken to assess the potential impacts of the Proposed Development on SPAs designated for ornithological features.
- 5.1.2 As stated in Section 3, the potential for LSE was identified for the marine ornithological features of 61 SPAs, a summary of the relevant Qualifying Features and sites taken forward for assessment are listed in Table 5.1 and presented in Figure 3.2.

Table 5.1: European Sites Designated for Marine Ornithological Features for Which an Appropriate Assessment (AA) is Required. The Period the Feature has Connectivity with the Proposed Development and Therefore Requires Assessment (e.g. Year-round, Non-breeding Season or Migration) is Presented in Parentheses

Site	Qualifying Feature Requiring an AA and Period of Potential Impact Included Within Assessment
Seabirds	
Auskerry SPA	Arctic tern (non-breeding season only).
Blasket Islands SPA	- fulmar (year-round); and - breeding seabird assemblage (year-round): assessed for the above species.
Buchan Ness to Collieston Coast SPA	breeding seabird assemblage (year-round): assessed for fulmar, guillemot, herring gull and kittiwake.
Calf of Eday SPA	breeding seabird assemblage (year-round): assessed for fulmar, great black-backed¹ gull and kittiwake.
Cape Wrath SPA	breeding seabird assemblage (year-round): assessed for fulmar.
Clare Island SPA	fulmar (year-round).
Cliffs of Moher SPA	- fulmar (year-round); and - breeding seabird assemblage (year-round): assessed for the above species.
Copinsay SPA	breeding seabird assemblage (year-round): assessed for fulmar, great black-backed gull¹ and kittiwake.
Coquet Island SPA	- Arctic tern (non-breeding season only); and - breeding seabird assemblage (breeding season only): assessed for puffin².
Deenish Island and Scariff Island SPA	fulmar (year-round).
Dingle Peninsula SPA	fulmar (year-round).
Duvillaun Islands SPA	fulmar (year-round).
East Caithness Cliffs SPA	- kittiwake (year-round); - razorbill (non-breeding season only); and

Site	Qualifying Feature Requiring an AA and Period of Potential Impact Included Within Assessment
	breeding seabird assemblage (year-round): assessed for the above species, fulmar and great black-backed gull¹.
Fair Isle SPA	breeding seabird assemblage (year-round): assessed for fulmar, gannet and kittiwake.
Farne Islands SPA	- Arctic tern (non-breeding season only); - breeding seabird assemblage (year-round): assessed for the above species, kittiwake and puffin².
Fetlar SPA	breeding seabird assemblage (year-round): assessed for fulmar.
Flamborough and Filey Coast SPA	- gannet (year-round); - kittiwake (year-round); - razorbill (non-breeding season only); and - breeding seabird assemblage (year-round): assessed for the above species and fulmar.
Flannan Isles SPA	breeding seabird assemblage (year-round): assessed for fulmar.
Forth Islands SPA	- gannet (year-round); - puffin (breeding season only); and - breeding seabird assemblage (year-round): assessed for the above species, kittiwake and razorbill.
Foula SPA	breeding seabird assemblage (year-round): assessed for fulmar.
Fowlsheugh SPA	- guillemot (year-round); - kittiwake (year-round); and - breeding seabird assemblage (year-round): assessed for the above species, fulmar, herring gull and razorbill.
Handa SPA	- razorbill (non-breeding season only); and - breeding seabird assemblage (year-round): assessed for the above species and fulmar.
Hermaness, Saxa Vord and Valla Field SPA	- gannet (year-round); and - breeding seabird assemblage (year-round): assessed for fulmar.
High Island, Inishshark and Davillaun SPA	fulmar (year-round).
Horn Head to Fanad Head SPA	- fulmar (year-round); and - breeding seabird assemblage (year-round): assessed for the above species.
Hoy SPA	breeding seabird assemblage (year-round): assessed for fulmar, kittiwake and puffin².
Iveragh Peninsula SPA	fulmar (year-round).
Kerry Head SPA	fulmar (year-round).

Site	Qualifying Feature Requiring an AA and Period of Potential Impact Included Within Assessment
Lambay Island SPA	- fulmar (year-round); and - breeding seabird assemblage (year-round): assessed for the above species.
Marwick Head SPA	breeding seabird assemblage (year-round): assessed for kittiwake.
Mingulay and Berneray SPA	- razorbill (year-round); and - breeding seabird assemblage (year-round): assessed for fulmar.
North Caithness Cliffs SPA	breeding seabird assemblage (year-round): assessed for fulmar, kittiwake, puffin² and razorbill.
North Rona and Sula Sgeir SPA	- gannet (year-round); and - breeding seabird assemblage (year-round): assessed for fulmar.
Noss SPA	- gannet (year-round); and - breeding seabird assemblage (year-round): assessed for fulmar and gannet.
Papa Stour SPA	Arctic tern (non-breeding season only).
Puffin Island SPA	- fulmar (year-round); and - breeding seabird assemblage (year-round): assessed for the above species.
Rathlin Island SPA	- razorbill (non-breeding season only); and - breeding seabird assemblage (year-round): assessed for the above species and fulmar.
Rousay SPA	breeding seabird assemblage (year-round): assessed for kittiwake and fulmar.
Saltee Islands SPA	- fulmar (year-round); and - breeding seabird assemblage (year-round): assessed for the above species.
Shiant Isles SPA	breeding seabird assemblage (year-round): assessed for fulmar.
Skelligs SPA	- fulmar (year-round); and - breeding seabird assemblage (year-round): assessed for the above species.
St Abb's Head to Fast Castle SPA	breeding seabird assemblage (year-round): assessed for kittiwake, guillemot and razorbill.
St Kilda SPA	- gannet (year-round); and - breeding seabird assemblage (year-round): assessed for the above species and fulmar.
Sule Skerry and Sule Stack SPA	- gannet (year-round); and - breeding seabird assemblage (year-round): assessed for the above species.

Site	Qualifying Feature Requiring an AA and Period of Potential Impact Included Within Assessment
Sumburgh Head SPA	breeding seabird assemblage (year-round): assessed for fulmar.
Tory Island SPA	fulmar (year-round).
Troup, Pennan and Lion's Heads SPA	- kittiwake (year-round); and - breeding seabird assemblage (year-round): assessed for fulmar and razorbill.
West Donegal Coast SPA	fulmar (year-round).
West Westray SPA	breeding seabird assemblage (year-round): assessed for fulmar and kittiwake.
Waterfowl, Onshore and Migratory Birds	
East Mainland Coast, Shetland SPA	- great northern diver (migration); - red-throated diver(migration); and - Slavonian grebe(migration).
Greater Wash SPA	- red-throated diver (migration); - little gull (migration); - common scoter (migration); and - non-breeding waterfowl assemblage (migration) including the above species.
Firth of Forth SPA and Ramsar Site	- red-throated diver (migration); - Slavonian grebe (migration); and - waterfowl assemblage (migration) including scaup, cormorant, long-tailed duck, common scoter, velvet scoter, common goldeneye, red-breasted merganser.
Firth of Tay and Eden Estuary SPA and Ramsar Site	non-breeding waterfowl assemblage (migration) including common scoter, common goldeneye, cormorant, long-tailed duck, red-breasted merganser, common eider and velvet scoter.
Inner Moray Firth SPA and Ramsar Site	- common tern (migration); - red-breasted merganser (migration); and - non-breeding waterfowl assemblage (migration) including cormorant, common goldeneye and scaup.
Lindisfarne SPA	- common scoter (migration); - long-tailed duck (migration); - red-breasted merganser (migration); and - non-breeding waterfowl assemblage (migration) including the above species.
Moray Firth SPA	- common eider (migration); - common scoter (migration); - shag (migration); - common goldeneye (migration); - great northern diver (migration);

Site	Qualifying Feature Requiring an AA and Period of Potential Impact Included Within Assessment
	• long-tailed duck (migration); • red-breasted merganser (migration) • red-throated diver (migration); • scaup (migration); • Slavonian grebe (migration); and • velvet scoter (migration).
North Orkney SPA	• great northern diver (migration); • red-throated diver (migration); • Slavonian grebe (migration); and • velvet scoter (migration).
Outer Firth of Forth and St Andrews Bay Complex SPA	• common eider (migration); • little gull (migration); • red-throated diver (migration); and • non-breeding waterfowl assemblage (migration) including common scoter, common goldeneye, long-tailed duck, red-breasted merganser and velvet scoter.
Scapa Flow SPA	• black-throated diver (migration); • common eider (migration); • shag (migration); • great northern diver (migration); • long-tailed duck (migration); • red-breasted merganser (migration); • red-throated diver (migration); and • Slavonian grebe (migration).
Ythan Estuary, Sands of Forvie and Meikle Loch SPA and Ramsar Site	• sandwich tern (breeding); • common tern (breeding); • little tern (breeding); • pink footed goose (non-breeding); and • non-breeding waterfowl assemblage (non-breeding) including pink-footed goose, common eider, redshank and lapwing.

¹ Species screened in for impacts during the non-breeding season only.

² Species screened in for impacts during the breeding season only.

5.1.3 LSEs on the SPAs presented in Table 5.1 were identified for construction, O&M and decommissioning phases of the Proposed Development, which are outlined below in Table 5.2. A range of Embedded Mitigation measures have been committed to as part of the Proposed Development, and these are presented, where relevant, in Section 5.4 and 5.5 per impact.

5.1.4 Any changes to the impacts identified during the initial screening exercise (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report) are detailed in Section 3.

Table 5.2: Potential Impacts to Marine and Migratory Ornithological Features of the European Sites Identified for AA

Proposed Development Phase	Potential Impact
Construction	• Temporary habitat loss and/or habitat disturbance; • Distributional responses, displacement and barrier effects from Offshore Infrastructure; • Disturbance to prey species and their habitats; • Disturbance and displacement to birds from vessel movements; • Direct impacts from UXO clearance; and • Indirect impacts from construction/decommissioning noise.
O&M	• Collision risk mortality due to collision with rotor blades; • Distributional responses, displacement and barrier effects from Offshore Infrastructure; • Disturbance to prey species and their habitats; and • Disturbance and displacement to birds from vessel movements.
Decommissioning	• Temporary habitat loss and/or habitat disturbance; • Distributional responses, displacement and barrier effects from Offshore Infrastructure; • Disturbance to prey species and their habitats; • Disturbance and displacement to birds from vessel movements; and • Indirect impacts from construction/decommissioning noise.

5.2 Potential Impacts and Method of Assessment

Impact 1: Collision Risk Mortality due to Collision with Rotor Blades

Seabirds

- 5.2.1 During the O&M phase, some seabird species are at risk of colliding with the turning rotor blades of offshore Wind Turbines (Furness *et al.*, 2013). Collisions can occur when seabird species are travelling through the Array Area for various reasons, such as commuting between breeding and foraging sites, foraging within the Array Area itself and traveling through passage routes associated with migration.
- 5.2.2 Collisions are limited to the Array Area, where the operational Wind Turbines will be present, and can result in injury or mortality of impacted individuals. For the purpose of this RIAA, the Array Area only has been used as the Zone of Influence (Zoi) for this impact, and it has been assumed that all collisions result in mortality.

5.2.3 Within Volume 3, Technical Appendix 11.1: Offshore Ornithology Baseline Characterisation Technical Report (TWP-BOW-RPS-OFE-RPT-00020) of the Offshore EIA Report, five species were identified for CRM due to their abundances within the Array Area Study Area and vulnerability to collision (Bradbury *et al.*, 2014; Wade *et al.*, 2016). The species screened in for the potential for LSE due to collision risk are:

- gannet;
- kittiwake;
- great black-backed gull;
- herring gull; and
- Arctic tern.

5.2.4 Notably, gannet and kittiwake were both assessed quantitatively for impacts due to distributional responses as well as collision risk.

Methodology for Assessment

5.2.5 A quantitative assessment of collision risk mortality due to collision with rotor blades has been carried out, drawing on conclusions presented in the Offshore EIA Report and Appendices to this report, in particular:

- Volume 3, Technical Appendix 11.1: Offshore Ornithology Baseline Characterisation Technical Report (TWP-BOW-RPS-OFE-RPT-00020) of the Offshore EIA Report;
- Volume 3, Technical Appendix 11.4: Offshore Ornithology CRM Technical Report (TWP-BOW-RPS-OFE-RPT-00022) of the Offshore EIA Report; and
- Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038) of this Offshore RIAA.

5.2.6 For the identified species, CRM was undertaken to produce monthly estimates using both deterministic (Band, 2012) and stochastic (sCRM) (Caneco, 2024) versions of the model following advice from SNCBs (JNCC *et al.*, 2024). For the purpose of this report, estimates using sCRM and the Worst Case Scenario (WCS) have been used to assess the potential of LSE.

5.2.7 In order to carry out CRM, density estimates for flying birds within the Array Area were produced using MRSea (Scott-Hayward *et al.*, 2014) where possible, as detailed in Volume 3, Technical Appendix 11.1: Offshore Ornithology Baseline Characterisation Technical Report (TWP-BOW-RPS-OFE-RPT-00020) of the Offshore EIA Report. The mean density for each month was then calculated. These estimates are used within the model to determine flux, or the rate at which each species is likely to fly through the Array Area.

5.2.8 For all species, CRM was carried out using Option 2 of the sCRM, which uses generic flight height distributions from Johnston *et al.* (2014) to determine the proportion of flights at collision risk height for each species. The remaining inputs were taken from the SNCB guidance (JNCC *et al.*, 2024) or the Project Design Envelope (PDE). The full list of input parameters used for collision risk modelling are presented in full in Volume 3, Technical Appendix 11.4: Offshore

Ornithology CRM Technical Report (TWP-BOW-RPS-OFE-RPT-00022) of the Offshore EIA Report.

- 5.2.9 For kittiwake, additional CRM using Option 1 of the sCRM model was run using site-specific flight height data, collected using LiDAR surveys covering the Array Area (Figure 3.1), and the Most Likely Scenario (MLS) turbine parameters. In order to incorporate LiDAR data into the model, the proportion of kittiwake flying within the rotor swept area, and therefore at potential collision risk height, was calculated to be 0.008.
- 5.2.10 Results of PVAs run using Option 1 of the model are presented fully in Appendix 3B: Offshore Ornithology Special Protection Area Population Viability Analysis Technical Report (TWP-BOW-RPS-ENV-RPT-00027) and considered where relevant within the SPA assessments presented in Section 5.7.
- 5.2.11 The number of estimated collisions presented in Volume 3, Technical Appendix 11.4 Offshore Ornithology CRM Technical Report (TWP-BOW-RPS-OFE-RPT-00022) of the Offshore EIA Report are relevant to all birds expected to be impacted by collision risk, irrespective of their age class. However, as the only group of seabirds of interest within this RIAA are breeding adults, the number of breeding adults impacted must be estimated before apportioning impacts to the relevant sites.
- 5.2.12 In order to estimate the number of collisions occurring to breeding adults only, information presented in Horswill and Robinson (2015) or information within the full DAS dataset was used to estimate the proportion of adults within the Array Area (see Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038)). Once the number of adults impacted was determined, a sabbatical rate (Marine Scotland 2017a; 2017b) was applied in order to account for non-breeding adults present within the Array Area during the non-breeding season.
- 5.2.13 Mortalities were then apportioned using the apportioning values presented in Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038) of this Offshore RIAA. To determine the apportioning values for each site, the NatureScot (2018) approach was used during the breeding season and, where relevant, the Furness approach was used during the non-breeding season. Notably, the NatureScot (2018) method was used for both seasons for guillemot and herring gull.
- 5.2.14 For both the breeding and non-breeding season, as presented in NatureScot (2020), the total number of collisions were estimated by combining the relevant monthly collision estimates. When a season included half months, the number of mortalities predicted for the given month were split equally across the two seasons as recommended by NatureScot (2025b).
- 5.2.15 Some species assessed for collision risk were found to have more than one relevant BDMPS (Furness, 2015), and therefore more than one non-breeding season apportioning value. In these cases, in order to apportion mortalities to the relevant SPAs the Furness BDMPS seasonal definitions were truncated in order to align with the recommended season definitions (NatureScot, 2020).

- 5.2.16 Following apportioning, assessment of the long-term impacts using PVA was carried out when necessary. PVAs are required if the impacts result in a 0.02 percentage point change in survival rates. As seabird survival rates are naturally impacted by environmental stochasticity, which can result variation greater than a 0.02 percentage point change (Horswill and Robinson, 2015), therefore any impacts resulting in a percentage point change smaller than this threshold would not lead to an adverse impact.

Migratory Birds

- 5.2.17 As highlighted in Table 3.7, due to species-specific life histories, some bird species are at risk of colliding with offshore Wind Turbines during migration (Furness *et al.*, 2013). In order to estimate the impact of collision mortalities on migratory birds, mCRM was undertaken using the Strategic Ornithological Support Services Migration Assessment Tool (SOSSMAT), hereafter referred to as the Migration Assessment Tool (MAT) (Wright *et al.*, 2012). Further details on the methodology used are presented in Volume 3, Technical Appendix 11.5: Offshore Ornithology Migratory Bird Collision Risk Model Technical Report (TWP-BOW-RPS-OFE-RPT-00023) of the Offshore EIA Report.

Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure

- 5.2.18 The presence, or activities associated, with Offshore Infrastructure can result in seabirds experiencing displacement or barrier effects. The impacts associated with these structures can be short term (i.e. activities associated with construction of the wind farm), or long term (i.e. the physical presence of Wind Turbines), and can occur during all three phases of the Proposed Development.

Species and Features with Connectivity with the Array Area

- 5.2.19 In relation to the Array Area, displacement can occur when seabirds are no longer able to utilise a specific area. For example, if the presence of infrastructure forces individuals to alter where they forage, then the individual would be displaced. Whereas barrier effects can be defined as a physical factor that causes seabirds to change their intended direction of travel to reach their intended destination (JNCC *et al.*, 2022). For example, if the individual was not forced to alter their foraging location but was forced to change their flight path due to the presence of the Array Area or other associated activities.
- 5.2.20 As it can be difficult to distinguish between the two responses, NatureScot (2023f) recommends assessing both displacement and barrier effects under the term ‘distributional responses’.
- 5.2.21 Impacts from distributional responses can reduce the fitness of individuals. For example, energy budgets can be altered due to increased expenditure on travelling if experiencing barrier effects or individuals may be forced to forage in areas with lower prey quality if experiencing displacement. Displacement can also lead to increased intra- or inter-specific competition, which can also indirectly impact breeding seabirds from colonies further from the Proposed Development.

5.2.22 Displacement was assessed for six species deemed to exhibit sensitivity to distributional responses (Volume 3, Technical Appendix 11.1: Offshore Ornithology Baseline Characterisation Technical Report (TWP-BOW-RPS-OFE-RPT-00020) of the Offshore EIA Report). The species screened in for the potential for LSE due to distributional responses are:

- fulmar;
- gannet;
- kittiwake;
- guillemot;
- razorbill; and
- puffin.

5.2.23 Notably, gannet and kittiwake were both assessed quantitatively for impacts due to collision risk as well as distributional responses.

Distributional Responses Along the Export Cable Corridor

5.2.24 Although species susceptible to distributional responses were found to have connectivity with the Offshore Infrastructure within the Export Cable Corridor, the Export Cable is not expected to result in displacement or barrier effects for seabirds. Therefore, no assessment for distributional responses has been carried out for impacts along the Export Cable Corridor.

Methodology for Assessment

Species and Features with Connectivity to the Array Area

5.2.25 The assessment of distributional responses draws on conclusions presented in Offshore EIA Report and Appendices to this report, in particular:

- Volume 3, Technical Appendix 11.1: Offshore Ornithology Baseline Characterisation Report (TWP-BOW-RPS-OFE-RPT-00020) of the Offshore EIA Report;
- Volume 3, Technical Appendix 11.2: Nearshore, Intertidal and Offshore Ornithology Along the Export Cable Corridor Baseline Report (TWP-BOW-RPS-OFE-RPT-00084) of the Offshore EIA Report;
- Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report; and
- Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038) of this Offshore RIAA.

5.2.26 A quantitative assessment was carried out for all three phases of the Proposed Development, for all six species identified to have sensitivity to distributional responses. However, only impacts for the O&M phase have been taken forward for the assessment of potential for LSE as it is expected that impacts due to distributional responses are highest during this phase.

- 5.2.27 Impacts of distributional responses may not be limited to individuals within the Array Area and is likely to impact individuals within the immediate surrounding area. Due to this, a ZOI equal to the Array Area plus a 2 km buffer was used to assess the number of mortalities occurring due to displacement following NatureScot (2023f) guidance. Distributional responses along the Export Cable Corridor are most likely to occur due to temporary habitat loss and/or disturbance and increased vessel movement associated with the construction and decommissioning of the Offshore Export Cables. These impacts are further discussed in 'Impact 3: Disturbance and Displacement to Birds From Vessel Movements' and 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance'.
- 5.2.28 As outlined in Volume 3, Technical Appendix 11.1: Offshore Ornithology Baseline Characterisation Report (TWP-BOW-RPS-OFE-RPT-00020) of the Offshore EIA Report, the number of individuals within the ZOI used within displacement matrices were estimated using MRSea when possible. Once estimates were produced for all DAS, Mean Seasonal Peaks (MSPs) were estimated for each species. It is important to note that availability bias corrections were applied to auk species (guillemot, razorbill and puffin) to account for individuals expected to be underwater during DAS. These corrections are based on studies carried out during the breeding season (such as JNCC (2013) and Spencer (2012)) where the number of auks is expected to be higher, which means it is likely that non-breeding season abundance estimates for auks used to estimate the impact of distributional responses are likely to be overestimates.
- 5.2.29 As well as the number of individuals within the ZOI, the rate of displacement and rate of mortality for displaced individuals must be estimated. The values used within the assessment are provided in Table 5.3. Values have been taken from NatureScot (2023f) for all species except fulmar which are not specified in NatureScot guidance. The values used for fulmar were agreed during written consultation with NatureScot (Table 2.1).
- 5.2.30 As recommended by NatureScot (2023f) 'low' and 'high' displacement scenarios are presented for the relevant species. The low displacement scenario refers to the low mortality rates (e.g. 3% and 1% for guillemot during the breeding season and non-breeding season respectively) and high mortality rates (e.g. 5% and 3% for guillemot during the breeding and non-breeding season respectively) presented in Table 5.3.
- 5.2.31 Although assessment of distributional responses was carried out for puffin during the non-breeding season within the Offshore EIA Report (Offshore EIA Report, Volume 2, Chapter 11: Offshore Ornithology (TWP-BOW-RPS-OFE-RPT-00026)), impacts during the non-breeding season have not been assessed within this RIAA. This is due to puffin being highly dispersive during the non-breeding season (MD-LOT, 2021) (Section 3.3). Therefore, only the breeding season has been considered for puffin.

Table 5.3: Values Used in the Assessment of Distributional Responses for the Proposed Development Alone

Species	Season	Mean Seasonal Peak (MSP)	Values recommended by NatureScot (2023f)	
			Birds Displaced (%)	Range of mortality (%)
Fulmar	Breeding season	903	20	1 to 3
	Non-breeding season	270		1 to 3
Gannet	Breeding season	613	70	1 to 3
	Non-breeding season	104		1 to 3
Kittiwake	Breeding season	1,749	30	1 to 3
	Non-breeding season	410		1 to 3
Guillemot	Breeding season	15,960	60	3 to 5
	Non-breeding season	18,212		1 to 3
Razorbill	Breeding season	2,675	60	3 to 5
	Non-breeding season	728		1 to 3
Puffin¹	Breeding season	377	60	3 to 5

¹Due to high levels of dispersal within the non-breeding season, puffin have only been assessed for distributional responses during the breeding season.

- 5.2.32 The number of mortalities expected to occur due to the Array Area, presented in Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report, represent all seabirds, irrespective of their age classes. However, as the only group of seabirds of interest within this RIAA are breeding adults, the mortalities must be apportioned to breeding adults and the relevant breeding colonies.
- 5.2.33 Corrections for the proportion of adults and proportion of sabbatical birds were applied as described in ‘Impact 1: Collision Risk Mortality due to Collision with Rotor Blades’.
- 5.2.34 In cases where there was more than one BDMPS presented in Furness (2015), the number of mortalities expected to occur within each Furness season was calculated before applying the relevant apportioning value. For example, the NatureScot (2020) non-breeding period used within the assessment for razorbill occurs from mid-August to March, whereas the Furness (2015) ‘migration’ periods occur from August to October and January to March. As there is an overlap of 5.5 months, equivalent to a proportion of 0.773, with the NatureScot season, the relevant apportioning values were used to apportion 0.773 of the predicted mortalities. This methodology assumes that the rate of mortality due to distributional responses is consistent across all months within the non-breeding period.

- 5.2.35 Following apportioning, assessment of the long-term impacts using PVA was carried out when necessary. PVAs are required if the impacts result in a 0.02 percentage point change in survival rates. It is expected that the natural variation in demographic rates due to environmental stochasticity exceeds 0.02 percentage point change in mortality (Horswill and Robinson, 2015), meaning that any impacts smaller than 0.02 caused by the Proposed Development are unlikely to have a detectable impact on seabird population sizes during the operational lifespan of the Proposed Development.
- 5.2.36 If the high displacement scenario met the 0.02 percentage point change threshold but the low displacement scenario did not, PVAs were run for both scenarios for consistency. This also applies for when impacts are combined with those from collision risk (kittiwake and gannet features).

Impact 3: Disturbance and Displacement to Birds From Vessel Movements

- 5.2.37 In addition to Offshore Infrastructure, disturbance and displacement can occur due to vessel movements associated with the construction, O&M and decommissioning phases of the Proposed Development. Throughout the Proposed Development's lifetime, vessels will be required to transport infrastructure for installation or decommissioning, as well as being used to carry out maintenance of these structures during the O&M phase.
- 5.2.38 Vessel activity is expected to be highest within the Array Area where the Wind Turbines will be located. Increased vessel movement along the Export Cable Corridor is likely to occur during the construction and decommissioning phases during installation of the Offshore Export Cables, with maintenance occurring during the O&M phase.
- 5.2.39 It is expected that the largest magnitude of the impact will occur during construction and decommissioning phases throughout the Proposed Development, with the largest number of trips occurring during these periods.
- 5.2.40 Although vessels are expected to be present throughout the Site Boundary, the extent of the impact is expected to occur intermittently throughout all phases, with each vessel having a relatively small range of impacts. Thus, it is expected that only individuals within the immediate vicinity of each vessel will be impacted directly.
- 5.2.41 Individuals impacted by vessel movements are likely to experience short-term displacement and disturbance, with the consequences of these impacts similar to those described in 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure'.
- 5.2.42 Although the Proposed Development Site Boundary does not overlap with any SPA boundaries, it is expected that vessel routes will have the potential to intersect marine SPAs. Following feedback from the Screening Response (MD-LOT, 2024), it was identified that Moray Firth SPA has the potential to be affected by vessel activity. Although the exact routes and ports to be used during all phases of the Proposed Development are unknown at this stage, a potential list of ports and harbours has been included within the assessment. These include Inverness and Cromarty Firth Green Freeport (a group of developments including Port of Cromarty Firth, Port of Nigg, Port of Inverness,

Highland Deephaven, Ardersier and Inverness Campus) and the Port of Aberdeen.

5.2.43 The relevant features of Moray Firth SPA screened in for assessment of vessel disturbance are listed below:

- common eider;
- common scoter;
- common goldeneye;
- great northern diver;
- long-tailed duck;
- red-breasted merganser;
- red-throated diver;
- Slavonian grebe; and
- velvet scoter.

5.2.44 It is also expected that vessel movements from the Port of Aberdeen may come within 15 km of Ythan Estuary, Sands of Forvie and Meikle Loch SPA. Therefore, a qualitative assessment including the following species will be carried out within Section 5.7:

- sandwich tern;
- common tern;
- little tern;
- pink footed goose;
- eider;
- redshank; and
- lapwing.

5.2.45 As disturbance and displacement to birds from vessel movements was not included within the HRA Stage 1 LSE Screening Report (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report), the sensitivity of the breeding seabird features to increased vessel movements was used to determine whether the potential for LSE could be ruled out. As there is no standard approach for the assessment of impacts from vessels, the approach taken within this RIAA is based on the West of Orkney OWF Addendum to the RIAA (Offshore Wind Power Limited, 2024), given the project recently gained consent. As described in Offshore EIA Report, Volume 2, Chapter 11: Offshore Ornithology (TWP-BOW-RPS-OFE-RPT-00026), information from Furness *et al.* (2012) and Garthe and Hüppop (2004) was used to determine the sensitivity. Of the nine seabird species screened in for assessment (Section 3.3), it was determined that both guillemot and razorbill had ‘medium’ sensitivities to increased vessel movements. The remaining species screened in for assessment were found to have ‘low’ or ‘very low’ sensitivities. Therefore,

only guillemot and razorbill have been assessed for the potential for LSE at the relevant sites (Table 3.7).

Methodology for Assessment

- 5.2.46 As there is no standard or agreed upon quantitative approach, the assessment of disturbance and displacement to birds from vessel movements for all phases is based on a qualitative approach. As the ports included within the assessment overlap with those included in the West of Orkney OWF Addendum to the RIAA (Offshore Wind Power Limited, 2024), this has been referenced where appropriate.

Impact 4: Disturbance to Prey Species and Their Habitat

- 5.2.47 Disturbance to prey species can occur due to Offshore Infrastructure, as well as from construction and decommissioning activities that disturb the seabed, leading to increased suspended sediment concentrations (SSCs) and heightened subsea noise levels. This disturbance can lead to changes in the distribution, availability, or abundance of prey which can indirectly impact seabirds. A reduction or disruption in prey availability could result in seabirds being displaced from their foraging areas or in a decreased energy intake, which may negatively impact their short-term survival rates or reproductive success.
- 5.2.48 Disturbance to prey species can occur during all three phases of the Proposed Development, however, it is expected to be significantly lower during O&M. This is due to the lower level of subsea noise, as activities such as pile driving are no longer taking place. Moreover, impacts to the seabed and the associated increase in SSCs are only expected to occur during cable or foundation installation activities.
- 5.2.49 During construction and decommissioning, activities associated with the construction or removal of Offshore Infrastructure are likely to disrupt prey species through increased noise or habitat loss and/or disturbance as discussed in 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance' and 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise'.
- 5.2.50 A full analysis of the impact of the Proposed Development on prey species is covered in Offshore EIA Report, Volume 2, Chapter 8: Benthic Ecology (TWP-BOW-RPS-OFE-RPT-00013) and Volume 2, Chapter 9: Fish and Shellfish Ecology (TWP-BOW-RPS-OFE-RPT-00072).

Methodology for Assessment

- 5.2.51 The assessment of disturbance to prey species and their habitat for all phases is based on a qualitative approach drawing from Offshore EIA Report, Volume 2, Chapter 8: Benthic Ecology (TWP-BOW-RPS-OFE-RPT-00013) and Volume 2, Chapter 9: Fish and Shellfish Ecology (TWP-BOW-RPS-OFE-RPT-00072).

Impact 5: Temporary Habitat Loss and/or Habitat Disturbance

- 5.2.52 Temporary habitat loss and/or habitat disturbance is likely to occur for seabirds during both construction and decommissioning phases of the Proposed Development. Both habitat loss and habitat disturbance are expected to result in the displacement of individuals, resulting in increased energy expenditure and reduced fitness.

- 5.2.53 Habitat loss can impact seabirds by altering the habitats utilised by seabirds. There is a possibility of direct loss of benthic habitat to occur due to activities such as the installation or removal of Inter-Array Cables (IAC), Interconnector Cables and Offshore Export Cables, seabed preparation, piling or drilling. Within the construction phase, these activities are expected to last up to five years with varying locations throughout. The loss of benthic habitat is expected to have a negative impact on the foraging efficiency of diving birds, potentially leading to decreased fitness.
- 5.2.54 In addition to direct habitat loss, temporary disturbances resulting from construction and decommissioning activities may displace seabirds from the affected areas. Displacement can be viewed as a form of indirect habitat loss, therefore the impacts of both direct habitat loss and disturbance have been evaluated together.
- 5.2.55 The loss or disturbance to habitats may lead to displaced birds relocating to areas already inhabited by other seabirds, resulting in increased intra- or inter-specific competition for resources. Alternatively, displaced birds may move to lower-quality areas (e.g. regions with reduced prey availability) or travel greater distances to find suitable habitats. This could negatively affect their demographic fitness, including survival rates and breeding productivity, and may also impact other bird populations outside those directly impacted by the Proposed Development.
- 5.2.56 It is noted that the main impacts associated with temporary habitat loss and/or habitat disturbance is displacement and increased competition, of which the former is described in 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure'.
- 5.2.57** This impact has not been considered during the O&M phase as the operational lifespan of the Proposed Development (up to 30 years), meaning that any impacts cannot be considered temporary. Habitat loss and/or disturbance during the O&M phase is considered within other impacts, such as Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure and Impact 3: Disturbance and Displacement to Birds From Vessel Movements.

Methodology for Assessment

- 5.2.58 The assessment of temporary habitat loss and/or habitat disturbance during both construction and decommissioning phases is based on a qualitative approach, considering the magnitude of impact and the sensitivity of the receptor.

Impact 6: Direct Impacts from UXO Clearance

- 5.2.59 UXO may be found within the marine environment during pre-construction surveys, in order to ensure the safety of human life and infrastructure (UK Government, 2025; UK Government *et al.*, 2025). Clearance of UXO is traditionally undertaken by placing explosive donor charges next to the UXO, which when detonated triggers the UXO itself to explode. This can cause injury and disturbance to marine species, as well as damage to the seabed (UK Government *et al.*, 2025). However, the UK Government *et al.* (2025) now

recommends that low-noise methods of clearance be the standard approach for removing UXO.

- 5.2.60 UXO clearances are expected to occur during site preparation works during Year 1 of the Proposed Development. Direct impacts from UXO clearance are mostly considered for marine mammals and fish (Lepper *et al.*, 2024). However, it has been shown that seabird species can be directly impacted during explosions, though it is unlikely to impact species on a population level (Danil *et al.*, 2011). Due to the nature of the activity, only diving seabirds within the vicinity of these activities are expected to be impacted. Therefore, the potential for LSE due to direct impacts from UXO clearance could not be ruled out for guillemot, razorbill, puffin and gannet in both the Array Area and Export Cable Corridor.

Methodology for Assessment

- 5.2.61 As there is no standard or agreed upon quantitative approach, the assessment of indirect impacts from UXO clearance for the construction phase is based on qualitative approach, considering the magnitude of the impact and sensitivity of the receptor.

Impact 7: Indirect Impacts from Construction/Decommissioning Noise

- 5.2.62 Indirect impacts from noise are likely to occur during both construction and decommissioning phases of the Proposed Development. Noise pollution can impact seabirds both directly due to displacement or indirectly due to changes in prey distribution or foraging routes. Both direct and indirect impacts are likely to lead to lower fitness within different species due to impacts to survival and/or productivity.
- 5.2.63 It is expected that activities generating the highest level of noise include pile driving during the installation of fixed foundations. Other sources of noise include noise from equipment use, increased vessel movements and UXO clearance. The latter two activities are discussed in more detail in ‘Impact 3: Disturbance and Displacement to Birds From Vessel Movements’ and ‘Impact 6: Direct Impacts from UXO Clearance’.
- 5.2.64 Separating the impact of noise pollution from previously discussed impacts, such as ‘Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure’ and ‘Impact 4: Disturbance to Prey Species and Their Habitat’, is challenging and likely to be species dependent. As indirect impacts of noise are likely to impact prey species, all species screened in for the potential of LSE due to ‘Impact 4: Disturbance to Prey Species and Their Habitat’ have been screened in for this impact pathway.

Methodology for Assessment

- 5.2.65 As there is no standard or agreed upon quantitative approach, the assessment of indirect impacts from construction/decommissioning noise is based on a qualitative approach, considering the magnitude of the impact and the sensitivity of the receptor.

5.3 Baseline Information

Site-specific Information

- 5.3.1 Site-specific baseline information, including the relevant Qualifying Features, relevant conservation objectives and proximity to the Array Area have been presented within the SPA-specific summaries within Section 5.7.

Conservation Objectives

- 5.3.2 As described in Section 4.5, the conservation objectives are determined by the relevant SNCBs.

Scottish Sites

SPA and Ramsar Sites

- 5.3.3 The majority of the sites assessed as part of this RIAA are SPAs which fall under the remit of NatureScot, with the conservation objectives (as determined from NatureScot's SiteLink (NatureScot, ND)) for each site as noted below:
- To ensure that the Qualifying Features of the site are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status; and
 - To ensure for the qualifying species that the following are maintained or restored in the long term:
 - population of the species as a viable component of the site;
 - distribution of the species within the site;
 - structure, function and supporting processes of habitats supporting the species; and
 - no significant disturbance of the species.
- 5.3.4 The only sites which differ from these objectives are Foula SPA and St Kilda SPA. For each site the conservation objectives refer to relevant marine SPA in addition to the relevant SPA (e.g. Foula SPA and the Seas off Foula SPA and St Kilda SPA and the Seas off St Kilda SPA).
- 5.3.5 As the Proposed Development and associated activities are not expected to overlap with any of the Scottish sites, excluding Moray Firth SPA (see Section 5.2), it is expected that the structure, function and supporting processes of habitats supporting the species and distribution of the species within the site will not be impacted. Therefore, within Section 5.7 conservation objectives relating to the habitat of the site have only been considered for Moray Firth SPA within the assessment of vessel disturbance.
- 5.3.6 As outlined in Section 4.5, for the four Ramsar Sites presented in Table 3.7, the conservation objectives for the SPA have been used to determine AEOSI or no AEOSI.
- 5.3.7 Therefore, within this RIAA, it has been concluded that there is no AEOSI if the specie(s) will remain a viable component of the site, and no significant disturbance will occur.

English Sites

5.3.8 SPAs which fall under the remit of Natural England, with the conservation objectives (as determined through Natural England's Access to Evidence (Natural England, ND)) for each site as noted below:

- To ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive (Directive 79/409/EEC), by maintaining or restoring:
 - the extent and distribution of the habitats of the qualifying features;
 - the structure and function of the habitats of the qualifying features;
 - the supporting processes on which the habitat of the qualifying features rely;
 - the populations of each of the qualifying features; and
 - the distribution of qualifying features within the site.

5.3.9 As the Proposed Development and associated activities will not overlap with any of the English sites, it is expected that the extent and distribution, and the structure and function of the Qualifying Features habitats will not occur. Therefore, within Section 5.7 conservation objectives relating to the habitat of the site have not been considered.

5.3.10 Therefore, within this RIAA, it has been concluded that there is no AEOSI if the population and distribution of qualifying features will not be undermined.

Northern Irish Sites

5.3.11 SPAs which fall under the remit of DAERA, with the conservation objectives (as determined by DAERA) for each site as noted below:

- To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for the site.

5.3.12 Therefore, within this RIAA, it has been concluded that there is no AEOSI and the conservation objectives will not be undermined for a Northern Irish SPA if the Proposed Development alone or in-combination will not prevent the maintenance or restoration of the favourable conservation condition of the bird species listed as Special Conservation Interests for the site.

Republic of Ireland Sites

5.3.13 SPAs which fall under the remit of NPWS, with the conservation objectives (as determined from NPWS Conservation Management Planning) for each site as noted below:

- To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for the site.

5.3.14 Therefore, within this RIAA, it has been concluded that there is no AEOSI and the conservation objectives will not be undermined for an SPA within the Republic of Ireland if the Proposed Development alone or in-combination will not prevent the maintenance or restoration of the favourable conservation condition of the bird species lists as Special Conservation Interests for the site.

Colony Counts

- 5.3.15 The population estimates for seabird SPA colonies used to inform the assessments within this report are taken from the latest Seabirds Count census (Burnell *et al.*, 2023).
- 5.3.16 To calculate the initial population sizes for PVA, counts from Burnell *et al.* (2023) have been converted to individual breeding adults using the following conversion factors:
- For counts recorded in Apparently Occupied Nests (AON), Apparently Occupied Sites (AOS), Apparently Occupied Burrows (AOB) and Apparently Occupied Territories (AOT) were multiplied by two; and
 - For guillemot and razorbill counts measured in individuals (IND) were multiplied by a conversion factor of 1.34 (Walsh *et al.*, 1995).
- 5.3.17 In order to determine AEOSI for a given feature, the results from these PVAs have been compared to long-term population trends between the two most recent seabird censuses. In the case of the North Caithness Cliffs SPA and the East Caithness Cliffs SPA, consideration was given to recent censuses of these sites by NEEOG-funded surveys, in 2023 and 2025 respectively, when interpreting the results of any PVA (Zisman and Swann, 2023; Zisman *et al.*, 2025).

Highly Pathogenic Avian Influenza (HPAI)

- 5.3.18 The current strain (H5N1) of HPAI was first recorded in the UK in summer 2021 (Falcheri *et al.*, 2022). Although previous reviews of research indicate that outbreaks are rarely a key factor leading to extinction of vertebrates, disease can lead to population crashes (Young and VanderWerf, 2023).
- 5.3.19 HPAI spread quickly across the UK, with 17 of the 25 UK breeding seabird species recorded having tested positive for HPAI by the end of 2022 (Animal and Plant Health Agency (APHA), 2023) and it was estimated that a minimum of approximately 20,000 seabird losses in Scotland alone (NatureScot, 2023h). However, the most recent HPAI report, at the time of writing (Department for Environment, Food and Rural Affairs (DEFRA), 2025), has indicated that although HPAI is still being recorded in seabirds, it is at a relatively low level. Moreover, the risk to wild birds was reduced from very high to high.
- 5.3.20 In response to the HPAI outbreak, the HPAI Seabird Surveys Project (Tremlett *et al.*, 2024) was established by the RSPB. The project built upon existing surveys with volunteer and RSPB led surveys at a number of SPA colonies between May and July 2023. The survey programme planned to target 13 priority seabird species, including six (gannet, herring gull, great black-backed gull, kittiwake, Arctic tern and guillemot) of the nine species identified as features with the potential for LSE within this RIAA.
- 5.3.21 The RSPB HPAI report (Tremlett *et al.*, 2024) provides a comparison of these counts to those collected in the most recent census (Burnell *et al.*, 2023) taken before the HPAI outbreak. Of the species relevant to this report, the largest decreases due to HPAI were found in gannet and great black-backed gull with a decrease of 25% and 20% recorded respectively. However, more recent counts

carried out at Bass Rock have shown that although gannet are showing a decrease (6.7%) in population sizes, albeit at a slower rate than recorded in Tremblett *et al.* (2024), no evidence of HPAI were found and a high number of chicks were present (Harris *et al.*, 2023). Moreover, Tremblett *et al.* (2024) argue that other factors could be partially responsible for declining populations recorded in some species, such as guillemot, which showed declining populations prior to the HPAI outbreak. As outlined in Volume 3, Technical Appendix 11.1: Offshore Ornithology Baseline Characterisation Report (TWP-BOW-RPS-OFE-RPT-00020) of the Offshore EIA Report, the survey programme (Tremblett *et al.*, 2024) was carried out from March 2022 to February 2024, which overlaps with the HPAI outbreak.

- 5.3.22 Although it is acknowledged that HPAI, in the short term at least, is likely to have an effect on changes in seabird populations it is considered that the most appropriate information to use to inform the assessment is the baseline DAS data, and the Burnell *et al.* (2023) population count, and population change data.

5.4 Proposed Development Alone: Quantitative Assessments

- 5.4.1 The following impacts have been assessed quantitatively for the Proposed Development Alone assessment:

- Impact 1: Collision Risk Mortality due to Collision with Rotor Blades; and
- Impact 2: Distributional Responses, Displacement and Barrier Effects due to Offshore Infrastructure

Impact 1: Collision Risk Mortality due to Collision with Rotor Blades

- 5.4.2 The assessment for collision risk due to the presence of Wind Turbines within the Array Area has been presented in SPA-specific assessments (Section 5.7) for the relevant species and sites as outlined in Table 3.7.
- 5.4.3 For features assessed for migratory collision risk, the results of the assessment are presented in Paragraphs 5.4.6 to 5.4.7 and Table 5.6.
- 5.4.4 The relevant MDS and Embedded Mitigation measures considered for the assessment of collision risk for all sites is shown in Table 5.4 and Table 5.5 respectively.
- 5.4.5 Collision Risk Mortality has only been screened for the O&M phase (Table 5.4) when Wind Turbines will be operational.

Table 5.4: MDS Considered for the Assessment of Potential Impacts to Marine Ornithological Features due to Collision Risk Mortality due to Collision with Rotor Blades During the O&M Phase

MDS	Justification
Wind Turbines for the 15 MW Wind Turbine layout: • Operational lifetime up to 30 years; • Up to 67 Wind Turbines on fixed foundations; • Maximum rotor diameter 236 m, chord width 6.5 m, hub height 151 m above Lowest Astronomical Tide (LAT), minimum blade clearance 33.12 m above LAT (29.28 m above HAT), upper blade height 269.12 m above LAT; • Wind Turbine spacing minimum 1,038 m; and • Maximum rotor speed of 8.4 rpm, average of 7.1 rpm.	The potential for collision risk was derived from a sensitivity analysis using Wind Turbine parameters including rotor diameter, chord width, rotor speed and minimum blade clearance above LAT. The parameters associated with the highest number of Wind Turbines (15 MW) represents the MDS because it will result in the greatest potential for collision risk. This is a combined effect of Wind Turbine number and higher rotation speed. The fixed foundation constitutes the largest collision risk, because it does not move up and down with the tides, reducing the air gap during high tides.

Table 5.5: Embedded Mitigation Measures Considered for the Assessment of Potential Impacts to Marine Ornithological Features due to Collision Risk Mortality due to Collision with Rotor Blades During the O&M Phase

Embedded Mitigation Adopted as Part of the Proposed Development	Justification
Wind Turbine design to have a minimum lower blade tip height of 33.12 above LAT.	As most seabirds tend to fly low, close to the sea surface, an increased minimum blade tip height above LAT leads to a reduction in predicted collision mortality.
Development of, and adherence to, a Development Specification and Layout Plan (DSLPL). The development of the DSLPL includes consultation with the relevant authorities for approval, including the MCA and Northern Lighthouse Board (NLB).	Appropriate design and layout of Wind Turbines will reduce collision risk, displacement effects and other relevant impacts relevant to offshore ornithology.

Migratory Birds

- 5.4.6 A summary of the results of mCRM (Volume 3, Technical Appendix 11.5: Offshore Ornithology Migratory Bird Collision Risk Model Technical Report (TWP-BOW-RPS-OFE-RPT-00023) of the Offshore EIA Report) are presented in Table 5.6.
- 5.4.7 As shown in Table 5.6, the decrease in survival rate, due to collision risk alone, does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for any migratory bird species. Therefore, it can be concluded, beyond reasonable scientific doubt, that there is no AEOSI as a result of impacts on migratory bird features due to collision risk mortality due to collision with rotor blades with respect to the O&M phase of the Proposed Development's Array Area alone for the following sites:
- East Mainland Coast, Shetland SPA;
 - Firth of Forth SPA and Ramsar Site;
 - Firth of Tay and Eden Estuary SPA and Ramsar Site;
 - Greater Wash SPA;
 - Inner Moray Firth SPA;
 - Lindisfarne SPA; and
 - Moray Firth SPA.
 - North Orkney SPA;
 - Outer Firth of Forth and St Andrews Bay Complex SPA;
 - Scapa Flow SPA; and
 - Ythan Estuary, Sands of Forvie and Meikle Loch SPA.

Table 5.6: Result of Migratory Collision Risk Modelling

Species	Population Size	Number Crossing Array Area	Collisions (Single Passage)	Collisions (Two Passages)	Decrease in Survival (Percentage Points)	Conclusion
Whooper Swan	19,995	531	0.16	0.31	0.002	No AEOSI
Bean Goose	970	43	0.00	0.00	0.000	No AEOSI
Pink-footed Goose	255,000	5,250	0.01	0.02	0.000	No AEOSI
Icelandic Greylag Goose	34,200	12	0.00	0.00	0.000	No AEOSI
Barnacle Goose (Svalbard)	43,500	3,366	0.04	0.09	0.000	No AEOSI
Light-bellied Brent Goose (Svalbard)	13,266	337	0.08	0.16	0.001	No AEOSI
Shelduck	38,750	932	0.22	0.44	0.001	No AEOSI
Wigeon	108,800	2,119	0.91	1.81	0.002	No AEOSI
Teal	87,100	1,688	0.68	1.36	0.002	No AEOSI
Mallard	164,720	3,963	1.86	3.71	0.002	No AEOSI
Pintail	2,094	41	0.02	0.03	0.001	No AEOSI
Shoveler	4,592	122	0.05	0.10	0.002	No AEOSI
Pochard	5,700	151	0.06	0.12	0.002	No AEOSI
Tufted Duck	31,000	608	0.25	0.49	0.002	No AEOSI
Scaup	700	13	0.01	0.01	0.001	No AEOSI
Eider	120,060	4,748	0.55	1.10	0.001	No AEOSI
Long-tailed Duck	6,400	154	0.06	0.13	0.002	No AEOSI
Common Scoter	44,010	853	0.35	0.70	0.002	No AEOSI
Velvet Scoter	3,157	85	0.04	0.07	0.002	No AEOSI
Common goldeneye	6,000	144	0.06	0.12	0.002	No AEOSI
Red-breasted Merganser	1,584	40	0.02	0.03	0.002	No AEOSI
Goosander (non-breeding)	5,226	192	0.03	0.05	0.001	No AEOSI
Goosander (Breeding male moult)	4,800	171	0.02	0.05	0.001	No AEOSI
Red-throated Diver (breeding)	500	17	0.00	0.00	0.000	No AEOSI

Species	Population Size	Number Crossing Array Area	Collisions (Single Passage)	Collisions (Two Passages)	Decrease in Survival (Percentage Points)	Conclusion
Red-throated Diver (non-breeding)	10,200	209	0.00	0.00	0.000	No AEOSI
Manx Shearwater	120,000	2,179	0.07	0.13	0.000	No AEOSI
Storm Petrel	25,500	463	0.02	0.05	0.000	No AEOSI
Leach's Petrel	24,000	436	0.02	0.05	0.000	No AEOSI
Cormorant	6,450	153	0.01	0.03	0.000	No AEOSI
Shag	22,000	617	0.05	0.11	0.001	No AEOSI
Bittern	706	9	0.00	0.01	0.001	No AEOSI
Great Crested Grebe	138	2	0.00	0.00	0.000	No AEOSI
Slavonian Grebe	312	6	0.00	0.00	0.000	No AEOSI
Marsh Harrier	2,550	53	0.00	0.01	0.000	No AEOSI
Hen Harrier (breeding)	435	14	0.00	0.00	0.000	No AEOSI
Hen Harrier (non-breeding)	109	3	0.00	0.00	0.000	No AEOSI
Osprey	657	15	0.00	0.00	0.000	No AEOSI
Merlin	1,651	26	0.01	0.02	0.001	No AEOSI
Corncrake	16,790	336	0.11	0.22	0.001	No AEOSI
Oystercatcher (breeding)	57,300	1,607	0.00	0.01	0.000	No AEOSI
Oystercatcher (non-breeding)	61,000	1,182	0.00	0.01	0.000	No AEOSI
Ringed Plover (breeding)	2,180	62	0.00	0.00	0.000	No AEOSI
Ringed Plover (non-breeding)	8,500	186	0.00	0.00	0.000	No AEOSI
Dotterel (breeding and passage)	195	2	0.00	0.00	0.000	No AEOSI
Dotterel (within breeding season)	425	11	0.00	0.00	0.000	No AEOSI
Golden Plover (breeding)	20,200	570	0.22	0.45	0.002	No AEOSI
Golden Plover (non-breeding)	82,000	2,013	0.79	1.58	0.002	No AEOSI
Grey Plover	24,800	597	0.01	0.01	0.000	No AEOSI
Lapwing	788,500	18,975	0.22	0.43	0.000	No AEOSI

Species	Population Size	Number Crossing Array Area	Collisions (Single Passage)	Collisions (Two Passages)	Decrease in Survival (Percentage Points)	Conclusion
Knot	72,000	1,400	0.01	0.03	0.000	No AEOSI
Sanderling	40,000	778	0.01	0.01	0.000	No AEOSI
Purple Sandpiper	4,880	99	0.00	0.00	0.000	No AEOSI
Dunlin <i>C. a. schinzii</i> and <i>C. a. arctica</i> (passage)	181,600	3,528	1.29	2.58	0.001	No AEOSI
Dunlin <i>C. a. alpina</i> (passage and winter)	70,000	1,723	0.63	1.26	0.002	No AEOSI
Ruff	6,200	111	0.00	0.00	0.000	No AEOSI
Snipe	1,221,000	23,794	0.24	0.49	0.000	No AEOSI
Black-tailed Godwit <i>L. l. islandica</i>	19,800	460	0.20	0.39	0.002	No AEOSI
Bar-tailed Godwit	136,000	3,577	0.04	0.08	0.000	No AEOSI
Whimbrel	2,340	44	0.00	0.00	0.000	No AEOSI
Curlew (breeding)	23,400	654	0.01	0.02	0.000	No AEOSI
Curlew (non-breeding)	28,220	727	0.01	0.02	0.000	No AEOSI
Greenshank	1,440	32	0.00	0.00	0.000	No AEOSI
Redshank <i>T. t. britannica</i> (breeding)	13,200	409	0.05	0.10	0.001	No AEOSI
Redshank <i>T. t. robusta</i> (non-breeding)	115,000	2,693	0.33	0.66	0.001	No AEOSI
Redshank <i>T. t. totanus</i> (non-breeding)	90,000	2,458	0.30	0.60	0.001	No AEOSI
Turnstone	69,400	1,344	0.02	0.03	0.000	No AEOSI
Arctic Skua	393	9	0.00	0.00	0.000	No AEOSI
Great Skua	4,825	109	0.02	0.04	0.001	No AEOSI
Short-eared Owl	2,976	68	0.01	0.02	0.001	No AEOSI
Nightjar	7,623	198	0.03	0.06	0.001	No AEOSI

Impact 2: Distributional Responses, Displacement and Barrier Effects due to Offshore Infrastructure

- 5.4.8 The assessment for distributional responses has been presented in SPA-specific assessments (Section 5.7) for the relevant species and sites as outlined in Table 3.7.
- 5.4.9 The relevant MDS and Embedded Mitigation measures considered for the assessment of distributional responses for all sites is shown in Table 5.7 and Table 5.8 respectively.
- 5.4.10 Distributional responses have been screened in for all three phases of the Proposed Development (Table 3.7). As highlighted in Section 5.4, distributional responses are assessed within the Array Area only.
- 5.4.11 It is expected that distributional responses due to impacts associated with the Array Area may occur for kittiwake, gannet, puffin, guillemot and razorbill. As impacts are expected to be highest during the O&M phase, only impacts during the O&M phase have been presented within SPA-specific sections (Section 5.7), with the construction and decommissioning phases addressed in Paragraphs 5.4.12 to 5.4.14.

Table 5.7: MDS Considered for the Assessment of Potential Impacts to Marine Ornithological Features due to Distributional Responses During the All Phases of the Proposed Development

Proposed Development Phase	MDS	Justification
Construction	Displacement and barrier effects have the potential to occur across all development phases with construction and decommissioning impacts lesser than during O&M when the number of Offshore Infrastructure is greatest.	Represents the maximum number and density of Wind Turbines and structures across the Array Area, which maximises the potential: • barrier to foraging grounds and migration routes for migratory bird species; and • disturbance and displacement to birds from the Array Area. For seabirds occurring within the Array Area, in line with NatureScot guidance (NatureScot, 2023f), barrier to movement impacts are assessed as part of displacement and therefore not considered separately for these species.
O&M	Wind Turbines for the 15 MW Wind Turbine layout: • Operational lifetime up to 30 years; • Up to 67 fixed foundation Wind Turbines; • Maximum rotor diameter 236 m, chord width 6.5 m, hub height 151 m above LAT, minimum blade clearance 33.12 m above LAT (29.28 above HAT), upper blade height 269.12 m above LAT; • Wind Turbine spacing minimum 1,038 m; • Maximum rotor speed of 8.4 rpm, average 7.1 rpm. Offshore Substation Platform (OSPs): • 3 OSPs, main structure 60 m above LAT in height (tallest point 70 m above LAT); and • Topside 50 m long x 40 m wide for each OSP.	
Decommissioning	Displacement and barrier effects have the potential to occur across all development phases with construction and decommissioning impacts lesser than during O&M when the number of Offshore Infrastructure is greatest.	

Table 5.8: Embedded Mitigation Measures Considered for the Assessment of Potential Impacts to Marine Ornithological Features due to Distributional Responses During the O&M Phase

Embedded Mitigation Adopted as Part of the Proposed Development	Justification
Development of, and adherence to, a DSLP. The development of the DSLP includes consultation with the relevant authorities for approval, including the MCA and Northern Lighthouse Board (NLB).	Appropriate design and layout of Wind Turbines will reduce collision risk, displacement effects and other relevant impacts relevant to offshore ornithology.

Impacts Associated with the Array Area during the Construction and Decommissioning Phases

- 5.4.12 During the construction phase, disturbance can arise within the Array Area and the immediate vicinity due to activities associated with the installation of the Wind Turbine foundations and other infrastructure, such as installation of the IACs. Some activities associated with these activities are discussed separately in ‘Impact 3: Disturbance and Displacement to Birds From Vessel Movements’.
- 5.4.13 There has been little research into the distributional responses of seabirds during the construction of an offshore wind farm, with most studies instead comparing pre- and post-construction. However, it is assumed that the impacts of the offshore wind farm would be lower than during the O&M phase due to the temporary nature of the activities being undertaken and the smaller size of the impacted areas of the Proposed Development during early stages of construction.
- 5.4.14 As impacts during the construction phase are limited to a small extent of the Site Boundary at any given time, and the impacts are temporary and reversible, it is not expected that there will be any significant long-term effect which will undermine the conservation objectives (see Section 5.3) of the relevant sites. Therefore, it is concluded that for the impact of distributional responses there is no AEOSI to any of the relevant Qualifying Features identified in Table 3.7 during the construction and decommissioning phases.

5.5 Proposed Development Alone: Qualitative Assessments

- 5.5.1 As addressed in Section 5.2, qualitative assessments have been carried out for multiple impacts, with site-specific assessments being carried out for some impacts (e.g. vessel disturbance for Moray Firth SPA).
- 5.5.2 For the remaining impacts, the conclusions apply to all of the sites with the potential for LSE. Due to this, one assessment has been presented within this section for the following impacts:
- Impact 3: Disturbance due to birds from vessel movements;
 - Impact 4: Disturbance to prey species and their habitat;
 - Impact 5: Temporary habitat loss and/or habitat disturbance;
 - Impact 6: Direct impacts from UXO clearance; and
 - Impact 7: Indirect impacts from construction/decommissioning noise.
- 5.5.3 Site-specific qualitative assessments have been presented within Section 5.7 for the following impacts and sites:
- Impact 3: Disturbance due to birds from vessel movements for Moray Firth SPA (Paragraph 5.7.712) and Ythan Estuary, Sands of Forvie and Meikle Loch SPA (Paragraph 5.7.1162)

Impact 3: Disturbance to Birds from Vessel Movements

Sites with Potential LSE due to Disturbance to Birds from Vessel Movements

- 5.5.4 Disturbance and displacement to birds from vessel movements was not included within the HRA Stage 1 LSE Screening Report (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report). As discussed in the Offshore EIA Report, Volume 2, Chapter 11: Offshore Ornithology (TWP-BOW-RPS-OFE-RPT-00026) it was determined that of the seabird species assessed, both guillemot and razorbill show the highest sensitivity to vessel movements. Therefore, the potential for LSE could not be ruled out for guillemot and razorbill at the relevant SPAs (Table 3.7) during the construction, O&M and decommissioning phases (Table 5.9).
- 5.5.5 The MDS and Embedded Mitigation measures considered for the assessment of disturbance to birds from vessel movements is shown in Table 5.9 and Table 5.10 respectively.

Table 5.9: MDS Considered for the Assessment of Potential Impacts to Marine Ornithological Features due to Disturbance to Birds from Vessel Movements During the Construction, O&M and Decommissioning Phases

Proposed Development Phase	MDS	Justification
Construction	- Maximum 41 vessels on site at any one-time (25 and 16 vessels for the Array Area and Export Cable Corridor respectively), totalling 2,120 return vessel trips (1,671 and 449 return trips for the Array Area and Export Cable Corridor respectively) during the total construction period of 5 years. - Maximum of 2 helicopters on site at any one-time, totalling 267 return trips during construction.	Represents the maximum number of vessel and helicopter movements that would cause greatest visual and noise disturbance and displacement to birds from the Proposed Development during construction.
O&M	- Maximum 20 vessels on site at any one time (12 and 8 vessels for the Array Area and Export Cable Corridor respectively), totalling 713 return vessel trips per year (588 and 125 return trips for the Array Area and Export Cable Corridor respectively). In addition to this, a further number of vessels will undertake another 260 return trips spread over entire 30-year O&M phase (146 and 114 return trips for the Array Area and Export Cable Corridor respectively). - Maximum of 3 helicopters on site at any one-time, totalling 30 return trips per year.	Represents the maximum number of vessel and helicopter movements that would cause greatest visual and noise disturbance and displacement to birds from the Proposed Development during O&M activities.
Decommissioning	A Decommissioning Programme will be submitted to MD-LOT for consultation and approval. The Decommissioning Programme will be updated during the Project's lifespan to take account of changing best practice and new technologies. The approach for decommissioning is yet to be determined, however, for the purposes of this MDS, total removal of all infrastructure including buried cables and cable protection has been assumed, and as such the environmental impact of decommissioning will be the same if not lower than construction.	Decommissioning impacts assumed to be similar or less than construction impacts.

Table 5.10: Embedded Mitigation Considered for the Assessment of Potential Impacts to Marine Ornithological Features due to Disturbance to Birds from Vessel Movements During the Construction, O&M and Decommissioning Phases

Embedded Mitigation Adopted as Part of the Proposed Development	Justification
Development of, and adherence to, an Environmental Management Plan (EMP), including a Marine Pollution Contingency Plan (MPCP) and a Biosecurity Plan with commitments to monitoring and actions to minimise Invasive Non-Native Species (INNS).	To reduce the risk of accidental release of contaminants from vessels during construction, O&M and decommissioning as far as reasonably practicable, thus providing protection for marine life across all phases of the Proposed Development. Measures will be adopted to ensure that the potential for release of pollutants from construction, O&M and decommissioning plant is reduced so far as reasonably practicable. These will likely include designated areas for refuelling where spillages can be easily contained, storage of chemicals in secure designated areas in line with appropriate regulations and guidelines, double skinning of pipes containing hazardous substances, and storage of these substances in impenetrable bunds. All vessels associated with the Array Area will be required to comply with the standards set out by International Convention for the Prevention of Pollution from Ships (MARPOL).
Development of, and adherence to, a combined Navigational Safety and Vessel Management Plan (NSVMP), describing Project vessels' requirements, passages, monitoring and controls.	The NSVMP will include measures to reduce disturbance to bird receptors from transiting vessels, requiring them to stick to established shipping lanes and follow guidance in relation to bird species sensitive to shipping. The NSVMP will be implemented as far as practicable and where it does not compromise the safety of vessels.

Construction Phase

Seabird Features

- 5.5.6 The HRA Stage 1 Likely Significant Effects (LSE) Screening Report (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report) along with the revisions highlighted in Section 3 of this report, identified the potential for LSE due to the potential disturbance to birds from vessel movements for two breeding seabird species (guillemot and razorbill) and associated assemblages could not be ruled out.
- 5.5.7 It is expected that the magnitude of this impact will be greatest across the Proposed Development during both construction and decommissioning phases, with a maximum of 41 vessels and two helicopters on site at one time (Table 5.9). It is also expected that activities will be taking place intermittently across the Proposed Development Site Boundary, with only small areas impacted at any given time.
- 5.5.8 In order to reduce the magnitude of the impact, a NSVMP will be implemented during all phases of the Proposed Development. The NSVMP will be used in order to ensure that vessels follow best practices during construction and ensure that vessels use already established shipping lanes, allowing for the spatial extent of vessel impacts to be limited to areas already impacted where practicable.
- 5.5.9 With the NSVMP in place, it is expected that, although the numbers of vessels and therefore intensity of the impact may increase, this will be for a limited period and the spatial extent of the impact from each vessel is also expected to be limited.
- 5.5.10 Therefore, it is concluded, beyond reasonable scientific doubt, that there is no potential for an adverse effect with respect to disturbance to birds from vessel movements during the construction phased for any of the relevant SPAs and their qualifying ornithological features presented in Table 3.7.

Moray Firth SPA

- 5.5.11 The largest aggregations of waterbirds are expected to occur within marine SPAs. Although the Proposed Development does not directly overlap with any of these SPAs, it is expected that potential ports (Port of Nigg, Ardersier and Port of Cromarty) to be used within all phases of the Proposed Development may lead to vessel movements associated with the Proposed Development crossing the Moray Firth SPA. An SPA-specific impact has been presented in Section 5.7, Moray Firth SPA.

Ythan Estuary, Sands of Forvie and Meikle Loch SPA

- 5.5.12 As it is expected that vessel movements from Port of Aberdeen are likely to come within 15 km of Ythan Estuary, Sands of Forvie and Meikle Loch SPA, a site-specific assessment has been carried out and presented in Section 5.7, Ythan Estuary, Sands of Forvie and Meikle Loch SPA and Ramsar Site.

O&M Phase

- 5.5.13 As presented in Table 5.9, it is expected that the magnitude of the impact during the O&M phase is likely to be less than the magnitude of the impact during construction and decommissioning phases. Therefore, as the potential for AEOSI could be ruled out during the construction phase it has also been ruled out for the O&M phase.

Decommissioning Phase

- 5.5.14 As presented in Table 5.9, it is expected that the magnitude of the impact during the decommissioning phase is likely to be equal to or less than the magnitude of the impact during construction. Therefore, as the potential for AEOSI could be ruled out during the construction phase it has also been ruled out for the decommissioning phase.

Impact 4: Disturbance to Prey Species and their Habitats

Sites with Potential LSE due to Disturbance to Prey Species and their Habitats

- 5.5.15 The LSE assessment during the HRA screening process identified that during construction, O&M and decommissioning phases, LSE could not be ruled out for disturbance to prey species and their habitats.
- 5.5.16 The MDS and Embedded Mitigation measures considered for the assessment of disturbance to prey species and their habitats is shown in Table 5.11 and Table 5.12 respectively.

Table 5.11: MDS Considered for the Assessment of Potential Impacts to Marine Ornithological Features due to Disturbance to Prey Species and their Habitats During the Construction, O&M and Decommissioning Phases

Proposed Development Phase	MDS	Justification
Construction	- Up to 19,414,805 m² of subtidal temporary habitat loss and/or disturbance due to trenchless technique exit pit excavation, sandwave clearance, sandwave clearance material deposition, cable installation (including boulder clearance) and jack-up events. - An additional 13,987 m² of temporary habitat loss and/or disturbance could occur due to crater formation from the clearance of UXO. - Up to 2,510,000 m² (0.77%) of the total area of the Site Boundary) of long-term subtidal habitat loss due to infrastructure installed in the construction phase, which will persist into the O&M phase. - Introduction of up to 2,705,020 m² of hard substrate surface area installed throughout the construction phase which will persist into the O&M phase. - Effects on fish and shellfish receptors due to underwater noise from piling, UXO clearance, site investigation surveys and vessel noise and other noise producing activities. - Effects on fish and shellfish receptors from SSC from drill arising, IAC, Interconnector Cable and Offshore Export Cable installation, sandwave clearance, exit pit excavation, and drilling fluid release (at Landfall).	Sets out activities contributing to habitat loss (which in turn affects prey availability), such as clearance of boulders and sandwaves, as well as installation of foundations and cables. Sets out construction activities that would cause disturbance to prey, including clearance of boulders and sandwaves, foundation and cable installation, and vessel movements.
O&M	- A total of up to 11,688,813 m² of temporary subtidal habitat loss (up to 4.01%) of the total area of the Site Boundary) and/or disturbance due to jack-up events and disturbance caused by reburial of IAC, interconnector cables and Offshore Export Cables. - Up to 2,705,020 m² of hard substrate will be installed in the construction phase could be colonised by benthic species. - Effects on fish and shellfish ecology due to Electromagnetic Field (EMF)s from subsea electrical cabling due to presence of: - up to 151 km of 132 kV IAC;	Sets out activities contributing to habitat loss through maintenance activity.

Proposed Development Phase	MDS	Justification
	• up to 36 km of 275 kV interconnector cables; and • up to 210 km of 275 kV Offshore Export Cables. • Effects on fish and shellfish receptors due to operational noise from Wind Turbines, and vessel noise and other noise producing activities.	
Decommissioning	A Decommissioning Programme will be submitted to MD-LOT for consultation and approval. The Decommissioning Programme will be updated during the Proposed Development's lifespan to take account of changing best practice and new technologies. The approach for decommissioning is yet to be determined, however, for the purposes of this MDS it has been assumed that all Scour Protection, cable protection, and cable crossing protection will be left <i>in situ</i>. Therefore, up to 2,232,100 m² (up to 0.77%) of the total area of the Site Boundary) of long term habitat loss will persist past the decommissioning phase.	Decommissioning impacts assumed to be similar or lesser than construction impacts

Table 5.12: Embedded Mitigation Considered for the Assessment of Potential Impacts to Marine Ornithological Features due to Disturbance to Prey Species and their Habitats During the Construction, O&M and Decommissioning Phases

Embedded Mitigation Adopted as Part of the Proposed Development	Justification
All relevant Health and Safety Executive (HSE) procedures will be followed	Implementing HSE protocols minimises risks when working in marine environments and mitigates associated impacts to offshore ornithology.
Development of, and adherence to a Construction Method Statement (CMS) along with a Code of Construction Practice (CoCP).	The CMS will specify the Proposed Development's construction methods, setting out good practice construction measures and how agreed mitigation measures from the Offshore EIA Report, will be implemented during construction.
Development of, and adherence to, a combined NSVMP, describing Project vessels' requirements, passages, monitoring and controls.	The NSVMP will include measures to reduce disturbance to bird receptors from transiting vessels, requiring them to stick to established shipping lanes and follow guidance in relation to bird species sensitive to shipping. The NSVMP will be implemented as far as practicable where, and it does not compromise the safety of vessels.
Use of a trenchless technique (e.g. Horizontal Directional Drilling (HDD) or pipe jack tunnelling) as the Landfall installation option.	Use of a trenchless technique will reduce potential disturbance to birds in the Intertidal Area.
Development of, and adherence to, a Project Environmental Monitoring Plan (PEMP) to include details of any agreed surveys or monitoring requirements. The PEMP will provide the mechanism to validate the impact assessment, assess the effectiveness of mitigation measures, and inform adaptation of mitigation measures throughout the construction and O&M phases of the Proposed Development.	The PEMP will detail the methodology that will be used validate the impact assessment predictions made within the EIA. Subsea noise levels will be measured and monitored during the construction phase (impact piling operation). The PEMP will also provide for the mechanism for any adaptation of mitigation measures if required to reduce impacts from the Proposed Development.

Construction Phase

- 5.5.17 During the HRA screening process (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report), along with the revisions highlighted in Section 3 of this report, it was identified that the potential for LSE due to disturbance to prey species and their habitats for 50 seabird SPAs and their relevant ornithological features and associated assemblages could not be ruled out (Table 3.7 and Table 5.1).
- 5.5.18 It is predicted that approximately 0.81% of the Site Boundary, and therefore the prey habitat, is likely to be impacted by activities associated with the construction of the Proposed Development. However, as construction activities will be intermittent and limited to a local spatial extent, it is expected that smaller proportions of the Site Boundary, and therefore prey populations, will be impacted at a given time. Relevant Embedded Mitigation measures within the Project design, included to limit the impact on prey species, include the implementation of good practice measures during construction as outlined within the CMS.
- 5.5.19 It is also expected that measures included to reduce the magnitude of other impacts discussed within this report, such as ‘Impact 3: Disturbance and Displacement to Birds From Vessel Movements’ and ‘Impact 6: Direct Impacts from UXO Clearance’, are likely to contribute to reducing the effect on prey species and their habitat.
- 5.5.20 Offshore EIA Report, Volume 2, Chapter 9: Fish and Shellfish (TWP-BOW-RPS-OFE-RPT-00072) provides an assessment for the Proposed Development alone and a cumulative assessment, taking into account impacts such as temporary or long-term habitat loss, increased SSCs and associated deposition, and subsea noise. Within both assessments, it was found the only residual effect following Embedded Mitigation was to herring, with a minor adverse effect due to subsea noise during construction. This is also assessed in the Part 2: Special Areas of Conservation (TWP-BOW-RPS-ENV-RPT-00014).
- 5.5.21 Seabirds expected to be impacted indirectly by changes to prey species (such as sandeels, sprat and herring) have been found to show a moderate degree of flexibility in their habitat preferences (Del Hoyo *et al.*, 1992). Therefore, it is expected that the magnitude of the impact to relevant Qualifying Features and seabird assemblages is likely to be low.
- 5.5.22 Therefore, it is concluded, beyond reasonable scientific doubt, that there is no potential for an AEOSI with respect to disturbance to prey species and their habitats during the construction phase for any of the relevant SPAs and their qualifying ornithological features presented in Table 3.7.

O&M Phase

- 5.5.23 As presented in Table 5.11, it is expected that the magnitude of the impact during the O&M phase is likely to be equal to or less than the magnitude of the impact during construction. Therefore, as the potential for AEOSI could be ruled out during the construction phase it has also been ruled out for the O&M phase.

Decommissioning Phase

- 5.5.24 As presented in Table 5.11, it is expected that the magnitude of the impact during the decommissioning phase is likely to be equal to or less than the magnitude of the impact during construction. Therefore, as the potential for AEOSI could be ruled out during the construction phase it has also been ruled out for the decommissioning phase.

Impact 5: Temporary Habitat Loss and/or Habitat Disturbance

Sites with Potential LSE due to Temporary Habitat Loss and/or Habitat Disturbance

- 5.5.25 The LSE assessment during the HRA screening process identified that during construction and decommissioning phases, LSE could not be ruled out for temporary habitat loss and/or habitat disturbance.
- 5.5.26 The MDS and Embedded Mitigation measures considered for the assessment of temporary habitat loss and/or habitat disturbance is shown in Table 5.13 and Table 5.14 respectively.

Table 5.13: MDS Considered for the Assessment of Potential Impacts to Marine Ornithological Features due to Temporary Habitat Loss and/or Habitat Disturbance During the Construction and Decommissioning Phases

Proposed Development Phase	MDS	Justification
Construction	Up to 19,414,805 m² of subtidal temporary habitat loss and/or disturbance, this represents up to 6.66% of the total area of the Site Boundary, due to: <u>Trenchless Technique Exit Pit Excavation (e.g. HDD)</u> Up to 17,130 m² of habitat disturbance associated with excavation of exit pits comprising: - Up to 16,800 m² from deposition of 8,400 m³ of trenchless techniques excavation material; and - Up to 330 m² of habitat disturbance from the installation of up to three trenchless techniques exit pits. <u>Sandwave clearance</u> Up to 835,872 m² of habitat disturbance associated with sandwave clearance comprising: - Wind Turbine foundations: 141,000 m² for the installation of up to 50 wind turbine foundations (this may also include boulder clearance but sandwave clearance is the greater impact of the two). - OSP foundations: 24,359 m² for the installation of up to 3 OSP foundations. - IACs: up to 49,552 m² (assumes 0.56% requires clearance with a 58.6 m width of disturbance). - Interconnector Cables: up to 11,814 m² (assumes 0.56% requires clearance with a 58.6 m width of disturbance). - Offshore Export Cables: up to 609,147 m² (assumes 4.95% requires clearance with a 58.6 m width of disturbance). <u>Sandwave clearance material deposition</u> Up to 8,774,332 m² of habitat disturbance associated with the deposition of sandwave clearance material comprising:	The MDS for this impact considers the maximum seabed footprint of infrastructure resulting in the greatest level of temporary habitat loss and/or disturbance during the construction, O&M, and decommissioning phases of the Proposed Development. The MDS for this impact is represented by the 50 x 20 MW wind turbine layout scenario. Construction phase – Subtidal <u>Trenchless techniques Exit Pit Excavation</u> Based on up to: - assuming a mound of uniform thickness of 0.5 m height 110 m² per exit pit <u>Sandwave clearance</u> Based on up to: 151 km total length of IACs on the seabed; 36 km total length Interconnector Cables; and 210 km total length of Offshore Export Cables. <u>Sandwave Clearance material deposition</u> The area of seabed affected by the placement of sandwave clearance material has been calculated based on the maximum volume of sediment to be placed on the seabed, assuming all this sediment is coarse material (i.e. is not dispersed through tidal

Proposed Development Phase	MDS	Justification
	- Wind Turbines foundations: up to 1,188,770 m² from deposition of 594,385 m³ of sandwave clearance material; - OSP foundations: up to 272,824 m² from deposition of 136,412 m³ of sandwave clearance material; - IACs: up to 395,910 m² from deposition of 197,955 m³ of sandwave clearance material; - Interconnector Cables: up to 94,382 m² from deposition of 47,191 m³ of sandwave clearance material; and - Offshore Export Cables: up to 6,822,446 m² from deposition of 3,411,223 m³ of sandwave clearance material. <u>Cable installation (including boulder clearance)</u> Up to 9,638,945 m² of habitat disturbance associated with cable installation comprising: - IACs: up to 3,753,860 m² disturbance from installation of up to 151 km of IACs (99.44% of the total length, including the length which requires boulder clearance with a 25 m width of disturbance, separate to sandwave clearance); - Interconnector Cables: up to 894,960 m² from installation of up to 36 km of Interconnector Cable (99.44% of the total length, including the length which requires boulder clearance with a 25 m width of disturbance, separate to sandwave clearance). Offshore Export Cables: up to 4,990,125 m² of disturbance from installation of up to 200 km of Offshore Export Cables (95.05% of the total length, including the length which requires boulder clearance with a 25 m width of disturbance, separate to sandwave clearance). <u>Jack-up events</u> Up to 148,400 m² of disturbance due to jack up vessel use for the installation of up to three OSPs and up to 50 Wind Turbine foundations. Up to 126 m² of disturbance due to jack up vessel use for the installation of up to three trenchless techniques exit pits.	currents; see "Potential changes to SSCs" impact below). The total footprint of seabed affected has been calculated, for the purposes of the MDS, assuming a mound of uniform thickness of 0.5 m height. Temporary loss of benthic habitat is assumed beneath this. <u>Cable installation (including boulder clearance)</u> The MDS assumes that up to 151 km of the IACs cable will be on the seabed, with up to 16 km within the Wind Turbine foundation. Based on the assumption that the width of disturbance for sandwave (58.6 m) clearance also includes subsequent cable installation as repeat disturbance. As such up to 95.02% of the length of Offshore Export Cables, and up to 99.44% of the length of IACs and Interconnector Cables has been assumed for cable installation. Boulder clearance is captured within the disturbance corridor for cable installation. <u>Jack-up events</u> Based on the assumption that there will be up to a maximum of up to two jack-up positions per OSP and Wind Turbine foundation. <u>Additional Subtidal Information</u> UXO clearance MDS calculated from the maximum estimated crater diameter of 21.10 m in Ordtek, 2018.

Proposed Development Phase	MDS	Justification
	<u>Additional Subtidal Information</u> In addition, up to 13,987 m² of temporary habitat loss and/or disturbance could occur due to crater formation from the clearance of UXO. This value has not been included in the total disturbance presented above, as the footprint from UXO clearance will likely overlap with area subject to temporary habitat disturbance from other site preparation activities. Additionally, the footprint associated with the UXO clearance has not been derived from Volume 1, Chapter 3: Project Description (TWP-BOW-RPS-OFE-RPT-00004) of the Offshore EIA Report. Instead, it has been calculated based on appropriate crater sizes estimated in Ordtek (2018) and applied to the 40 UXOs that may require clearance during the construction phase of the Proposed Development (30 in the Array Area and 10 along the Export Cable Corridor). <u>Intertidal</u> There is no impact to the Intertidal Area as cables will be installed via trenchless techniques with exit pits located below MLWS and above MHWS.	
Decommissioning	A Decommissioning Programme will be submitted to MD-LOT for consultation and approval. The Decommissioning Programme will be updated during the Proposed Development's lifespan to take account of changing best practice and new technologies. The approach for decommissioning is yet to be determined, however, for the purposes of this MDS total removal of all infrastructure including buried cables and cable protection has been assumed, and as such the environmental impact of decommissioning will be the same if not lower than construction.	Decommissioning phase In the decommissioning phase, the MDS accounts for the maximum amount of infrastructure which could be removed from the seabed.

Table 5.14: Embedded Mitigation Considered for the Assessment of Potential Impacts to Marine Ornithological Features due to Temporary Habitat Loss and/or Habitat Disturbance During the Construction and Decommissioning Phases

Embedded Mitigation Adopted as Part of the Proposed Development	Justification
Development of, and adherence to a CMS along with a CoCP.	The CMS will specify the Proposed Development's construction methods, setting out good practice construction measures and how agreed mitigation measures from the Offshore EIA Report, will be implemented during construction.
All relevant HSE procedures will be followed.	Implementing HSE protocols minimizes risks when working in marine environments and mitigates associated impacts to offshore ornithology.
Development of, and adherence to, a combined NSVMP, describing Project vessels' requirements, passages, monitoring and controls.	The NSVMP will include measures to reduce disturbance to bird receptors from transiting vessels, requiring them to stick to established shipping lanes and follow guidance in relation to bird species sensitive to shipping. The NSVMP will be implemented as far as practicable, and where it does not compromise the safety of vessels.
Use of a trenchless technique (e.g. HDD or pipe jack tunnelling) as the Landfall installation option.	Use of a trenchless technique will reduce potential disturbance to birds in the Intertidal area.
Development of, and adherence to, a Project Environmental Monitoring Plan (PEMP) to include details of any agreed surveys or monitoring requirements. The PEMP will provide the mechanism to validate the impact assessment, assess the effectiveness of mitigation measures, and inform adaptation of mitigation measures throughout the construction and O&M phases of the Proposed Development.	The PEMP will detail the methodology that will be used to validate the impact assessment predictions made within the EIA. Subsea noise levels will be measured and monitored during the construction phase (impact piling operation). The PEMP will also provide for the mechanism for any adaptation of mitigation measures if required to reduce impacts from the Proposed Development.

Construction Phase

- 5.5.27 During the HRA screening process (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report), along with the revisions highlighted in Section 3 of this report, it was identified that the potential for LSE due to temporary habitat loss and/or habitat disturbance for 50 seabird SPAs and their relevant ornithological features and associated assemblages could not be ruled out (Table 3.7 and Table 5.1).
- 5.5.28 It is predicted that up to 6.66% of the total Site Boundary is expected to experience temporary habitat loss and/or disturbance during the construction period. However, as construction activities will be intermittent and limited to a local spatial extent, it is expected that smaller proportions of the Site Boundary will experience any habitat loss or disturbance at a given time. It will also be ensured that during the construction phase, appropriate measures will be put in place as part of the CMS to ensure impacts are limited where practicable. It is also expected that as these effects will only be experienced while activities are occurring, any habitat loss and/or disturbance will be reversible.
- 5.5.29 Other measures that will be implemented to reduce habitat loss and/or disturbance are discussed in the assessments for the relevant impacts, such as 'Impact 3: Disturbance and Displacement to Birds From Vessel Movements' and 'Impact 6: Direct Impacts from UXO Clearance', which are likely to contribute towards the magnitude of this impact during the construction phase.
- 5.5.30 With the Embedded Mitigation measures in place, including those for impacts which may contribute to habitat loss and/or disturbance, it is expected that effect on ornithological features will be inconsequential.
- 5.5.31 Therefore, it is concluded, beyond reasonable scientific doubt, that there is no potential for an adverse effect with respect to temporary habitat loss and/or habitat disturbance during the construction phase for any of the relevant SPAs and their qualifying ornithological features presented in Table 3.7.

Decommissioning Phase

- 5.5.32 As presented in Table 5.13, it is expected that the magnitude of the impact during the decommissioning phase is likely to be equal to or less than the magnitude of the impact during construction. Therefore, as the potential for AEOSI could be ruled out during the construction phase it has also been ruled out for the decommissioning phase.

Impact 6: Direct Impacts from UXO Clearance

Sites with Potential LSE due to Direct Impacts from UXO Clearance

- 5.5.33 The LSE assessment during the HRA screening process identified that during the construction phase, LSE could not be ruled out for UXO clearance.
- 5.5.34 The MDS and Embedded Mitigation measures considered for the assessment of direct impacts from UXO clearance is shown in Table 5.15 and Table 5.16 respectively.

Table 5.15: MDS Considered for the Assessment of Potential Impacts to Marine Ornithological Features due to Indirect Impacts from Unexploded Ordnance (UXO) Clearance During the Construction Phase

Proposed Development Phase	MDS	Justification
Construction	- Maximum realistic charge weight of UXO 254 kg (Net Explosive Quantity (NEQ)). - A maximum of 40 UXOs are anticipated to require clearance (based on most probable case for the Array Area (30 UXOs) and Export Cable Corridor (10 UXOs) combined). - A maximum of 2 detonations during 24 hrs. - A maximum of 40 days of UXO clearance activities (assuming one clearance per day).	Maximum number used in the MDS (reflecting the most probable worst case) and the maximum size of UXOs encountered within the Site Boundary is based on the UXO hazard assessment undertaken for the Array (PDE; 6 Alpha Associates, 2020). The actual detail of any possible UXO that may need clearance is not known at this stage. The MDS represents the maximum charge weight likely to require clearance. Noise modelling will estimate impact ranges for low order as the default, with high order impact ranges provided for context

Table 5.16: Embedded Mitigation Considered for the Assessment of Potential Impacts to Marine Ornithological Features due to Direct Impacts from UXO Clearance During the Construction Phase

Embedded Measures Adopted as Part of the Proposed Development	Justification
All relevant HSE procedures will be followed	Implementing HSE protocols minimizes risks when working in marine environments and mitigates associated impacts to offshore ornithology.
Where practicable, the use of low order disposal of UXOs will be implemented (i.e. deflagration).	The use of low order UXO will reduce the risk of injury and disturbance of construction/decommissioning noise on ornithological receptors.
Low order clearance techniques are the default method for UXO clearance and would not require Additional Mitigation over and above the Embedded Mitigation measures within the outline MMMP (Volume 4, Appendix 27: Outline Marine Mammal Mitigation Protocol (TWP-BOW-RPS-ENV-RPT-00025) of the Offshore EIA Report). However, should high order clearance be unavoidable Additional Mitigation may be required dependant on the results of the UXO Risk Assessment. Appropriate mitigation measures will be discussed and agreed with MD-LOT and NatureScot with the detail to be agreed for the finalised MMMP.	Low order clearance is the default method for the Proposed Development, consistent with the guidance set out in the SNCB joint position statement on UXO clearance (UK Government, 2025). Low noise alternatives to high order detonation are commercially available and cause less environmental harm. In line with this guidance high order clearance methods as a contingency will be considered once the results of the UXO geophysical survey are available. Should high order clearance be considered necessary, mitigation measures proportionate to the identified risk will be implemented for the Proposed Development in order to mitigate the impacts.

Construction Phase

- 5.5.35 During the HRA screening process (Part 1, Appendix 1A: Likely Significant Effects Screening Report), along with the revisions highlighted in Section 3 of this report, it was identified that the potential for LSE due to direct impacts from UXO clearance for four breeding seabird species (guillemot, razorbill, puffin and gannet) and associated assemblages could not be ruled out.
- 5.5.36 Direct impacts from UXO clearance are mostly considered for marine mammals and fish (Lepper *et al.*, 2024), though a study has shown that it could lead directly to seabird mortalities through blast injuries (Danil *et al.*, 2011). However, these events are considered rare and unlikely to impact species at a population level.
- 5.5.37 Although diving birds have the potential to be impacted by underwater noise from UXO clearance, they do not have the same capacity as other aquatic animals to hear underwater noise limiting the magnitude to be impacted.
- 5.5.38 It is also expected that seabirds will be temporarily displaced while avoiding explosions. However, this is expected to be reversible given each clearance event will occur over a short period of time over a small area of the Site Boundary. Displacement may also occur due to the presence of disposal and guard vessels, with impacts similar to those described in ‘Impact 3: Disturbance and Displacement to Birds From Vessel Movements’. Therefore, it is expected that the potential impacts to seabirds will be limited.
- 5.5.39 It is expected that a maximum of 40 days will be required to carry out UXO clearance during the construction period. In order to limit the magnitude of the impact, low-noise disposal methods, such as deflagration, will be used when practicable. However, it is still possible for high order detonation to occur using these methods.
- 5.5.40 UXO clearance will be subject to a European Protected Species (EPS) licence, which will assess the environmental impact, as well as the appropriate mitigation measures.
- 5.5.41 As a result of the Embedded Mitigation measures, requirement for an EPS licence and potential Additional Mitigation required to carry out UXO clearances, it is expected that indirect impacts due to UXO clearances will be inconsequential.
- 5.5.42 Therefore, it is concluded, beyond reasonable scientific doubt, that there is no potential for an adverse effect with respect to direct impacts from UXO clearance during the construction phase for any of the relevant SPAs and their qualifying ornithological features listed presented in Table 3.7.

Impact 7: Indirect Impacts from Construction/Decommissioning Noise

Sites with Potential LSE due to Disturbance from Indirect Impacts from Construction/Decommissioning Noise

- 5.5.43 The LSE assessment during the HRA screening process identified that during construction and decommissioning phases, LSE could not be ruled out for indirect impacts from construction/decommissioning noise. This relates to 48 of the sites and their relevant marine ornithological features listed in Table 3.7 and summarised in Table 5.1.
- 5.5.44 The MDS and Embedded Mitigation measures considered for the assessment of indirect impacts from construction/decommissioning noise is shown in Table 5.17 and Table 5.18 respectively.

Table 5.17: MDS Considered for the Assessment of Potential Impacts to Marine Ornithological Features due to Indirect Impacts from Construction/Decommissioning Noise During the Construction and Decommissioning Phases

Proposed Development Phase	MDS	Justification
Construction	<u>Maximum temporal scenario:</u> <i>Fixed Foundations – 15 MW 4-legged jacket</i> • Number of piled jacket foundations – 67 • Maximum number of piles – 268 • Maximum pile diameter – 3.8 m • Maximum pile length – 70 m, with final pile penetration depth of 65 m • Maximum hammer energy – 4,500 kJ • Maximum duration of piling per pile – 12.4 hours • Maximum duration of piling per day – 22 hours • Maximum duration of piling – <u>3,323.3 hours (12.4 hours per day over 268 days)</u> <u>Maximum spatial scenario:</u> <i>Fixed Foundations – 25 MW monopile</i> • Number of monopile foundations – 40 • Maximum number of piles – 40 • Maximum pile diameter – 15 m • Maximum pile length – 123 m, with final pile penetration depth of 45 m • Maximum hammer energy – 6,250 kJ • Maximum duration of piling per pile – 8.6 hours • Maximum duration of piling per day (based on 2 piles installed over 24 hours) – 17.1 hours • Maximum total hours of piling – 344 hours (8.6 hours per day over 40 days) <u>Realistic spatial scenario:</u> <i>Fixed Foundations – 25 MW monopile</i> • Number of monopile foundations – 40 • Maximum number of piles – 40 • Maximum pile diameter – 15 m • Maximum pile length – 123 m, with final pile penetration depth of 45 m	Construction activities including the installation of Wind Turbine and OSP foundations. Represents the maximum number and duration of piling events that would cause the greatest noise disturbance to birds from the Proposed Development during construction activities.

Proposed Development Phase	MDS	Justification
	• Average maximum hammer energy – 6,000 kJ • Average maximum duration of piling per pile – 4.3 hours • Maximum total hours of piling – <u>172 hours (4.3 hours per day over 40 days)</u> Concurrent piling – all three scenarios • up to 2 vessels piling concurrently; and • minimum 1 km and maximum 20 km distance between concurrent piling events	
Decommissioning	A Decommissioning Programme will be submitted to MD-LOT for consultation and approval. The Decommissioning Programme will be updated during the Proposed Development's lifespan to take account of changing best practice and new technologies. The approach for decommissioning is yet to be determined, however, for the purposes of this MDS total removal of all infrastructure including buried cables and cable protection has been assumed, and as such the environmental impact of decommissioning will be the same if not lower than construction.	Decommissioning activities are assumed to be the same if not of a lower impact than construction.

Table 5.18: Embedded Measures Considered for the Assessment of Potential Impacts to Marine Ornithological Features due to Indirect Impacts from Construction/Decommissioning Noise During the Construction and Decommissioning Phases

Embedded Measures Adopted as Part of the Proposed Development	Justification
Development of, and adherence to a CMS along with a CoCP.	The CMS will specify the Proposed Development's construction methods, setting out good practice construction measures and how agreed mitigation measures from the Offshore EIA Report, will be implemented during construction.
All relevant HSE procedures will be followed.	Implementing HSE protocols minimizes risks when working in marine environments and mitigates associated impacts to offshore ornithology.
Development of, and adherence to, a combined NSVMP, describing Project vessels' requirements, passages, monitoring and controls.	The NSVMP will include measures to reduce disturbance to bird receptors from transiting vessels, requiring them to stick to established shipping lanes and follow guidance in relation to bird species sensitive to shipping. The NSVMP will be implemented as far as practicable and where it does not compromise the safety of vessels.
Use of a trenchless technique (e.g. Horizontal Directional Drilling or pipe jack tunnelling) as the Landfall installation option.	Use of a trenchless technique will reduce potential disturbance to birds in the Intertidal area.
Development of, and adherence to, a DSLP. The development of the DSLP includes consultation with the relevant authorities for approval, including the MCA and Northern Lighthouse Board (NLB).	Appropriate design and layout of Wind Turbines will reduce collision risk, displacement effects and other relevant impacts relevant to offshore ornithology.
Development of, and adherence to, a Project Environmental Monitoring Plan (PEMP) to include details of any agreed surveys or monitoring requirements. The PEMP will provide the mechanism to validate the impact assessment, assess the effectiveness of mitigation measures, and inform adaptation of mitigation measures throughout the construction and O&M phases of the Proposed Development.	The PEMP will detail the methodology that will be used to validate the impact assessment predictions made within the EIA. Subsea noise levels will be measured and monitored during the construction phase (impact piling operation). The PEMP will also provide for the mechanism for any adaptation of mitigation measures if required to reduce impacts from the Proposed Development.

Construction Phase

- 5.5.45 During the HRA screening process (Part 1, Appendix 1A: Likely Significant Effects Screening Report), along with the revisions highlighted in Section 3 of this report, it was identified that the potential for LSE due to indirect impacts from construction/decommissioning noise for nine breeding seabird species (Table 3.7) and associated assemblages could not be ruled out.
- 5.5.46 An increase in underwater noise during the construction period is likely to be linked to impacts previously discussed within this report that have already been deemed to have a negligible, or inconsequential impact on the relevant effected seabird species. These include 'Impact 3: Disturbance and Displacement to Birds From Vessel Movements' and 'Impact 6: Direct Impacts from UXO Clearance'
- 5.5.47 Other sources of noise identified include the installation of Offshore Infrastructure outlined in Table 5.17. There is potential for seabirds to be present within the Proposed Development Site Boundary during the construction phase, however, it is expected that birds will be aware of construction activities and become temporarily displaced.
- 5.5.48 As individuals are expected to avoid anthropogenic noise, and the effects are not expected to be long term, it is concluded, beyond reasonable scientific doubt, that there is no potential for an adverse effect with respect to indirect impacts from construction/decommissioning noise for the relevant SPAs and their qualifying ornithological features presented in Table 3.7.

Decommissioning Phase

- 5.5.49 As presented in Table 5.17, it is expected that the magnitude of the impact during the decommissioning phase is likely to be equal to or less than the magnitude of the impact during construction. Therefore, as AEOSI could be ruled out during the construction phase it has also been ruled out for the decommissioning phase.

5.6 Assessment of Adverse Effects In-combination with Other Plans and Projects

- 5.6.1 Impacts included within the Proposed Development alone assessment have been excluded from the in-combination assessment if the impact of Proposed Development alone was considered to be negligible. It is expected that the following impacts considered in the Proposed Development alone assessment will not provide any meaningful contribution to in-combination impacts:
- Impact 2 - Distributional responses, displacement and barrier effects (construction and decommissioning only);
 - Impact 3 - Disturbance and displacement to birds due to vessel movements;
 - Impact 4 - Disturbance to prey species and their habitats;
 - Impact 5 - Temporary habitat loss and/or habitat disturbance;
 - Impact 6 - Direct impacts from UXO clearance; and
 - Impact 7 - Indirect impacts from construction/decommissioning noise.

- 5.6.2 The remaining two impacts, distributional responses (O&M phase only; Zol = Array Area plus 2 km buffer) and collision risk mortality (Zol = Array Area only), have been taken forward for in-combination assessment. SPAs and Qualifying Feature(s) have only been taken forward for assessment if they met the following criteria as advised by NatureScot (MD-LOT, 2024):
- the impact of the Proposed Development alone results in an estimated annual mortality of 0.2 or more individuals; and
 - the impacts of the Proposed Development in-combination with other projects are predicted to increase the mortality rate by a percentage point change of 0.02 or more (full calculations presented in Appendix 3B: Offshore Ornithology Special Protection Area Population Viability Analysis Technical Report (TWP-BOW-RPS-ENV-RPT-00027)).
- 5.6.3 If neither of the criteria were met, it was concluded beyond reasonable scientific doubt, that there is no potential for LSE due to the Proposed Development in-combination with other plans and projects.
- 5.6.4 A summary of the qualifying features which met both criteria (Appendix 3B: Offshore Ornithology Special Protection Area Population Viability Analysis Technical Report (TWP-BOW-RPS-ENV-RPT-00027)) and therefore found to require in-combination assessment is presented in Table 5.19.

Table 5.19: European Sites Designated for Marine Ornithological Features for Which an In-combination Assessment is Required

Site	Feature of Taken Forward for In-combination Assessment
Buchan Ness to Collieston Coast SPA	• breeding seabird assemblage: assessed for guillemot, herring gull and kittiwake.
Coquet Island SPA	• breeding seabird assemblage: assessed for puffin
East Caithness Cliffs SPA	• kittiwake • razorbill • breeding seabird assemblage: assessed for the above species.
Fair Isle SPA	• breeding seabird assemblage (year-round): assessed for gannet.
Farne Islands SPA	• breeding seabird assemblage: assessed for kittiwake and puffin
Flamborough and Filey Coast SPA	• gannet • kittiwake • razorbill • breeding seabird assemblage: assessed for the above species
Forth Islands SPA	• gannet • puffin • breeding seabird assemblage: assessed for the above species, kittiwake and razorbill

Site	Feature of Taken Forward for In-combination Assessment
Fowlsheugh SPA	• guillemot • kittiwake • breeding seabird assemblage: assessed for the above species, herring gull and razorbill
Hermaness, Saxa Vord and Valla Field SPA	• gannet
North Caithness Cliffs SPA	• breeding seabird assemblage: assessed for kittiwake
North Rona and Sula Sgeir SPA	• gannet
Noss SPA	• gannet • breeding seabird assemblage: assessed for the above species
St Abb's Head to Fast Castle SPA	• breeding seabird assemblage: assessed for kittiwake and razorbill
Sule Skerry and Sule Stack SPA	• gannet • breeding seabird assemblage: assessed for the above species
Troup, Pennan and Lion's Heads SPA	• kittiwake • breeding seabird assemblage: assessed for razorbill
West Westray SPA	• breeding seabird assemblage: assessed for kittiwake

5.6.5 Although the impact of the Proposed Development alone resulted in an estimated annual mortality of 0.2 or more individuals for four sites for which fulmar is a Qualifying Feature and/or named component of the seabird assemblage, these sites were not taken forward for in-combination assessment. As recognised within the HRA Screening Response (MD-LOT, 2024), fulmar have only recently begun to be assessed quantitatively in applications. Due to this, at the time of writing this report, there is not enough information available from other projects to carry out a robust in-combination assessment for fulmar. The four sites which reach the 0.2 Proposed Development alone mortality threshold for fulmar are:

- East Caithness Cliffs SPA;
- Fair Isle SPA;
- Hoy SPA; and
- North Caithness Cliffs SPA.

In-combination Data Sources

5.6.6 In order to determine the other projects which have the potential to contribute towards in-combination impacts, the foraging ranges presented in Table 3.3 were used to create a buffer around the Proposed Development for each species.

- 5.6.7 It is important to note that following the collation of values in Grant (2025), each of West of Orkney OWF, Salamander OWF and Berwick Bank OWF have been consented. As part of these applications, compensation measures have been proposed in order to reduce the impacts of these projects. Therefore, it is expected that impacts within this report will be lower than predicted for the relevant SPAs impacted by West of Orkney OWF, Salamander OWF and/or Berwick Bank OWF.
- 5.6.8 Where appropriate, up to four scenarios have been included within the in-combination assessment presented within this RIAA. These scenarios include:
- consented mortalities including Berwick Bank;
 - consented mortalities excluding Berwick Bank;
 - as-built mortalities including Berwick Bank; and
 - as-built mortalities excluding Berwick Bank.
- 5.6.9 Although Berwick Bank OWF is now consented, in-combination impacts including and excluding Berwick Bank OWF have been presented following advice within the Scoping Opinion (MD-LOT, 2024).
- 5.6.10 Additionally, the ‘consented’ scenario refers to the number of mortalities as presented within applications. However, as some projects are built to a smaller scale than presented within applications the actual number of mortalities may be lower. To account for this Grant (2025) applied ‘as-built’ corrections. This is referred to as the ‘as-built’ scenario throughout the report and only has the potential to impact projects that are already operational.
- 5.6.11 As the number of displacement mortalities per project are not presented for the non-breeding season within Grant (2025) for razorbill or kittiwake, the number of mortalities across projects could not be summed and an alternative approach was adopted. First, the total number of adults vulnerable to displacement by OWFs was calculated by summing the mean seasonal peak for each project. The number of individuals with the possibility of being displaced was then calculated using the Furness approach as shown in Grant (2025). Once the total number of individuals at risk of displacement was calculated, the relevant displacement and mortality rates were applied to get the total number of mortalities for each SPA. In order to determine the number of mortalities for each project, it was assumed that the proportion of mortalities was equal to the proportion of individuals from each project within the summed mean seasonal peak (i.e. if the mean seasonal peak for one project was equal to 10% of the summed mean seasonal peaks, it was assumed that 10% of mortalities would occur due to the project).
- 5.6.12 In order to calculate the number of kittiwakes collisions per project, the total number of collisions occurring within the non-breeding season was summed before being apportioned following the Furness approach as shown in Grant (2025). In order to predict the number of collisions for projects associated with each SPA, similar to the approach taken for razorbill and kittiwake displacement mortalities, it was assumed that the number of mortalities was proportional to the proportion of the total collisions occurring within the non-breeding season.

- 5.6.13 For the above impact and species combinations, the process was repeated with and without Berwick Bank where necessary. As the proportions varied, the estimated number per project varied slightly between the two scenarios. The project-specific numbers presented within the RIAA were calculated including Berwick Bank.
- 5.6.14 The other projects that have been identified as having the potential for in-combination effects are presented in Table 4.1 and Figure 5.1.



5.7 Outcome of Assessment

5.7.1 This section of the RIAA presents the outcomes of the assessment for each of the relevant sites screened in for the potential for LSE within the HRA Screening Report (Part 1, Appendix 1A: Habitats Regulations Appraisal Stage 1 Likely Significant Effects Screening Report).

5.7.2 All sites identified in Table 3.7 are presented and, where appropriate, assessments refer to the qualitative assessments as presented in Section 5.5. Within quantitative assessments (collision risk and distributional responses) the values presented are rounded with the unrounded values used within calculations.

5.7.3 The distances presented within this section refer to the by-sea distance from the closest edge of the SPA to the closest edge of the Array Area of the Proposed Development.

Auskerry SPA

5.7.4 Auskerry SPA is an island 5 km south-west of Stronsay, Orkney, located approximately 229.26 km from the Array Area. The site was classified as an SPA in 1998, and the SPA boundary follows the boundary of Auskerry SSSI (NatureScot, ND).

5.7.5 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.

5.7.6 A summary of the relevant features and impacts identified for assessment (Section 3) are presented in Table 5.20.

Table 5.20: The Relevant Features and Impacts Included Within the Assessment for Auskerry SPA

Impact	Arctic tern
Collision risk mortality due to collision with rotor blades	✓
Distributional responses, displacement and barrier effects from Offshore Infrastructure	x
Disturbance and Displacement to birds from vessel movements	x
Disturbance to prey species and their habitats	✓
Temporary habitat loss and/or habitat disturbance	✓
Indirect impacts from UXO clearance	x
Indirect impacts from construction/decommissioning noise	✓

Proposed Development Alone Assessment

Quantitative Impacts

5.7.7 Of the impacts screened in for assessment (Table 5.20), only collision risk mortality was assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Collision Risk Mortality due to Collision with Rotor Blades

- 5.7.8 Quantitative assessment was carried out for collision mortality due to the Array Area following the methodology described in Section 5.4, ‘Impact 1: Collision Risk Mortality due to Collision with Rotor Blades’.
- 5.7.9 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values and methodology presented in Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.10 The number of apportioning mortalities is presented in Table 5.21, with the change in survival rate presented in Table 5.22. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g), it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the Arctic tern feature of Aukerry SPA as a result of collision risk with respect to the O&M phase of the Proposed Development.

Table 5.21: Apportioned Mortalities due to Collision Risk during the O&M phase of the Proposed Development at Aukerry SPA (Prop = Proportion; AV = Apportioning Value)

Species	Non-breeding Season				Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Arctic tern¹	0.19	0.707	0.011	0.00	0.00

¹ Species assessed during the non-breeding season only

Table 5.22: Change in Survival Rate due to Collision Risk During the O&M Phase of the Proposed Development at Aukerry SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Arctic tern¹	266	0.00	0.001	No AEOSI

¹ Species assessed during the non-breeding season only

Conclusion for Quantitative Assessment

- 5.7.11 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant long-term impact to the Arctic tern feature. Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.12 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Aukerry SPA due to the following impact:
- collision risk mortality due to collision with rotor blades.

Qualitative Impacts

5.7.13 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:

- disturbance to prey species and their habitats (Section 5.5, ‘Impact 4: Disturbance to Prey Species and their Habitats’);
- temporary habitat loss and/or habitat disturbance (Section 5.5, ‘Impact 5: Temporary Habitat Loss and/or Habitat Disturbance’); and
- indirect impacts from construction/decommissioning noise (Section 5.5, Impact 7: Indirect Impacts from Construction/Decommissioning Noise).

5.7.14 No site-specific qualitative assessments were required in order to address the impacts for Arctic tern at Aukerry SPA.

Conclusion for Qualitative Assessment

5.7.15 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant long-term impact to the Arctic tern feature. Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.

5.7.16 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Aukerry SPA due to the following impacts:

- disturbance to prey species and their habitats;
- temporary habitat loss and/or disturbance; and
- indirect impacts from construction/decommissioning noise.

5.7.17 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

5.7.18 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for Arctic tern, no in-combination assessment was required for Aukerry SPA.

Blasket Islands SPA

5.7.19 Blasket Islands SPA is a group of islands and islets located at the tip of the Dingle Peninsula, County Kerry, and is located approximately 1,150.46 km from the Array Area. The SPA boundary extends 500 m from the cliff base into the marine environment (NPWS, ND).

5.7.20 The conservation objectives have been determined by NPWS, as presented in Paragraphs 5.3.11 to 5.3.12.

5.7.21 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.23.

Table 5.23: The Relevant Features and Impacts Included Within the Assessment for Blasket Islands SPA

Impact	Fulmar ¹
Collision Risk Mortality due to Collision with Rotor Blades	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓
Disturbance and Displacement to Birds from Vessel Movements	x
Disturbance to Prey Species and Their Habitat	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓
Direct Impacts from UXO Clearance	x
Indirect Impacts from Construction/Decommissioning Noise	✓

¹ Qualifying feature is also a named component of the seabird assemblage.

Proposed Development Alone Assessment

Quantitative Impacts

5.7.22 Of the impacts screened in for assessment (Table 5.23), only distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Distributional Responses due to Offshore Infrastructure

5.7.23 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure'.

5.7.24 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).

5.7.25 The number of apportioning mortalities is presented in Table 5.24, with the change in survival rate presented in Table 5.25. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g), it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the fulmar of breeding seabird assemblage feature of Blasket Islands SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

5.7.26 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant long-term impact to the fulmar or breeding seabird assemblage (due to impacts to fulmar) features. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the features, so the conservation objectives of the SPA will not be undermined.

- 5.7.27 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Blasket Islands SPA due to the following impact:
- distributional responses, displacement and barrier effects due to Offshore Infrastructure.

Table 5.24: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Blasket Islands SPA
(Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.000	0.00 to 0.00	Migration	0.87 to 1.73	0.599	0.000	0.00 to 0.00	0.00 to 0.00
					Winter	0.13 to 0.27	0.719	0.000	0.00 to 0.00	

Table 5.25: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Blasket Islands SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	3,768	0.00 to 0.00	0.000 to 0.000	No AEOSI

Qualitative Impacts

5.7.28 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:

- disturbance to prey species and their habitats (Section 5.5, ‘Impact 4: Disturbance to Prey Species and their Habitats’);
- temporary habitat loss and/or habitat disturbance (Section 5.5, ‘Impact 5: Temporary Habitat Loss and/or Habitat Disturbance’); and
- indirect impacts from construction/decommissioning noise (Section 5.5, ‘Impact 7: Indirect Impacts from Construction/Decommissioning Noise’).

5.7.29 No site-specific qualitative assessments were required in order to address the impacts for fulmar at Blasket Islands SPA.

Conclusion for Qualitative Assessment

5.7.30 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant long-term impact to the fulmar or breeding seabird assemblage (due to impacts to fulmar) features. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the features, so the conservation objectives of the SPA will not be undermined.

5.7.31 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Blasket Islands SPA due to the following impacts:

- disturbance to prey species and their habitats;
- temporary habitat loss and/or habitat disturbance; and
- indirect impacts from construction/decommissioning noise.

5.7.32 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

5.7.33 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar, no in-combination assessment was required for Blasket Islands SPA.

Buchan Ness to Collieston Coast SPA

5.7.34 Buchan Ness to Collieston Coast SPA is a 15 km stretch of south-east facing cliff in Aberdeenshire, located approximately 43.17 km from the Array Area. The boundary of the SPA follows the boundaries of Bullers of Buchan Coast SSSI and Collieston to Whinnyfold Coast SSSI, and the seaward extension extends approximately 2 km into the marine environment. The SPA was classified in 1998, with the marine extension classified in 2009 (NatureScot, ND).

5.7.35 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.

5.7.36 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.26.

Table 5.26: The Relevant Named Components of the Breeding Seabird Assemblage and Impacts Included Within the Assessment for Buchan Ness to Collieston Coast SPA

Impact	Fulmar	Kittiwake	Herring Gull	Guillemot
Collision Risk Mortality due to Collision with Rotor Blades	x	✓	✓	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓	✓	x	✓
Disturbance and Displacement to Birds from Vessel Movements	x	x	x	✓
Disturbance to Prey Species and Their Habitat	✓	✓	✓	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓	✓	✓	✓
Direct Impacts from UXO Clearance	x	x	x	✓
Indirect Impacts from Construction/Decommissioning Noise	✓	✓	✓	✓

Proposed Development Alone Assessment

Quantitative Impacts

5.7.37 Of the impacts screened in for assessment (Table 5.26), both collision risk and distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Collision Risk Mortality due to Collision with Rotor Blades

5.7.38 A quantitative assessment was carried out for collision mortality due to the Array Area following the methodology described in Section 5.4, ‘Impact 1: Collision Risk Mortality due to Collision with Rotor Blades’ for kittiwake and herring gull.

5.7.39 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values and methodology presented in Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).

5.7.40 The number of apportioned mortalities is presented in Table 5.27, with the change in survival rate presented in Table 5.28. As the decrease in survival rate exceeded the 0.02 percentage point threshold advised by NatureScot (2023g) for both kittiwake and herring gull, a PVA is required to determine whether the impacts of collision risk will result in AEOSI.

Required PVAs for Collision Risk

Kittiwake

- 5.7.41 Although the impacts to kittiwake due to collision reached the threshold for PVA, as kittiwake are impacted by both collision risk and distributional responses, a PVA for the combined impacts was conducted with the results presented in Table 5.33 and discussed in Paragraphs 5.7.53 to 5.7.55.

Herring Gull

- 5.7.42 A comparison of the Seabird 2000 and Seabirds Count census found that the herring gull population at Buchan Ness to Collieston Coast SPA has decreased by 34% (Burnell *et al.*, 2023). Moreover, the most recent count of 2,077 AON was found to be less than half of the citation population (4,292 AON). However, it was found that the population size has since remained stable following the HPAI outbreak, showing a decrease of just 1% (Tremlett *et al.*, 2024).
- 5.7.43 The results of the PVA for herring gull (Table 5.29) show that the growth rate was predicted to decrease by 0.1%, equivalent to a 2.6% decrease in population, due to the Proposed Development alone. Therefore, as recent surveys show that the herring gull population has remained relatively stable following the recent HPAI outbreak, and the impact of the Proposed Development alone is expected to be relatively small it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI due to impacts to herring gull at Buchan Ness to Collieston Coast SPA.

Table 5.27: Apportioned Mortalities due to Collision Risk During the O&M phase of the Proposed Development at Buchan Ness to Collieston Coast SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Kittiwake (Option 1)	4.69	0.970 (0.100)	0.213	0.87	SM	0.90	0.599	0.035	0.02	0.90
					AM	0.34	0.579	0.029	0.01	
Kittiwake (Option 2)	37.59			6.99	SM	7.22	0.599	0.035	0.15	7.19
					AM	2.76	0.579	0.029	0.05	
Herring gull	32.15	0.766 (0.350)	0.181	2.90	-	1.46	0.451	0.181	0.08	2.98

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.28: Change in Survival Rate due to Collision Risk During the O&M Phase of the Proposed Development at Buchan Ness to Collieston Coast SPA

Species	Model Option	Population Size (Burnell et al., 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Kittiwake	1	22,590	0.90	0.004	No AEOSI ¹
	2		7.19	0.032	PVA Required
Herring gull	2	4,154	2.98	0.072	PVA Required

¹ Although the 0.02 percentage point threshold was not met, a PVA using Option 1 outputs was carried out to provide a comparison

Table 5.29: Results of the Proposed Development Alone PVAs for Collision Risk only at Buchan Ness to Collieston Coast SPA for the Operational Lifetime (30 years) of the Proposed Development

Species	Baseline Simulated Population Size	Impacted Simulated Population Size	Median Counterfactual (CI)	
			Growth Rate	Population Size
Herring gull	5,041	4,909	0.999 (0.997 to 1.002)	0.974 (0.885 to 1.068)

Distributional Responses due to Offshore Infrastructure

- 5.7.44 A quantitative assessment was carried out for distributional responses due to Offshore Infrastructure within the Array Area following the methodology described in Section 5.4, ‘Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure’ for fulmar, kittiwake and guillemot.
- 5.7.45 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.46 The number of apportioning mortalities is presented in Table 5.30, with the change in survival rate presented in Table 5.31. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for fulmar or kittiwake, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the fulmar feature of Buchan Ness to Collieston Coast SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.
- 5.7.47 As the decrease in survival rate exceeded the 0.02 percentage point threshold advised by NatureScot (2023g) for guillemot, a PVA is required to determine whether the impacts of distributional responses will result in AEOSI.

Required PVAs for Distributional Responses

Guillemot

- 5.7.48 A comparison of the Seabird 2000 and Seabirds Count census found that the guillemot population at Buchan Ness to Collieston Coast SPA has stayed consistent between censuses, recording a difference of 0% (Burnell *et al.*, 2023). This is also supported by Tremlett *et al.* (2024) which recorded a 3% increase in guillemot following the HPAI outbreak.
- 5.7.49 The results of the PVA for guillemot (Table 5.32) shows that under the high displacement scenario the growth rate was predicted to decrease by 0.2%, equivalent to a 7.1% decrease in population, due to the Proposed Development alone. As this impact is relatively small and the guillemot population has been shown to remain consistent, with no negative impact from HPAI, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI due to impacts to guillemot at Buchan Ness to Collieston Coast SPA.

Table 5.30: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Buchan Ness to Collieston Coast SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.060	0.06 to 0.14	Migration	0.87 to 1.73	0.599	0.004	0.00 to 0.00	0.06 to 0.15
					Winter	0.13 to 0.27	0.719	0.004	0.00 to 0.00	
Kittiwake	5 to 16	0.970 (0.100)	0.213	0.93 to 2.98	SM	0.53 to 2.13	0.599	0.035	0.01 to 0.04	0.95 to 3.05
					AM	0.47 to 1.87	0.579	0.029	0.01 to 0.03	
Guillemot	287 to 479	0.501 (0.070)	0.201	26.89 to 44.87	-	109 to 328	0.591	0.201	12.94 to 38.94	39.83 to 83.82

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.31: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Buchan Ness to Collieston Coast SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	1,652	0.06 to 0.15	0.004 to 0.009	No AEOSI
Kittiwake	22,590	0.95 to 3.05	0.004 to 0.014	No AEOSI
Guillemot	39,440	39.83 to 83.82	0.101 to 0.213	PVA Required

Table 5.32: Results of the Proposed Development Alone PVAs for Distributional Responses Only at Buchan Ness to Collieston Coast SPA for the Operational Lifetime (30 years) of the Proposed Development

Species	Baseline Simulated Population Size	Impact Scenario	Impacted Simulated Population Size	Median Counterfactual (CI)	
				Growth Rate	Population Size
Guillemot	176,291	Low	170,006	0.999 (0.998 to 0.999)	0.966 (0.950 to 0.981)
		High	163,682	0.998 (0.997 to 0.998)	0.929 (0.914 to 0.944)

Combined Impacts of Collision Risk and Distributional Responses

- 5.7.50 As kittiwake were assessed for both collision risk and distributional responses, the combined impact has been used to determine whether a PVA is required. It was found that 7.19 mortalities are expected to occur due to collision risk (Option 2; Table 5.27) and 0.95 to 3.05 mortalities due to distributional responses (Table 5.30). Therefore, it is expected that a total of 8.14 to 10.24 kittiwake mortalities will occur due to the Proposed Development alone, equivalent to a decrease in survival rate of 0.036 to 0.045 percentage points.
- 5.7.51 When using Option 1 of the sCRM, the number of mortalities due to collision risk was reduced to 0.90 (Table 5.27) and the expected mortalities from collision risk and distributional responses is reduced to 1.85 to 3.95, equivalent to a decrease in survival rate of 0.008 to 0.017 percentage points.
- 5.7.52 As the decrease in survival rate, due to collision risk and distributional responses, exceeded the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake a PVA for the combined impact of collision risk and distributional responses was required. Although the estimated mortalities using site-specific flight height data does not meet the threshold for PVA, a PVA has been carried out using results from Option 1 of the sCRM, to provide a more realistic scenario for comparison.

Required PVAs for Collision Risk and Distributional Responses

Kittiwake

- 5.7.53 A comparison of the Seabird 2000 and Seabirds Count censuses found that the kittiwake population at Buchan Ness to Collieston Coast SPA has decreased by 19% (Burnell *et al.*, 2023), with most recent census count of 11,295 AON less than half the citation population (30,452 AON). Surveys carried out by Tremblett *et al.* (2024) found that population sizes increased by 20%, suggesting that HPAI has not negatively impacted the kittiwake population at Buchan Ness and Collieston Coast SPA and the population is beginning to increase.

- 5.7.54 The results of the PVA for kittiwake (Option 2; Table 5.33) show that the growth rate was predicted to decrease by 0.1%, equivalent to a 1.7% decrease in population, under the high displacement scenario. Moreover, when using site-specific flight height data, it was found that the growth rate was expected to be unimpacted and the population size in both scenarios is expected to decrease by no more than 1.0%.
- 5.7.55 Therefore, although it has been shown that the kittiwake population has decreased between censuses, due to evidence of recovery following the HPAI outbreak provided by Tremlett *et al.* (2024) and the small impacts from the Proposed Development alone it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI due to impacts to kittiwake at Buchan Ness to Collieston Coast SPA.

Table 5.33: Results of the Proposed Development Alone PVAs for Collision Risk and Distributional Responses at Buchan Ness to Collieston Coast SPA for the Operational Lifetime (30 years) of the Proposed Development

Species	Baseline Simulated Population Size	Displacement Scenario	Impacted Median Population Size (Breeding Adults)	Counterfactual Growth Rate (CGR)	Counterfactual Population Size (CPS)
Option 1 sCRM					
Kittiwake	40,809	Low	40,685	1.000 (0.999 to 1.001)	0.996 (0.959 to 1.036)
		High	40,628	1.000 (0.999 to 1.001)	0.993 (0.956 to 1.031)
Option 2 sCRM					
Kittiwake	40,809	Low	40,278	1.000 (0.999 to 1.001)	0.986 (0.951 to 1.024)
		High	40,145	0.999 (0.998 to 1.000)	0.983 (0.946 to 1.023)

Conclusion for Quantitative Assessment

- 5.7.56 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant long-term impact to the breeding seabird assemblage feature (due to impacts to fulmar, kittiwake, herring gull or guillemot). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.57 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Buchan Ness to Collieston Coast SPA due to the following impacts:
- collision risk mortality due to collision with rotor blades;
 - distributional responses, displacement and barrier effects due to Offshore Infrastructure; and

- combined impacts of collision risk and distributional responses.

Qualitative Impacts

5.7.58 Of the impacts screened in for assessment, five impacts have been assessed qualitatively:

- disturbance and displacement to birds from vessel movements (Section 5.5, 'Impact 3: Disturbance and Displacement to Birds From Vessel Movements');
- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
- temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance');
- direct impacts from UXO clearance (Section 5.5, 'Impact 6: Direct Impacts from UXO Clearance'); and
- indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').

5.7.59 No site-specific qualitative assessments were required in order to address the impacts for fulmar, kittiwake, herring gull or guillemot at Buchan Ness to Collieston Coast SPA.

Conclusion for Qualitative Assessment

5.7.60 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant long-term impact to the breeding seabird assemblage feature (due to impacts to fulmar, kittiwake, herring gull or guillemot). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.

5.7.61 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Buchan Ness to Collieston Coast SPA due to the following impacts:

- disturbance and displacement to birds due to vessel movements;
- disturbance to prey species and their habitats;
- temporary habitat loss and/or habitat disturbance;
- direct impacts due to UXO clearance; and
- indirect impacts from construction/decommissioning noise.

5.7.62 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

5.7.63 As highlighted in Table 5.19, in-combination assessment was required for kittiwake, herring gull and guillemot.

Kittiwake

- 5.7.64 It was found that the Proposed Development alone resulted in 1.85 to 3.95 and 8.14 to 10.24 annual mortalities for kittiwake using Option 1 and 2 of the sCRM respectively, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.34.
- 5.7.65 Although the RIAA for MarramWind was not available at the time of data analysis, it should be noted that MarramWind was found to contribute 3.34 to 3.99 mortalities (MarramWind, 2026), is equivalent to a 2.0% increase in mortalities for the high mortality displacement scenario (using Option 2 sCRM). The inclusion of MarramWind is not expected to change the conclusions drawn.

Table 5.34: Number of Mortalities Due to Collision Risk and Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Kittiwake at Buchan Ness and Collieston Coast SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Bowdun (Option 1)	0.87	0.02	0.90	0.93 to 2.98	0.02 to 0.08	0.95 to 3.05	1.85 to 3.95	1.85 to 3.95
Bowdun (Option 2)	6.99	0.20	7.19	0.93 to 2.98	0.02 to 0.08	0.95 to 3.05	8.14 to 10.24	8.14 to 10.24
Aberdeen	4.06	0.08 (0.07)	4.14 (4.13)	-	0.00 to 0.01	0.00 to 0.01	4.15 to 4.15	4.13 to 4.13
Aspen	0.34	0.08	0.42	0.06 to 0.17	0.01 to 0.02	0.07 to 0.19	0.48 to 0.61	0.49 to 0.61
Ayre	0.17	0.26	0.43	0.03 to 0.13	0.05 to 0.15	0.08 to 0.28	0.51 to 0.71	0.51 to 0.71
Beatrice	-	0.66 (0.36)	0.66 (0.36)	-	0.14 to 0.42	0.14 to 0.42	0.80 to 1.07	0.50 to 0.78
Berwick Bank	4.73	5.61 (5.63)	10.34 (10.36)	0.65 to 1.95	1.55 to 4.66	2.20 to 6.61	12.54 to 16.95	12.56 to 16.97
Blyth Demo	-	0.05	0.05	-	0.09 to 0.28	0.09 to 0.28	0.14 to 0.32	0.14 to 0.32
Buchan	0.46	0.13 (0.06)	0.59 (0.52)	0.60 to 0.60	0.03 to 0.08	0.63 to 0.68	1.21 to 1.27	1.14 to 1.20
Caledonia (North & South)	1.84	0.25	2.09	0.20 to 0.60	0.04 to 0.11	0.24 to 0.71	2.32 to 2.80	2.32 to 2.80
Cenos	1.10	0.11	1.21	0.09 to 0.27	0.01 to 0.02	0.10 to 0.29	1.30 to 1.49	1.3 to 1.49
Dogger Bank A and B	-	5.56 (5.58)	5.56 (5.58)	-	1.18 to 3.54	1.18 to 3.54	6.74 to 9.10	6.76 to 9.12

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Dogger Bank C and Sofia	-	3.98 (4.00)	3.98 (4.00)	-	0.87 to 2.61	0.87 to 2.61	4.85 to 6.60	4.87 to 6.61
Dogger Bank South	-	3.74 (3.76)	3.74 (3.76)	-	1.16 to 3.49	1.16 to 3.49	4.91 to 7.23	4.92 to 7.24
East Anglia One	-	0.18	0.18	-	0.12 to 0.36	0.12 to 0.36	2.68 to 2.92	1.86 to 2.09
East Anglia One North	-	1.09 (1.10)	1.09 (1.10)	-	0.04 to 0.11	0.04 to 0.11	0.21 to 0.29	0.21 to 0.29
East Anglia Three	-	0.19 (0.20)	0.19 (0.20)	-	0.29 to 0.88	0.29 to 0.88	1.39 to 1.98	1.39 to 1.98
East Anglia Two	-	0.42	0.42	-	0.03 to 0.08	0.03 to 0.08	0.22 to 0.27	0.22 to 0.28
Five Estuaries	-	-	-	-	0.05 to 0.15	0.05 to 0.15	0.47 to 0.57	0.47 to 0.57
Galloper	-	0.76 (0.32)	0.76 (0.32)	-	-	-	0.76	0.32
Greater Gabbard	-	0.33	0.33	-	-	-	0.33	0.33
Green Volt	0.85	0.20	1.05	0.08 to 0.25	0.01 to 0.04	0.10 to 0.30	1.15 to 1.34	1.15 to 1.34
Hornsea One	-	0.24 (0.10)	0.24 (0.10)	-	2.01 to 6.02	2.01 to 6.02	2.24 to 6.26	2.1 to 6.12
Hornsea Project Four	-	0.28	0.28	-	0.39 to 1.16	0.39 to 1.16	0.67 to 1.45	0.67 to 1.45
Hornsea Project Three	-	1.05	1.05	-	0.40 to 1.19	0.40 to 1.19	1.45 to 2.24	1.45 to 2.24
Hornsea Project Two	-	0.15	0.15	-	0.21 to 0.64	0.21 to 0.64	0.36 to 0.79	0.36 to 0.79

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Humber Gateway	-	0.06 (0.03)	0.06 (0.03)	-	-	-	0.06	0.03
Hywind	7.27	0.02	7.29	-	-	-	7.29	7.29
Inch Cape	-	0.49	0.49	-	0.13 to 0.40	0.13 to 0.40	0.62 to 0.89	0.62 to 0.89
Kentish Flats	-	0.02	0.02	-	-	-	0.02	0.02
Kentish Flats Extension	-	0.05 (0.03)	0.05 (0.03)	-	-	-	0.05	0.03
Kincardine	3.64	0.12	3.76	-	-	-	3.76	3.76
Lincs	-	0.02	0.02	-	-	-	0.02	0.02
London Array	-	0.05 (0.02)	0.05 (0.02)	-	-	-	0.05	0.02
Moray East	-	0.11	0.11	-	-	-	0.11	0.11
Moray West	-	0.46	0.46	-	0.16 to 0.48	0.16 to 0.48	0.61 to 0.93	0.62 to 0.93
Neart na Gaoithe	-	0.29	0.29	-	0.13 to 0.40	0.13 to 0.40	0.42 to 0.69	0.42 to 0.69
Norfolk Boreas	-	0.67	0.67	-	0.22 to 0.66	0.22 to 0.66	0.89 to 1.33	0.89 to 1.33
Norfolk Vanguard	-	0.54	0.54	-	0.14 to 0.41	0.14 to 0.41	0.68 to 0.96	0.68 to 0.96
North Falls	-	0.31	0.31	-	0.08 to 0.24	0.08 to 0.24	0.39 to 0.56	0.39 to 0.56
Ossian	3.10	0.24	3.34	1.02 to 3.06	0.07 to 0.21	1.09 to 3.27	4.43 to 6.62	4.43 to 6.62

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Outer Dowsing	-	0.35	0.35	-	0.43 to 1.30	0.43 to 1.30	0.79 to 1.65	0.79 to 1.65
Pentland	-	0.02	0.02	-	0.01 to 0.03	0.01 to 0.03	0.03 to 0.04	0.03 to 0.04
Salamander	5.09	0.36 (0.22)	5.45 (5.31)	3.87 to 11.6	0.01 to 0.04	3.88 to 11.64	9.33 to 17.10	9.19 to 16.95
Race Bank	-	3.34 (3.35)	3.34 (3.35)	-	-	-	3.34	3.35
Seagreen	-	0.11	0.11	-	0.28 to 0.85	0.28 to 0.85	0.39 to 0.96	0.39 to 0.96
Sheringham Shoal Extension and Dudgeon Extension	-	0.32 (0.27)	0.32 (0.27)	-	0.17 to 0.50	0.17 to 0.50	0.49 to 0.83	0.44 to 0.78
Teeside	-	0.01	0.01	-	-	-	0.01	0.01
Thanet	-	2.29 (0.83)	2.29 (0.83)	-	-	-	2.29	0.83
Triton Knoll	-	0.80	0.80	-	0.03 to 0.10	0.03 to 0.10	0.83 to 0.90	0.84 to 0.90
West of Orkney	0.11	0.00	0.11	0.02 to 0.06	0.13 to 0.38	0.15 to 0.44	0.26 to 0.55	0.26 to 0.55
Option 1								
Total	41.99	39.24 (35.80)	81.23 (77.79)	12.76 to 26.89	10.75 to 32.27	23.50 to 59.14	104.73 to 140.37	101.30 to 136.93
Total excluding Berwick Bank	37.26	33.61 (30.17)	70.87 (67.44)	12.10 to 24.92	9.15 to 27.47	21.25 to 52.39	92.13 to 123.27	88.69 to 119.83
Total excluding Bowdun	41.12	39.21 (35.78)	80.33 (76.90)	11.82 to 23.89	10.73 to 32.19	22.55 to 56.09	102.88 to 136.42	99.45 to 132.98

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Option 2								
Total	48.11	39.41 (35.97)	87.52 (84.09)	12.76 to 26.89	10.75 to 32.27	23.50 to 59.14	111.02 to 146.66	107.59 to 143.22
Total excluding Berwick Bank	43.38	33.78 (30.35)	77.17 (73.73)	12.10 to 24.92	9.15 to 27.47	21.25 to 52.39	98.42 to 129.56	94.98 to 126.12
Total excluding Bowdun	41.12	39.21 (35.78)	80.33 (76.90)	11.82 to 23.89	10.73 to 32.19	22.55 to 56.09	102.88 to 136.42	99.45 to 132.98

¹ The number of mortalities due to ‘consented’ collisions are presented, with the number of ‘as-built’ collisions presented in parentheses where relevant.

² Low and high displacement scenarios are presented in Table 5.3

5.7.66 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank and using consented and as-built collisions (Table 5.35).

Table 5.35: In-combination PVA Results for Kittiwake, Impacted by Collision Risk (Option 2) and Distributional Responses, at Buchan Ness to Collieston Coast SPA (initial population size: 22,590 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Berwick Bank Offshore Wind Farm Included or Excluded	Displacement Scenario	Baseline Median Population Size (Breeding Adults)	Impacted Median Population Size (Breeding Adults)	Counterfactual Growth Rate (CGR)	Counterfactual Population Size (CPS)
‘Consented’ mortalities					
Including Berwick Bank	Low	40,809	34,051	0.994 (0.993 to 0.995)	0.835 (0.802 to 0.867)
	High		32,163	0.992 (0.991 to 0.993)	0.787 (0.756 to 0.818)
Excluding Berwick Bank	Low		34,770	0.995 (0.994 to 0.996)	0.851 (0.820 to 0.885)
	High		33,168	0.993 (0.992 to 0.994)	0.809 (0.779 to 0.842)
‘As-built’ mortalities					
Including Berwick Bank	Low	40,809	34,247	0.994 (0.993 to 0.995)	0.839 (0.807 to 0.872)
	High		32,350	0.992 (0.991 to 0.993)	0.791 (0.761 to 0.822)
Excluding Berwick Bank	Low		34,915	0.995 (0.994 to 0.996)	0.856 (0.824 to 0.891)
	High		33,299	0.993 (0.992 to 0.994)	0.814 (0.783 to 0.845)

5.7.67 Using consented mortalities (Table 5.35), it was found that under all scenarios the Counterfactual Growth Rate (CGR) was greater or equal to 0.992, indicating that the growth rate of the kittiwake is unlikely to decrease by more than 0.8%. The population size was found to increase under all scenarios and the CPS, after 30 years, ranged from 0.787 to 0.851.

5.7.68 When accounting for as-built corrections, it was found the median CGR was unchanged when compared to the corresponding consented scenarios excluding and including Berwick Bank. Moreover, the median CPS also showed little difference. The largest difference recorded is 0.005, or 0.5%, for both the low and high scenarios excluding Berwick Bank.

5.7.69 Although the kittiwake population was not found to be negatively impacted by the recent HPAI outbreak, the long-term decrease in population size between censuses (see Paragraph 5.7.53) combined with the predicted impact on the growth rate (up to 0.8%) and population size (up to 21.3%) suggest that the

Proposed Development in-combination with other projects may have a negative impact on the population.

5.7.70 Additionally, PVA run using site-specific flight height data found the impacts to growth rate are expected to decrease by 0.0% to 0.1% and population size by less than 1.0% for each scenario including and excluding Berwick Bank (presented in Table 3.5 of Appendix 3B: Offshore Ornithology Special Protection Area Population Viability Analysis Technical Report (TWP-BOW-RPS-ENV-RPT-00027)). Therefore, using site-specific sCRM (Option 1) is unlikely to impact the conclusions for AEOSI.

5.7.71 Therefore, adverse effects on the seabird assemblage due to impacts to kittiwake of Buchan Ness to Collieston Coast SPA **could not be ruled out** including or excluding Berwick Bank.

Herring Gull

5.7.72 It was found that the Proposed Development alone resulted in 2.98 annual mortalities for herring gull, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.36.

Table 5.36: Number of Mortalities Due to Collision Risk for Each Project Included Within In-combination Assessment for Herring Gull at Buchan Ness and Collieston Coast SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Breeding Season	Non-breeding Season ¹	Annual
Bowdun	2.90	0.08	2.98
Green Volt	0.00	0.05	0.05
Hywind	2.40	-	2.40
Muir Mhor	0.21	0.19	0.40
Salamander	-	0.76	0.76
Other projects in UK North Sea waters	-	1.35	1.35
Total	5.51	2.43	7.94
Total excluding Bowdun	2.61	2.35	4.96

¹ A correction factor of 0.675 has been used to account for continental and UK west coast breeding herring gull

5.7.73 As shown in Table 5.36, Berwick Bank was not found to impact herring gull at Buchan Ness to Collieston Coast SPA. Therefore, only one scenario was required for PVA (Table 5.37).

Table 5.37: In-combination PVA Results for Herring Gull, Impacted by Collision Risk at Buchan Ness to Collieston Coast SPA (initial population size: 4,154 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Baseline Median Population Size (Breeding Adults)	Impacted Median Population Size (Breeding Adults)	Counterfactual Growth Rate (CGR)	Counterfactual Population Size (CPS)
5,041	4,690	0.998 (0.995 to 1.000)	0.931 (0.847 to 1.022)

- 5.7.74 It was found that under all scenarios the CGR was greater or equal to 0.998, indicating that the growth rate of the herring gull is unlikely to decrease by more than 0.2% (Table 5.37). The population size was found to increase slightly and the CPS, after 30 years, was found to be 0.931 indicating a decrease of 6.9% in population size.
- 5.7.75 Although the herring gull population was found to decrease in population size between censuses (see Paragraph 5.7.42), as more recent surveys have shown the population has remained relatively stable following HPAI and the impact to the population size is relatively low, the Proposed Development in-combination with other projects is not expected to have a negative impact on the population.
- 5.7.76 Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined. It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Buchan Ness to Collieston Coast SPA on herring gull including or excluding Berwick Bank.

Guillemot

- 5.7.77 It was found that the Proposed Development alone resulted in 39.83 to 83.82 annual mortalities for guillemot, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.38.
- 5.7.78 Although the RIAA for MarramWind was not available at the time of data analysis, it should be noted that MarramWind was found to contribute 78.96 to 141.15 mortalities (MarramWind, 2026), which is equivalent to a 29.2% increase in mortalities for the high mortality displacement scenario.

Table 5.38: Number of Mortalities Due to Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Guillemot at Buchan Ness and Collieston Coast SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Breeding Season		Non-breeding Season		Annual	
	Low ¹	High	Low	High	Low	High
Bowdun	26.89	44.87	12.94	38.94	39.83	83.82
Aspen	4.76	7.93	17.23	51.70	21.99	59.63
Buchan	-	-	5.72	17.16	5.72	17.16
Berwick Bank	5.49	9.15	4.10	12.30	9.59	21.45
Green Volt	16.68	27.80	21.74	65.22	38.42	93.02
Hywind	3.03	5.05	-	-	3.03	5.05
Inch Cape	1.80	3.00	0.30	0.90	2.10	3.90
Kincardine	0.66	1.10	-	-	0.66	1.10
Moray West	1.23	2.05	1.32	3.96	2.55	6.01
Muir Mhor	-	-	20.75	62.25	20.75	62.25
Neart na Gaoithe	0.60	1.00	0.27	0.81	0.87	1.81
Salamander	49.26	82.10	15.52	46.56	64.78	128.66
Total	110.40	184.05	99.89	299.80	210.29	483.86
Total excluding Berwick Bank	104.91	174.90	95.79	287.50	200.70	462.41
Total excluding Bowdun	83.51	139.18	86.95	260.86	170.46	400.04

¹ Low and high displacement scenarios are presented in Table 5.3

5.7.79 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank (Table 5.39).

Table 5.39: In-combination PVA Results for Guillemot, Impacted by Distributional Responses at Buchan Ness to Collieston Coast SPA (initial population size: 39,440 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Baseline Simulated Population Size	Impact Scenario	Impacted Simulated Population Size	Median Counterfactual (CI)	
			Growth Rate	Population Size
Including Berwick Bank				
176,291	Low	146,236	0.994 (0.994 to 0.994)	0.831 (0.817 to 0.845)
	High	114,797	0.986 (0.986 to 0.987)	0.652 (0.641 to 0.662)
Excluding Berwick Bank				
176,291	Low	147,739	0.994 (0.994 to 0.995)	0.838 (0.824 to 0.851)
	High	116,976	0.987 (0.986 to 0.987)	0.664 (0.653 to 0.675)

- 5.7.80 It was found that under all scenarios the CGR was greater or equal to 0.986, indicating that the growth rate of the guillemot is unlikely to decrease by more than 1.4% (Table 5.39). The population size was found to increase under all scenarios. However, the CPS, after 30 years, was found to range from 0.652 to 0.838 indicating a maximum decrease in population size of 34.8%.
- 5.7.81 Although the guillemot population was found to remain relatively stable by both Burnell *et al.* (2023) and Tremlett *et al.* (2024) (see Paragraph 5.7.48), the impact of the Proposed Development in-combination with other projects is considered to be relatively high (up to 1.4% decrease in growth rate) and therefore has the potential to lead to negative impacts on the guillemot population at Buchan Ness to Collieston Coast SPA.
- 5.7.82 Therefore, adverse effects on the seabird assemblage due to impacts to guillemot of Buchan Ness to Collieston Coast SPA **could not be ruled out** including or excluding Berwick Bank.

Calf of Eday SPA

- 5.7.83 Calf of Eday SPA is located on a small island to the north of Eday, Orkney, located approximately 265.66 km from the Array Area. The SPA encompasses the boundary of the Calf of Eday SSSI and extends approximately 2 km into the marine environment. The SPA was classified in 1998, with the marine extension classified in 2009 (NatureScot, ND).
- 5.7.84 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.
- 5.7.85 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.40.

Table 5.40: The Components of the Breeding Seabird Assemblage and Impacts Included Within the Assessment for Calf of Eday SPA

Impact	Fulmar	Kittiwake	Great Black-backed Gull
Collision Risk Mortality due to Collision with Rotor Blades	x	✓	✓
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓	✓	x
Disturbance and Displacement to Birds from Vessel Movements	x	x	x
Disturbance to Prey Species and Their Habitat	✓	✓	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓	✓	✓
Direct Impacts from UXO Clearance	x	x	x
Indirect Impacts from Construction/Decommissioning Noise	✓	✓	✓

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.86 Of the impacts screened in for assessment (Table 3.7), both collision risk and distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 61.

Collision Risk Mortality due to Collision with Rotor Blades

- 5.7.87 A quantitative assessment was carried out for collision mortality due to the Array Area following the methodology described in Section 5.4, 'Impact 1: Collision Risk Mortality due to Collision with Rotor Blades' for kittiwake and great black-backed gull.
- 5.7.88 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values and methodology presented in Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.89 The number of apportioned mortalities is presented in Table 5.41, with the change in survival rate presented in Table 5.42. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g), it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the kittiwake or great black-backed gull component of the seabird assemblage feature of Calf of Eday SPA as a result of collision risk with respect to the O&M phase of the Proposed Development.

Table 5.41: Apportioned Mortalities due to Collision Risk During the O&M phase of the Proposed Development at Calf of Eday SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Kittiwake (Option 1)	4.69	0.97 (0.100)	0.000	0.00	SM	0.90	0.599	0.002	0.00	0.00
					AM	0.34	0.579	0.002	0.00	
Kittiwake (Option 2)	37.59			0.01	SM	7.22	0.599	0.002	0.01	0.02
					AM	2.76	0.579	0.002	0.00	
Great black-backed gull ²	-	-	-	-	-	2.30	0.317	0.014	0.01	0.01

¹ SM = Spring Migration; AM = Autumn Migration

² Species assessed during the non-breeding season only

Table 5.42: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Calf of Eday SPA

Species	Model Option	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Kittiwake	1	672	0.00	0.000	No AEOSI
	2		0.02	0.003	No AEOSI
Great black-backed gull	2	116	0.01	0.009	No AEOSI

Distributional Responses due to Offshore Infrastructure

- 5.7.90 Quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, ‘Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure’.
- 5.7.91 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.92 The number of apportioning mortalities is presented in Table 5.43, with the change in survival rate presented in Table 5.44. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for fulmar or kittiwake, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the fulmar or kittiwake component of the seabird assemblage feature of Calf of Eday SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Table 5.43: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Calf of Eday SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.007	0.01 to 0.02	Migration	0.87 to 1.73	0.599	0.005	0.00 to 0.01	0.01 to 0.02
					Winter	0.13 to 0.27	0.719	0.006	0.00 to 0.00	
Kittiwake	5 to 16	0.970 (0.100)	0.000	0.00 to 0.00	SM	0.53 to 2.13	0.599	0.002	0.00 to 0.00	0.00 to 0.01
					AM	0.47 to 1.87	0.579	0.002	0.00 to 0.00	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.44: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Calf of Eday SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	4,648	0.01 to 0.02	0.000 to 0.000	No AEOSI
Kittiwake	672	0.00 to 0.01	0.000 to 0.001	No AEOSI

Combined Impacts of Collision Risk and Distributional Responses

- 5.7.93 As kittiwake were assessed for both collision risk and distributional responses, the combined impact has been used to determine whether a PVA is required. It was found that 0.02 mortalities are expected to occur due to collision risk (Table 5.41) and 0.00 to 0.01 mortalities due to distributional responses (Table 5.43). Therefore, it is expected that a total of 0.02 to 0.03 kittiwake mortalities will occur due to the Proposed Development alone, equivalent to a decrease in survival rate of 0.003 to 0.004 percentage points.
- 5.7.94 When using Option 1 of the sCRM, it is predicted that there will be 0.00 mortalities due to collision risk (Table 5.41) and therefore 0.00 to 0.01 mortalities due to collision risk and distributional responses, equivalent to a decrease in survival rate of 0.001 to 0.001 percentage points.
- 5.7.95 As the decrease in survival rate, due to collision risk and distributional responses, did not exceed the 0.02 percentage point threshold advised by NatureScot (2023g), it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the kittiwake component of the seabird assemblage feature of Calf of Eday SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development. This is further supported when using site-specific flight height data.

Conclusion for Quantitative Assessment

- 5.7.96 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant long-term impact to the breeding seabird assemblage feature (due to impacts to fulmar, kittiwake or great black-backed gull). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.97 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Calf of Eday SPA due to the following impacts:
- collision risk mortality due to collision with rotor blades;
 - distributional responses, displacement and barrier effects due to Offshore Infrastructure; and
 - combined impacts of collision risk and distributional responses.

Qualitative Impacts

- 5.7.98 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:
- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
 - temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance'); and
 - indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').

- 5.7.99 No site-specific qualitative assessments were required in order to address the impacts for fulmar, kittiwake or great black-backed gull at Calf of Eday SPA.

Conclusion for Qualitative Assessment

- 5.7.100 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant long-term impact to the breeding seabird assemblage feature (due to impacts to fulmar, kittiwake or great black-backed gull). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.101 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Calf of Eday SPA due to the following impacts:
- disturbance to prey species and their habitats;
 - temporary habitat loss and/or habitat disturbance; and
 - indirect impacts from construction/decommissioning noise.

- 5.7.102 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

- 5.7.103 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar, kittiwake or great black-backed gull, no in-combination assessment was required for Calf of Eday SPA.

Cape Wrath SPA

- 5.7.104 Cape Wrath SPA is located in north-west Scotland. The SPA boundary overlaps with the boundary of Cape Wrath SSSI and has a seaward extension of 2 km. The SPA is located approximately 311.08 km from the Array Area and was classified in 1996, with the marine extension classified in 2009 (NatureScot, ND).
- 5.7.105 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.
- 5.7.106 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.45.

Table 5.45: The Relevant Components of the Breeding Seabird Assemblage and Impacts Included Within the Assessment for Cape Wrath SPA

Impact	Fulmar
Collision Risk Mortality due to Collision with Rotor Blades	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓
Disturbance and Displacement to Birds from Vessel Movements	x
Disturbance to Prey Species and Their Habitat	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓
Direct Impacts from UXO Clearance	x
Indirect Impacts from Construction/Decommissioning Noise	✓

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.107 Of the impacts screened in for assessment (Table 3.7), only distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Distributional Responses due to Offshore Infrastructure

- 5.7.108 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure'.
- 5.7.109 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.110 The number of apportioning mortalities is presented in Table 5.46, with the change in survival rate presented in Table 5.47. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g), it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the fulmar feature of Cape Wrath SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

- 5.7.111 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to fulmar). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.

5.7.112 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Cape Wrath SPA due to the following impact:

- distributional responses, displacement and barrier effects due to Offshore Infrastructure.

Qualitative Impacts

5.7.113 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:

- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
- temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance'); and
- indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').

5.7.114 No site-specific qualitative assessments were required in order to address the impacts for fulmar at Cape Wrath SPA.

Conclusion for Qualitative Assessment

5.7.115 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to fulmar). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.

5.7.116 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Cape Wrath SPA due to the following impacts:

- disturbance to prey species and their habitats;
- temporary habitat loss and/or habitat disturbance; and
- indirect impacts from construction/decommissioning noise.

5.7.117 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

5.7.118 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar, no in-combination assessment was required for Cape Wrath SPA.

Table 5.46: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Cape Wrath SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.003	0.00 to 0.01	Migration	0.87 to 1.73	0.599	0.000	0.00 to 0.00	0.00 to 0.01
					Winter	0.13 to 0.27	0.719	0.000	0.00 to 0.00	

Table 5.47: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Cape Wrath SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	2,954	0.00 to 0.01	0.000 to 0.00	No AEOSI

Clare Island SPA

- 5.7.119 Clare Island SPA is found at the entrance to Clew Bay, County Mayo, and is located approximately 965.62 km from the Array Area. The SPA boundary extends 200 m to 500 m into the marine environment depending on auk distribution (NPWS, ND).
- 5.7.120 The conservation objectives have been determined by NPWS, as presented in Paragraphs 5.3.11 to 5.3.12.
- 5.7.121 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.48.

Table 5.48: The Relevant Features and Impacts Included Within the Assessment for Clare Island SPA

Impact	Fulmar
Collision Risk Mortality due to Collision with Rotor Blades	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓
Disturbance and Displacement to Birds from Vessel Movements	x
Disturbance to Prey Species and Their Habitat	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓
Direct Impacts from UXO Clearance	x
Indirect Impacts from Construction/Decommissioning Noise	✓

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.122 Of the impacts screened in for assessment (Table 3.7), only distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Distributional Responses due to Offshore Infrastructure

- 5.7.123 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure'.
- 5.7.124 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).

- 5.7.125 The number of apportioning mortalities is presented in Table 5.49, with the change in survival rate presented in Table 5.50. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g), it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the fulmar feature of Clare Island SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

- 5.7.126 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the fulmar feature. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the feature, so the conservation objectives of the SPA will not be undermined.
- 5.7.127 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Clare Island SPA due to the following impact:
- distributional responses, barrier effects and displacement.

Table 5.49: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Clare Island SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.001	0.00 to 0.00	Migration	0.87 to 1.73	0.599	0.000	0.00 to 0.00	0.00 to 0.00
					Winter	0.13 to 0.27	0.719	0.000	0.00 to 0.00	

Table 5.50: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Clare Island SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	5,294	0.00 to 0.00	0.000 to 0.000	No AEOSI

Qualitative Impacts

5.7.128 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:

- disturbance to prey species and their habitats (Section 5.5, ‘Impact 4: Disturbance to Prey Species and their Habitats’);
- temporary habitat loss and/or habitat disturbance (Section 5.5, ‘Impact 5: Temporary Habitat Loss and/or Habitat Disturbance’); and
- indirect impacts from construction/decommissioning noise (Section 5.5, ‘Impact 7: Indirect Impacts from Construction/Decommissioning Noise’).

5.7.129 No site-specific qualitative assessments were required in order to address the impacts for fulmar at Clare Island SPA.

Conclusion for Qualitative Assessment

5.7.130 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the fulmar feature. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the feature, so the conservation objectives of the SPA will not be undermined.

5.7.131 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Clare Island SPA due to the following impacts:

- disturbance to prey species and their habitats;
- temporary habitat loss and/or habitat disturbance; and
- indirect impacts from construction/decommissioning noise.

5.7.132 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

5.7.133 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar. No in-combination assessment was required for Clare Island SPA.

Cliffs of Moher SPA

5.7.134 Cliffs of Moher SPA extends across a 9.5 km stretch of coast between Faunmore and Cancregga Point, County Clare, and is located approximately 1,065.97 km from the Array Area. The SPA boundary extends up to 500 m into the marine environment (NPWS, ND).

5.7.135 The conservation objectives have been determined by NPWS, as presented in Paragraphs 5.3.11 to 5.3.12.

5.7.136 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.51.

Table 5.51: The Relevant Features and Impacts Included Within the Assessment for Cliffs of Moher SPA

Impact	Fulmar ¹
Collision Risk Mortality due to Collision with Rotor Blades	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓
Disturbance and Displacement to Birds from Vessel Movements	x
Disturbance to Prey Species and Their Habitat	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓
Direct Impacts from UXO Clearance	x
Indirect Impacts from Construction/Decommissioning Noise	✓

¹ Qualifying feature and named component of the seabird assemblage.

Proposed Development Alone Assessment

Quantitative Impacts

5.7.137 Of the impacts screened in for assessment (Table 3.7), only distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Distributional Responses due to Offshore Infrastructure

5.7.138 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure'.

5.7.139 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).

5.7.140 The number of apportioning mortalities is presented in Table 5.52, with the change in survival rate presented in Table 5.53. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g), it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the fulmar or breeding seabird assemblage (due to impacts to fulmar) features of Cliffs of Moher SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

5.7.141 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the fulmar or breeding seabird assemblage (due to impacts to fulmar) features. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the features, so the conservation objectives of the SPA will not be undermined.

5.7.142 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Cliffs of Moher SPA due to the following impact:

- distributional responses, displacement and barrier effects due to Offshore Infrastructure.

Qualitative Impacts

5.7.143 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:

- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
- temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance'); and
- indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').

5.7.144 No site-specific qualitative assessments were required in order to address the impacts for fulmar at Cliffs of Moher SPA.

Conclusion for Qualitative Assessment

5.7.145 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the fulmar or breeding seabird assemblage (due to impacts to fulmar) features. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the feature, so the conservation objectives of the SPA will not be undermined.

5.7.146 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Cliffs of Moher SPA due to the following impacts:

- disturbance to prey species and their habitats;
- temporary habitat loss and/or habitat disturbance; and
- indirect impacts from construction/decommissioning noise.

5.7.147 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

5.7.148 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar, no in-combination assessment was required for Cliffs of Moher SPA.

Table 5.52: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Cliffs of Moher SPA
(Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.001	0.00 to 0.00	Migration	0.87 to 1.73	0.599	0.000	0.00 to 0.00	0.00 to 0.00
					Winter	0.13 to 0.27	0.719	0.001	0.00 to 0.00	

Table 5.53: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Cliffs of Moher SPA

Species	Population Size (Burnell et al., 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	9,602	0.00 to 0.00	0.000 to 0.000	No AEOSI

Copinsay SPA

- 5.7.149 Copinsay SPA comprises of a group of islands east of Mainland Orkney, located 214.50 km from the Array Area. The SPA boundary encompasses Copinsay SSSI and has a 2 km seaward extension into the marine environment. The SPA was classified in 1994, with the marine extension classified in 2009 (NatureScot, ND).
- 5.7.150 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.
- 5.7.151 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.54.

Table 5.54: The Relevant Components of the Breeding Seabird Assemblage and Impacts Included Within the Assessment for Copinsay SPA

Impact	Fulmar	Kittiwake	Great black-backed gull
Collision Risk Mortality due to Collision with Rotor Blades	x	✓	✓
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓	✓	x
Disturbance and Displacement to Birds from Vessel Movements	x	x	x
Disturbance to Prey Species and Their Habitat	✓	✓	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓	✓	✓
Direct Impacts from UXO Clearance	x	x	x
Indirect Impacts from Construction/Decommissioning Noise	✓	✓	✓

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.152 Of the impacts screened in for assessment (Table 3.7), both collision risk and distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Collision Risk Mortality due to Collision with Rotor Blades

- 5.7.153 A quantitative assessment was carried out for collision mortality due to the Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 1: Collision Risk Mortality due to Collision with Rotor Blades' for kittiwake and great black-backed gull.
- 5.7.154 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values and methodology presented in Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).

- 5.7.155 The number of apportioned mortalities is presented in Table 5.55, with the change in survival rate presented in Table 5.56. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake or great black-backed gull, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage of Copinsay SPA as a result of collision risk with respect to the O&M phase of the Proposed Development.

Table 5.55: Apportioned Mortalities due to Collision Risk During the O&M phase of the Proposed Development at Copinsay SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ²	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Kittiwake (Option 1)	4.69	0.970 (0.100)	0.001	0.00	SM	0.89	0.599	0.002	0.00	0.01
					AM	0.34	0.579	0.002	0.00	
Kittiwake (Option 2)	37.59			0.03	SM	7.22	0.599	0.002	0.01	0.04
					AM	2.76	0.579	0.002	0.00	
Great black-backed gull¹	-	-	-	-	-	2.30	0.317	0.011	0.01	0.01

¹ Species assessed during the non-breeding season only

² SM = Spring Migration; AM = Autumn Migration

Table 5.56: Change in Survival Rate due to Collision Risk During the O&M Phase of the Proposed Development at Copinsay SPA

Species	Model Option	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Kittiwake	1	1,910	0.01	0.000	No AEOSI
	2		0.04	0.002	No AEOSI
Great black-backed gull¹	2	134	0.01	0.006	No AEOSI

¹ Species assessed during the non-breeding season only

Distributional Responses due to Offshore Infrastructure

- 5.7.156 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure'.
- 5.7.157 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.158 The number of apportioning mortalities is presented in Table 5.57, with the change in survival rate presented in Table 5.58. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for fulmar or kittiwake, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage of Copinsay SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Table 5.57: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Copinsay SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.007	0.01 to 0.02	Migration	0.87 to 1.73	0.599	0.005	0.00 to 0.00	0.01 to 0.02
					Winter	0.13 to 0.27	0.719	0.005	0.00 to 0.00	
Kittiwake	5 to 16	0.970 (0.100)	0.001	0.00 to 0.01	SM	0.53 to 2.13	0.599	0.002	0.00 to 0.00	0.01 to 0.02
					AM	0.47 to 1.87	0.579	0.002	0.00 to 0.00	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.58: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Copinsay SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	3,236	0.01 to 0.02	0.000 to 0.001	No AEOSI
Kittiwake	1,910	0.01 to 0.02	0.000 to 0.001	No AEOSI

Combined Impacts of Collision Risk and Distributional Responses

- 5.7.159 As kittiwake were assessed for both collision risk and distributional responses, the combined impact has been used to determine whether a PVA is required. It was found that 0.04 mortalities are expected to occur due to collision risk (Table 5.55) and 0.01 to 0.02 mortalities due to distributional responses (Table 5.57). Therefore, it is expected that a total of 0.05 to 0.06 kittiwake mortalities will occur due to the Proposed Development alone, equivalent to a decrease in survival rate of 0.002 to 0.003 percentage points.
- 5.7.160 When using Option 1 of the sCRM, it is predicted that there will be 0.01 mortalities due to collision risk. Therefore, 0.01 to 0.02 mortalities due to collision risk and distributional responses, equal to a 0.001 to 0.001 percentage point decrease in survival rate.
- 5.7.161 As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage of Copinsay SPA as a result of the combined impacts of collision risk and distributional responses with respect to the O&M phase of the Proposed Development. This is further supported when using site-specific flight height data.

Conclusion for Quantitative Assessment

- 5.7.162 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to fulmar, great black-backed gull or kittiwake). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.163 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Copinsay SPA due to the following impact:
- collision risk mortality due to collision risk with rotor blades; and
 - distributional responses, displacement and barrier effects due to Offshore Infrastructure; and
 - combined impacts of collision risk and distributional responses.

Qualitative Impacts

- 5.7.164 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:
- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
 - temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance'); and
 - indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').

- 5.7.165 No site-specific qualitative assessments were required in order to address the impacts for fulmar, kittiwake, or great black-backed gull at Copinsay SPA.

Conclusion for Qualitative Assessment

- 5.7.166 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to fulmar, great black-backed gull or kittiwake). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.

- 5.7.167 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Copinsay SPA due to the following impacts:

- disturbance to prey species and their habitats;
- temporary habitat loss and/or habitat disturbance; and
- indirect impacts from construction/decommissioning noise.

- 5.7.168 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

- 5.7.169 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar, kittiwake or great black-backed gull, no in-combination assessment was required for Copinsay SPA.

Coquet Island SPA

- 5.7.170 Coquet Island is situated 1 km off the coast of Northumberland in north-east England. The island is small and flat-topped, with a plateau covering roughly 7 ha. The SPA includes all land above the Mean Low Water Mark, approximately 19.92 ha. The site is approximately 174.24 km from the Array Area.
- 5.7.171 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.
- 5.7.172 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.59

Table 5.59: The Relevant Features and Impacts Included Within the Assessment for Coquet Island SPA

Impact	Arctic tern	Puffin ¹
Collision Risk Mortality due to Collision with Rotor Blades	✓	×
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	×	✓
Disturbance and Displacement to Birds from Vessel Movements	×	×
Disturbance to Prey Species and Their Habitat	✓	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓	✓
Direct Impacts from UXO Clearance	×	×
Indirect Impacts from Construction/Decommissioning Noise	✓	✓

¹ Named component of breeding seabird assemblage only

Proposed Development Alone Assessment

Quantitative Impacts

5.7.173 Of the impacts screened in for assessment (Table 3.7), both collision risk and distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Collision Risk Mortality due to Collision with Rotor Blades

5.7.174 A quantitative assessment was carried out for collision mortality due to the Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 1: Collision Risk Mortality due to Collision with Rotor Blades' for Arctic tern.

5.7.175 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values and methodology presented in Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).

5.7.176 The number of apportioned mortalities is presented in Table 5.60, with the change in survival rate presented in Table 5.61. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for Arctic tern, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to Coquet Island SPA as a result of collision risk with respect to the O&M phase of the Proposed Development.

Table 5.60: Apportioned Mortalities due to Collision Risk During the O&M phase of the Proposed Development at Coquet Island SPA (Prop = Proportion; AV = Apportioning Value)

Species	Non-breeding Season				Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Arctic tern ¹	0.19	0.707	0.021	0.00	0.00

¹ Species assessed during the non-breeding season only

Table 5.61: Change in Survival Rate due to Collision Risk During the O&M Phase of the Proposed Development at Coquet Island SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Arctic tern ¹	2,480	0.00	0.000	No AEOSI

¹ Species assessed during the non-breeding season only

Distributional Responses due to Offshore Infrastructure

- 5.7.177 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure'.
- 5.7.178 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.179 The number of apportioning mortalities is presented in Table 5.62, with the change in survival rate presented in Table 5.63. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for puffin, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage of Coquet Island SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Table 5.62: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Coquet Island SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	
Puffin ¹	7 to 11	0.463 (0.070)	0.119	0.36 to 0.56	0.36 to 0.56

¹ Species assessed for impacts during the breeding season only

Table 5.63: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Coquet Island SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Puffin¹	50,058	0.36 to 0.56	0.001 to 0.001	No AEOSI

¹ Species assessed for impacts during the breeding season only

Conclusion for Quantitative Assessment

5.7.180 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the Arctic tern or breeding seabird assemblage (due to impacts to puffin). Therefore, it is expected that the population and distribution of the features will be maintained, so the conservation objectives of the SPA will not be undermined.

5.7.181 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Coquet Island SPA due to the following impact:

- collision risk mortality due to collision with rotor blades; and
- distributional responses, displacement and barrier effects due to Offshore Infrastructure.

Qualitative Impacts

5.7.182 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:

- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
- temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance');
- indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').

5.7.183 No site-specific qualitative assessments were required in order to address the impacts for Arctic tern and puffin at Coquet Island SPA.

Conclusion for Qualitative Assessment

5.7.184 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant long-term impact to the Arctic tern and breeding seabird assemblage (due to impacts to puffin) features. Therefore, it is expected that the population and distribution of the features will be maintained, so the conservation objectives of the SPA will not be undermined.

5.7.185 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Coquet Island SPA due to the following impacts:

- disturbance to prey species and their habitats;

- temporary habitat loss and/or habitat disturbance; and
- indirect impacts from construction/decommissioning noise.

5.7.186 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

5.7.187 As highlighted in Table 5.19, in-combination assessment was required for puffin.

Puffin

5.7.188 It was found that the Proposed Development alone resulted in 0.36 to 0.56 annual mortalities for puffin, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.64.

Table 5.64: Number of Mortalities Due to Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Puffin at Coquet Island SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Breeding Season	
	Low ²	High
Bowdun	0.36	0.56
Berwick Bank	3.60	6.00
Dogger Bank South	1.08	1.80
Muir Mhor ¹	1.80	1.80
Ossian	2.98	4.97
Outer Dowsing	5.51	9.18
Salamander	0.66	1.10
Total	15.98	25.40
Total excluding Berwick Bank	12.38	19.40
Total excluding Bowdun	15.62	42.87

¹ Values calculated using SeabORD

² Low and high displacement scenarios are presented in Table 5.3

5.7.189 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank (Table 5.65).

Table 5.65: In-combination PVA Results for Puffin, Impacted by Distributional Responses, at Coquet Island SPA (initial population size: 50,058 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Displacement Scenario	Baseline Median Population Size (Breeding Adults)	Impacted Median Population Size (Breeding Adults)	Counterfactual Growth Rate (CGR)	Counterfactual Population Size (CPS)
Including Berwick Bank				
Low	7,979	7,903	1.000 (0.998 to 1.001)	0.987 (0.939 to 1.040)

Displacement Scenario	Baseline Median Population Size (Breeding Adults)	Impacted Median Population Size (Breeding Adults)	Counterfactual Growth Rate (CGR)	Counterfactual Population Size (CPS)
High		7,843	0.999 (0.998 to 1.001)	0.980 (0.933 to 1.032)
Excluding Berwick Bank				
Low	7,979	7,929	1.000 (0.998 to 1.001)	0.991 (0.943 to 1.044)
High		7,878	1.000 (0.998 to 1.001)	0.986 (0.938 to 1.039)

- 5.7.190 It was found that under all scenarios the CGR was greater or equal to 0.999, indicating that the growth rate of the puffin is unlikely to decrease by more than 0.1% (Table 5.65). Although the population was found to decrease under all scenarios, the CPS, after 30 years, was found to range from 0.980 to 0.991 indicating a maximum decrease in population size of just 2.0%.
- 5.7.191 A comparison of the most recent seabird censuses found that the puffin population had increased by 45% (Burnell *et al.*, 2013). However, as Tremlett *et al.* (2024) did not survey puffin the impact of HPAI is unclear.
- 5.7.192 Although the puffin population was found to decrease within simulations, this is most likely due to the sensitivity of the model to the demographic rates used. Therefore, the counterfactual metrics have been used to determine the impact of the Proposed Development in-combination with other projects. Therefore, as the impacts are expected to be minimal (up to 0.1% impact on growth rate and 2.0% on the population size) and the positive trends in population size, an adverse effect on the puffin population is not expected to occur.
- 5.7.193 Therefore, adverse effects on the seabird assemblage (due to impacts to puffin) of Coquet Island SPA will not occur including or excluding Berwick Bank.
- 5.7.194 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Coquet Island SPA on puffin including or excluding Berwick Bank.

Deenish Island and Scariff Island SPA

- 5.7.195 Deenish Island and Scariff Island SPA consists of multiple islands between 5 km and 7 km west off Lamb's Head off the coast of County Kerry. The site is approximately 1,194.02 km from the Array Area. The SPA boundary extends 500 m into the surrounding marine environment (NPWS, ND).
- 5.7.196 The conservation objectives have been determined by NPWS, as presented in Paragraphs 5.3.11 to 5.3.12.
- 5.7.197 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.66.

Table 5.66: The Relevant Features and Impacts Included Within the Assessment for Deenish Island and Scariff Island SPA

Impact	Fulmar
Collision Risk Mortality due to Collision with Rotor Blades	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓
Disturbance and Displacement to Birds from Vessel Movements	x
Disturbance to Prey Species and Their Habitat	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓
Direct Impacts from UXO Clearance	x
Indirect Impacts from Construction/Decommissioning Noise	✓

Proposed Development Alone Assessment

Quantitative Impacts

5.7.198 Of the impacts screened in for assessment (Table 3.7), only distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Distributional Responses due to Offshore Infrastructure

5.7.199 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure'.

5.7.200 The mortalities from the Proposed Development (Offshore EIA Report, Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).

5.7.201 The number of apportioned mortalities is presented in Table 5.67, with the change in survival rate presented in Table 5.68. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g), it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the fulmar feature of Deenish Island and Scariff Island SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

- 5.7.202 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the fulmar feature. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the feature, so the conservation objectives of the SPA will not be undermined.
- 5.7.203 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Deenish Island and Scariff Island SPA due to the following impact:
- distributional responses, displacement and barrier effects due to Offshore Infrastructure.

Qualitative Impacts

- 5.7.204 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:
- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
 - temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance'); and
 - indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').
- 5.7.205 No site-specific qualitative assessments were required in order to address the impacts for fulmar at Deenish Island and Scariff Island SPA.

Conclusion for Qualitative Assessment

- 5.7.206 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the fulmar feature. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the feature, so the conservation objectives of the SPA will not be undermined.
- 5.7.207 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Deenish Island and Scariff Island SPA due to the following impacts:
- disturbance to prey species and their habitats;
 - temporary habitat loss and/or habitat disturbance; and
 - indirect impacts from construction/decommissioning noise.

- 5.7.208 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

- 5.7.209 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar, no in-combination assessment was required for Deenish and Scariff Island SPA.

Table 5.67: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Deenish Island and Scariff Island SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.000	0.00 to 0.00	Migration	0.87 to 1.73	0.599	0.000	0.00 to 0.00	0.00 to 0.00
					Winter	0.13 to 0.27	0.719	0.000	0.00 to 0.00	

Table 5.68: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Deenish Island and Scariff Island SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	802	0.00 to 0.00	0.000 to 0.000	No AEOSI

Dingle Peninsula SPA

- 5.7.210 Dingle Peninsula SPA is a large SPA situated on the west coast of County Kerry and located approximately 1,132.46 km from the Array Area. The SPA boundary extends into the marine environment, with the high-water mark forming the seaward boundary (NPWS, ND).
- 5.7.211 The conservation objectives have been determined by NPWS, as presented in Paragraphs 5.3.11 to 5.3.12.
- 5.7.212 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.69.

Table 5.69: The Relevant Features and Impacts Included Within the Assessment for Dingle Peninsula SPA

Impact	Fulmar
Collision Risk Mortality due to Collision with Rotor Blades	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓
Disturbance and Displacement to Birds from Vessel Movements	x
Disturbance to Prey Species and Their Habitat	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓
Direct Impacts from UXO Clearance	x
Indirect Impacts from Construction/Decommissioning Noise	✓

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.213 Of the impacts screened in for assessment (Table 3.7), only distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Distributional Responses due to Offshore Infrastructure

- 5.7.214 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, ‘Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure’.
- 5.7.215 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.216 The number of apportioned mortalities is presented in Table 5.70, with the change in survival rate presented in Table 5.71. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g), it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the fulmar feature of Dingle Peninsula SPA as a result of

distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

5.7.217 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the fulmar feature. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the feature, so the conservation objectives of the SPA will not be undermined.

5.7.218 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Dingle Peninsula SPA due to the following impact:

- distributional responses, displacement and barrier effects due to Offshore Infrastructure.

Qualitative Impacts

5.7.219 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:

- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
- temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance'); and
- indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').

5.7.220 No site-specific qualitative assessments were required in order to address the impacts for fulmar at Dingle Peninsula SPA.

Conclusion for Qualitative Assessment

5.7.221 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to fulmar feature. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the feature, so the conservation objectives of the SPA will not be undermined.

5.7.222 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Dingle Peninsula SPA due to the following impacts:

- disturbance to prey species and their habitats;
- temporary habitat loss and/or habitat disturbance; and
- indirect impacts from construction/decommissioning noise.

5.7.223 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

5.7.224 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar, no in-combination assessment was required for Dingle Peninsula SPA.

Table 5.70: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Dingle Peninsula SPA
(Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.000	0.00 to 0.00	Migration	0.87 to 1.73	0.599	0.000	0.00 to 0.00	0.00 to 0.00
					Winter	0.13 to 0.27	0.719	0.000	0.00 to 0.00	

Table 5.71: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Dingle Peninsula SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	1,620	0.00 to 0.00	0.000 to 0.000	No AEOSI

Duvillaun Islands SPA

- 5.7.225 Duvillaun Islands SPA consists of a group of marine islands located between 1 km and 5 km off the southern tip of the Mullet Peninsula in County Mayo. The SPA boundary extends 200 m into the marine environment. The site is located 934.00 km from the Array Area (NPWS, ND).
- 5.7.226 The conservation objectives have been determined by NPWS, as presented in Paragraphs 5.3.11 to 5.3.12.
- 5.7.227 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.72.

Table 5.72: The Relevant Features and Impacts Included Within the Assessment for Duvillaun Islands SPA

Impact	Fulmar
Collision Risk Mortality due to Collision with Rotor Blades	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓
Disturbance and Displacement to Birds from Vessel Movements	x
Disturbance to Prey Species and Their Habitat	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓
Direct Impacts from UXO Clearance	x
Indirect Impacts from Construction/Decommissioning Noise	✓

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.228 Of the impacts screened in for assessment (Table 3.7), only distributional responses were assessed quantitatively.

Distributional Responses due to Offshore Infrastructure

- 5.7.229 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure'.
- 5.7.230 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.231 The number of apportioned mortalities is presented in Table 5.73, with the change in survival rate presented in Table 5.74. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g), it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the fulmar feature of Duvillaun Islands SPA as a result of

distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

5.7.232 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the fulmar feature. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the feature, so the conservation objectives of the SPA will not be undermined.

5.7.233 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Duvillaun Islands SPA due to the following impact:

- distributional responses, displacement and barrier effects due to Offshore Infrastructure

Qualitative Impacts

5.7.234 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:

- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
- temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance'); and
- indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').

5.7.235 No site-specific qualitative assessments were required in order to address the impacts for fulmar at Duvillaun Islands SPA.

Conclusion for Qualitative Assessment

5.7.236 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the fulmar feature. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the feature, so the conservation objectives of the SPA will not be undermined.

5.7.237 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Duvillaun Islands SPA due to the following impacts:

- disturbance to prey species and their habitats;
- temporary habitat loss and/or habitat disturbance; and
- indirect impacts from construction/decommissioning noise.

5.7.238 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

5.7.239 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar, no in-combination assessment was required for Duvillaun Islands SPA.

Table 5.73: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Duvillaun Islands Island SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.000	0.00 to 0.00	Migration	0.87 to 1.73	0.599	0.000	0.00 to 0.00	0.00 to 0.00
					Winter	0.13 to 0.27	0.719	0.000	0.00 to 0.00	

Table 5.74: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Duvillaun Islands SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	1,094	0.00 to 0.00	0.000 to 0.000	No AEOSI

East Caithness Cliffs SPA

- 5.7.240 East Caithness Cliffs SPA is located in the north-east of Scotland and includes all the sea-cliffs between Wick and Helmsdale. The SPA boundary overlaps with Castle of Old Wick to Craig Hammel, Craig Hammel to Sgaps Geo, Dunbeath to Sgaps Geo, Berriedale Cliffs, Ousdale Burn and Helmsdale Coast SSSIs. The site is located approximately 180.44 km from the Array Area and was classified in 1996, with a marine extension classified in 2009 (NatureScot, ND).
- 5.7.241 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.
- 5.7.242 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.75.

Table 5.75: The Relevant Features and Impacts Included Within the Assessment for East Caithness Cliffs SPA

Impact	Fulmar ¹	Kittiwake ²	Great black-backed gull ¹	Razorbill ²
Collision Risk Mortality due to Collision with Rotor Blades	x	✓	✓	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓	✓	x	✓
Disturbance and Displacement to Birds from Vessel Movements	x	x	x	✓
Disturbance to Prey Species and Their Habitat	✓	✓	✓	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓	✓	✓	✓
Direct Impacts from UXO Clearance	x	x	x	✓
Indirect Impacts from Construction/Decommissioning Noise	✓	✓	✓	✓

¹ Named component of the seabird assemblage only.

² Qualifying feature and named component of the seabird assemblage only.

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.243 Of the impacts screened in for assessment (Table 3.7), both collision risk and distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Collision Risk Mortality due to Collision with Rotor Blades

- 5.7.244 A quantitative assessment was carried out for collision mortality due to the Array Area following the methodology described in Section 5.4, 'Impact 1: Collision Risk Mortality due to Collision with Rotor Blades' for kittiwake and great black-backed gull

- 5.7.245 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values and methodology presented in Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.246 The number of apportioned mortalities is presented in Table 5.76, with the change in survival rate presented in Table 5.77. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake or great black-backed gull, it can be concluded, beyond reasonable scientific doubt, that there is no AEOSI to the kittiwake or breeding seabird assemblage (due to impacts to kittiwake or great black-backed gull) features of East Caithness Cliffs SPA as a result of collision risk with respect to the O&M phase of the Proposed Development.

Table 5.76: Apportioned Mortalities due to Collision Risk During the O&M phase of the Proposed Development at East Caithness Cliffs SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ²	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Kittiwake (Option 1)	4.69	0.970 (0.100)	0.037	0.15	SM	0.90	0.599	0.111	0.06	0.23
					AM	0.34	0.579	0.093	0.02	
Kittiwake (Option 2)	37.59	0.970 (0.100)	0.037	1.22	SM	7.22	0.599	0.111	0.48	1.84
					AM	2.76	0.579	0.093	0.15	
Great black-backed gull ¹	-	-	-	-	-	2.30	0.317	0.009	0.01	0.01

¹ Species only assessed during the non-breeding season

² SM = Spring Migration; AM = Autumn Migration

Table 5.77: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at East Caithness Cliffs SPA

Species	Model Option	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Kittiwake	1	48,958	0.23	0.000	No AEOSI
	2		1.84	0.004	No AEOSI
Great black-backed gull ¹	2	532	0.01	0.001	No AEOSI

¹ Species only assessed during the non-breeding season

Distributional Responses due to Offshore Infrastructure

- 5.7.247 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, ‘Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure’.
- 5.7.248 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.249 The number of apportioning mortalities is presented in Table 5.78, with the change in survival rate presented in Table 5.79. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake, fulmar and razorbill, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the kittiwake, razorbill, and breeding seabird assemblage (due to impacts to the aforementioned species and fulmar) features of East Caithness Cliffs SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Table 5.78: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at East Caithness Cliffs SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.083	0.08 to 0.20	Migration	0.87 to 1.73	0.599	0.044	0.02 to 0.05	0.11 to 0.25
					Winter	0.13 to 0.27	0.719	0.044	0.00 to 0.01	
Kittiwake	5 to 16	0.970 (0.100)	0.037	0.16 to 0.52	SM	0.53 to 2.13	0.599	0.111	0.04 to 0.14	0.22 to 0.76
					AM	0.47 to 1.87	0.579	0.093	0.03 to 0.10	
Razorbill ¹	-	-	-	-	Migration	2.93 to 9.53	0.511	0.071	0.11 to 0.34	0.13 to 0.42
					Winter	1.07 to 3.47	0.486	0.043	0.02 to 0.07	

¹ Species assessed during the non-breeding season only

² SM = Spring Migration; AM = Autumn Migration

Table 5.79: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at East Caithness Cliffs SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	27,928	0.11 to 0.25	0.000 to 0.001	No AEOSI
Kittiwake	48,958	0.22 to 0.76	0.000 to 0.002	No AEOSI
Razorbill ¹	40,373	0.13 to 0.42	0.000 to 0.001	No AEOSI

¹ Species assessed during the non-breeding season only

Combined Impacts of Collision Risk and Distributional Responses

- 5.7.250 As kittiwake were assessed for both collision risk and distributional responses, the combined impact has been used to determine whether a PVA is required. It was found that 1.84 mortalities are expected to occur due to collision risk (Table 5.76) and 0.22 to 0.76 mortalities due to distributional responses (Table 5.78). Therefore, it is expected that a total of 2.07 to 2.60 kittiwake mortalities will occur due to the Proposed Development alone, equivalent to a decrease in survival rate of 0.004 to 0.005 percentage points.
- 5.7.251 When using Option 1 of the sCRM, the number of mortalities due to collision risk was reduced to 0.23 (Table 5.76) and the expected mortalities from collision risk and distributional responses is 0.45 to 0.99, equivalent to a decrease in survival rate of 0.001 to 0.002 percentage points.
- 5.7.252 As the decrease in survival rate, due to collision risk and distributional responses, did not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the kittiwake and breeding seabird assemblage (due to impacts to kittiwake) features of East Caithness Cliffs SPA as a result of the combined impact of collision risk and distributional responses with respect to the O&M phase of the Proposed Development. This is further supported when using site-specific flight height data.

Conclusion for Quantitative Assessment

- 5.7.253 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the kittiwake, razorbill and breeding seabird assemblage (due to impacts to the aforementioned species, fulmar or great black-backed gull). . Therefore, it is expected that the features will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.254 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the East Caithness Cliffs SPA due to the following impacts:
- collision risk mortality due to collision with rotor blades;
 - distributional responses, displacement and barrier effects due to Offshore Infrastructure; and
 - combined impacts of collision risk and distributional responses.

Qualitative Impacts

- 5.7.255 Of the impacts screened in for assessment, five impacts have been assessed qualitatively:
- disturbance and displacement to birds from vessel movements (Section 5.5, 'Impact 3: Disturbance and Displacement to Birds From Vessel Movements');
 - disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');

- temporary habitat loss and/or habitat disturbance (Section 5.5, ‘Impact 5: Temporary Habitat Loss and/or Habitat Disturbance’);
- direct impacts from UXO clearance (Section 5.5, ‘Impact 6: Direct Impacts from UXO Clearance’); and
- indirect impacts from construction/decommissioning noise (Section 5.5, ‘Impact 7: Indirect Impacts from Construction/Decommissioning Noise’).

5.7.256 No site-specific qualitative assessments were required in order to address the impacts for fulmar, kittiwake, great black-backed gull or razorbill at East Caithness Cliffs SPA.

Conclusion for Qualitative Assessment

5.7.257 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the kittiwake, razorbill and breeding seabird assemblage (due to impacts to the aforementioned species, fulmar or great black-backed gull) features. Therefore, it is expected that the features will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.

5.7.258 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the East Caithness Cliffs SPA due to the following impacts:

- disturbance to prey species and their habitats;
- temporary habitat loss and/or habitat disturbance; and
- indirect impacts from construction/decommissioning noise.

5.7.259 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

5.7.260 As highlighted in Table 5.19, in-combination assessment was required for kittiwake and razorbill.

Kittiwake

5.7.261 It was found that the Proposed Development alone resulted in 0.45 to 0.99 and 2.07 to 2.60 annual mortalities for kittiwake using Option 1 and Option 2 of the sCRM respectively, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.80.

Table 5.80: Number of Mortalities Due to Collision Risk and Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Kittiwake at East Caithness Cliffs SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Bowdun (Option 1)	0.15	0.08	0.23	0.16 to 0.52	0.06 to 0.24	0.22 to 0.76	0.45 to 0.99	0.45 to 0.99
Bowdun (Option 2)	1.22	0.63	1.84	0.16 to 0.52	0.06 to 0.24	0.22 to 0.76	2.07 to 2.60	2.07 to 2.60
Aberdeen	-	0.32 (0.25)	0.32 (0.25)	-	0.01 to 0.02	0.01 to 0.02	0.33 to 0.34	0.26 to 0.27
Aspen	0.14	0.29	0.43	0.02 to 0.07	0.03 to 0.08	0.05 to 0.15	0.47 to 0.58	0.48 to 0.58
Ayre	1.16	0.97 (0.99)	2.13 (2.15)	0.21 to 0.84	0.16 to 0.49	0.37 to 1.33	2.51 to 3.46	2.53 to 3.48
Beatrice	18.08	2.48 (1.39)	20.56 (19.47)	6.00 to 18.00	0.45 to 1.34	6.45 to 19.34	27.00 to 39.90	25.92 to 38.81
Berwick Bank	0.36	-	0.36	0.05 to 0.15	5.01 to 15.02	5.06 to 15.17	5.42 to 15.53	5.42 to 15.53
Blyth Demo	-	0.17 (0.18)	0.17 (0.18)	-	0.30 to 0.89	0.30 to 0.89	0.47 to 1.07	0.48 to 1.07
Buchan	0.60	0.48 (0.22)	1.08 (0.82)	0.80 to 0.80	0.09 to 0.27	0.89 to 1.07	1.97 to 2.15	1.71 to 1.89
Caledonia (North & South)	13.53	0.92 (0.94)	14.45 (14.47)	1.50 to 4.50	0.12 to 0.36	1.62 to 4.86	16.07 to 19.31	16.09 to 19.33
Cenos	0.92	0.40	1.32	0.07 to 0.21	0.02 to 0.06	0.09 to 0.27	1.41 to 1.59	1.41 to 1.59
Dogger Bank A and B	-	20.92 (21.34)	20.92 (21.34)	-	3.80 to 11.39	3.80 to 11.39	24.71 to 32.31	25.14 to 32.73

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Dogger Bank C and Sofia	-	14.97 (15.28)	14.97 (15.28)	-	2.81 to 8.42	2.81 to 8.42	17.78 to 23.39	18.08 to 23.69
Dogger Bank South	-	14.07 (14.36)	14.07 (14.36)	-	3.74 to 11.23	3.74 to 11.23	17.82 to 25.31	18.1 to 25.59
East Anglia One	-	9.64 (6.64)	9.64 (6.64)	-	0.38 to 1.15	0.38 to 1.15	10.03 to 10.80	7.02 to 7.79
East Anglia One North	-	0.66 (0.68)	0.66 (0.68)	-	0.12 to 0.36	0.12 to 0.36	0.78 to 1.02	0.80 to 1.03
East Anglia Three	-	4.11 (4.20)	4.11 (4.20)	-	0.95 to 2.85	0.95 to 2.85	5.06 to 6.96	5.14 to 7.04
East Anglia Two	-	0.73 (0.75)	0.73 (0.75)	-	0.09 to 0.26	0.09 to 0.26	0.82 to 0.99	0.83 to 1.00
Five Estuaries	-	1.57 (1.61)	1.57 (1.61)	-	0.16 to 0.49	0.16 to 0.49	1.74 to 2.06	1.77 to 2.09
Galloper	-	2.86 (1.22)	2.86 (1.22)	-	-	-	2.86	1.22
Greater Gabbard	-	1.25 (1.28)	1.25 (1.28)	-	-	-	1.25	1.28
Green Volt	0.60	0.75 (0.76)	1.35 (1.36)	0.06 to 0.17	0.05 to 0.14	0.10 to 0.31	1.45 to 1.66	1.46 to 1.67
Hornsea One	-	0.89 (0.37)	0.89 (0.37)	-	6.47 to 19.41	6.47 to 19.41	7.35 to 20.29	6.84 to 19.78
Hornsea Project Four	-	1.06 (1.08)	1.06 (1.08)	-	1.25 to 3.75	1.25 to 3.75	2.31 to 4.81	2.33 to 4.83
Hornsea Project Three	-	3.95 (4.03)	3.95 (4.03)	-	1.27 to 3.82	1.27 to 3.82	5.22 to 7.77	5.30 to 7.85
Hornsea Project Two	-	0.56 (0.57)	0.56 (0.57)	-	0.69 to 2.06	0.69 to 2.06	1.25 to 2.62	1.26 to 2.63

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Humber Gateway	-	0.24 (0.11)	0.24 (0.11)	-	-	-	0.24	0.11
Hywind	-	0.09	0.09	-	-	-	0.09	0.09
Inch Cape	-	1.83 (1.87)	1.83 (1.87)	-	0.43 to 1.29	0.43 to 1.29	2.26 to 3.12	2.29 to 3.15
Kincardine	-	0.08	0.08	-	-	-	0.08	0.08
Kentish Flats	-	0.19 (0.11)	0.19 (0.11)	-	-	-	0.19	0.11
Kentish Flats Extension	-	0.46 (0.47)	0.46 (0.47)	-	-	-	0.46	0.47
Lincs	-	0.09	0.09	-	-	-	0.09	0.09
London Array	-	0.19 (0.08)	0.19 (0.08)	-	-	-	0.19	0.08
Moray East	11.64	0.40 (0.41)	12.04 (12.05)	11.50 to 34.50	-	11.50 to 34.50	23.54 to 46.54	23.55 to 46.55
Moray West	36.41	1.71 (1.75)	38.12 (38.16)	15.00 to 45.00	0.51 to 1.53	15.51 to 46.53	53.63 to 84.66	53.67 to 84.69
Muir Mhor	2.30	0.73 (0.74)	3.03 (3.04)	3.80 to 3.80	0.16 to 0.49	3.96 to 4.29	6.99 to 7.32	7.01 to 7.33
Neart na Gaoithe	-	1.09 (1.11)	1.09 (1.11)	-	0.43 to 1.30	0.43 to 1.30	1.52 to 2.38	1.54 to 2.40
Norfolk Boreas	-	2.52 (2.57)	2.52 (2.57)	-	0.71 to 2.12	0.71 to 2.12	3.23 to 4.64	3.28 to 4.69
Norfolk Vanguard	-	2.04 (2.08)	2.04 (2.08)	-	0.44 to 1.33	0.44 to 1.33	2.48 to 3.37	2.52 to 3.41
North Falls	-	1.17 (1.19)	1.17 (1.19)	-	0.26 to 0.79	0.26 to 0.79	1.43 to 1.96	1.45 to 1.98
Ossian	1.40	0.91 (0.93)	2.31 (2.33)	0.46 to 1.38	0.23 to 0.69	0.69 to 2.07	3.00 to 4.38	3.02 to 4.40

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Outer Dowsing	-	1.32 (1.35)	1.32 (1.35)	-	1.40 to 4.19	1.40 to 4.19	2.72 to 5.52	2.75 to 5.54
Pentland	0.39	0.06	0.45	0.12 to 0.35	0.03 to 0.10	0.15 to 0.44	0.59 to 0.89	0.60 to 0.89
Race Bank	-	1.37 (0.82)	1.37 (0.82)	-	-	-	1.37	0.82
Salamander	0.73	-	0.73	0.55 to 1.66	0.04 to 0.13	0.60 to 1.79	1.33 to 2.52	1.33 to 2.52
Seagreen	-	12.56 (12.82)	12.56 (12.82)	-	0.92 to 2.75	0.92 to 2.75	13.48 to 15.31	13.73 to 15.57
Sheringham Shoal Extension and Dudgeon Extension	-	0.41 (0.42)	0.41 (0.42)	-	0.54 to 1.62	0.54 to 1.62	0.95 to 2.03	0.96 to 2.04
Teeside	-	1.22 (1.05)	1.22 (1.05)	-	-	-	1.22	1.05
Thanet	-	0.04 (0.02)	0.04 (0.02)	-	-	-	0.04	0.02
Triton Knoll	-	8.6 (3.19)	8.6 (3.19)	-	0.11 to 0.34	0.11 to 0.34	8.71 to 8.94	3.30 to 3.52
West of Orkney	1.80	3.00 (3.06)	4.8 (4.86)	0.30 to 0.90	0.40 to 1.21	0.70 to 2.11	5.5 to 6.91	5.56 to 6.97
Westernmost Rough	-	0.01	0.01	-	-	-	0.01	0.01
Option 1								
Total	90.21	126.42 (115.35)	216.64 (205.56)	40.59 to 112.84	34.64 to 103.97	75.23 to 216.80	219.86 to 433.44	280.79 to 422.37
Total excluding Berwick Bank	89.85	108.29 (97.22)	198.15 (187.08)	40.55 to 112.69	29.48 to 88.51	70.03 to 201.20	268.17 to 399.35	257.10 to 388.28

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Total excluding Bowdun	90.06	126.34 (115.27)	216.41 (205.33)	40.43 to 112.32	34.57 to 103.72	75.01 to 216.04	291.41 to 432.45	280.34 to 421.38
Option 2								
Total	91.28	126.97 (115.90)	218.25 (207.18)	40.59 to 112.84	34.64 to 103.97	75.23 to 216.80	293.48 to 435.05	282.41 to 423.98
Total excluding Berwick Bank	90.92	108.84 (97.77)	199.76 (188.69)	40.55 to 112.69	29.48 to 88.51	70.03 to 201.20	269.79 to 400.96	258.72 to 389.89
Total excluding Bowdun	90.06	126.34 (155.27)	216.41 (205.33)	40.43 to 112.32	34.57 to 103.72	75.01 to 216.04	291.41 to 432.45	280.34 to 421.38

¹ The number of mortalities due to ‘consented’ collisions are presented, with the number of ‘as-built’ collisions presented in parentheses where relevant.

² Low and high displacement scenarios are presented in Table 5.3

5.7.262 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank and using consented and as-built collisions (Table 5.81).

Table 5.81: In-combination PVA Results for Kittiwake, Impacted by Collision Risk (Option 2) and Distributional Responses, at East Caithness Cliffs SPA (initial population size: 48,958 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Berwick Bank Offshore Wind Farm included or excluded	Displacement Scenario	Baseline Median Population Size (Breeding Adults)	Impacted Median Population Size (Breeding Adults)	Counterfactual Growth Rate (CGR)	Counterfactual Population Size (CPS)
‘Consented’ mortalities					
Including Berwick Bank	Low	92,591	74,159	0.993 (0.992 to 0.994)	0.802 (0.780 to 0.824)
	High		66,903	0.989 (0.989 to 0.990)	0.721 (0.699 to 0.740)
Excluding Berwick Bank	Low		75,495	0.993 (0.993 to 0.994)	0.816 (0.794 to 0.839)
	High		68,458	0.990 (0.990 to 0.991)	0.739 (0.719 to 0.760)
‘As-built’ mortalities					
Including Berwick Bank	Low	92,591	75,004	0.993 (0.992 to 0.994)	0.808 (0.786 to 0.831)
	High		67,210	0.990 (0.989 to 0.990)	0.726 (0.706 to 0.747)
Excluding Berwick Bank	Low		76,248	0.994 (0.993 to 0.994)	0.823 (0.801 to 0.846)
	High		69,126	0.991 (0.990 to 0.991)	0.746 (0.724 to 0.766)

5.7.263 Using consented mortalities (Table 5.81), it was found that under all scenarios the CGR was greater or equal to 0.989 indicating that the growth rate of the kittiwake is unlikely to decrease by more than 1.1%. The population size was found to increase under all scenarios and the CPS, after 30 years, ranged from 0.721 to 0.816.

5.7.264 When accounting for as-built corrections, it was found the median CGR decreased by no more than 0.1% for any scenario. Moreover, the median CPS also showed little difference, with the largest difference recorded of 0.007, or 0.7%.

5.7.265 A comparison of the Seabird 2000 and Seabirds Count censuses found that the kittiwake population at East Caithness Cliffs SPA has decreased by 39% (Burnell *et al.*, 2023), with most recent census count of 24,479 AON, roughly two thirds of the citation population (32,500 AON). Although East Caithness Cliffs SPA is not included within counts undertaken by Tremblett *et al.* (2023), kittiwake at East Caithness Cliffs SPA was found to have increased by 41% comparing counts

from NEEOG-funded surveys in 2025 against the Seabirds Count (Burnell *et al.*, 2023) census carried out in 2015.

- 5.7.266 NEEOG-funded surveys of East Caithness Cliffs SPA recorded 34,491 AON in 2025 (Zisman *et al.*, 2025), showing a 15% decrease when compared to the Seabird 2000 census and 41% increase when compared to the Seabirds Count census (Burnell *et al.*, 2023). Compared to 1977 census estimates, the 2025 AON count indicate a 17% decline over this period. These figures suggest, that although the population has shown a long-term decrease in population size there is potential for the population size to recover under favourable conditions.
- 5.7.267 As the kittiwake population at East Caithness Cliffs SPA showed a long-term decrease in population size and the results of the PVA show that the impact to the growth rate may further contribute to population declines the Proposed Development in-combination with other projects could lead to adverse effects. However, it should be noted that the Proposed Development alone contributes 0.60% and 0.65% of the total mortalities for the consented collision and high displacement scenarios including and excluding Berwick Bank respectively.
- 5.7.268 Additionally, PVA run using site-specific flight height data found the impacts to the growth rate are expected to be unchanged and population size are expected to decrease by no more than 0.1% for each scenario including and excluding Berwick Bank (presented in Table 3.5 of Appendix 3B: Offshore Ornithology Special Protection Area Population Viability Analysis Technical Report (TWP-BOW-RPS-ENV-RPT-00027)). Therefore, using site-specific sCRM (Option 1) is unlikely to impact the conclusions for AEOSI.
- 5.7.269 Therefore, an adverse effect on the kittiwake or seabird assemblage (due to impacts to kittiwake) features of East Caithness Cliffs SPA **could not be ruled out** including or excluding Berwick Bank.

Razorbill

- 5.7.270 It was found that the Proposed Development alone resulted in 0.13 to 0.42 annual mortalities for razorbill, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.89.
- 5.7.271 Although the RIAA for MarramWind was not available at the time of data analysis, it should be noted that MarramWind was found to contribute 0.25 to 0.75 mortalities (MarramWind, 2026), which is equivalent to a 0.2% increase in mortalities for the high mortality displacement scenario. The inclusion of MarramWind is not expected to change the conclusions drawn.

Table 5.82: Number of Mortalities Due to Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Razorbill at East Caithness Cliffs SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Breeding Season		Non-breeding Season		Annual	
	Low ¹	High	Low	High	Low	High
Bowdun	-	-	0.13	0.42	0.13	0.42
Aberdeen	-	-	0.02	0.07	0.02	0.07
Aspen	-	-	0.01	0.04	0.01	0.04
Ayre	-	-	0.28	0.85	0.28	0.85
Beatrice	15.39	25.65	0.53	1.60	15.92	27.25
Berwick Bank	0.90	1.50	4.25	12.76	5.15	14.26
Blyth Demo	-	-	0.06	0.17	0.06	0.17
Buchan	-	-	0.05	0.16	0.05	0.16
Caledonia (North & South)	11.52	19.20	0.63	1.89	12.15	21.09
Dogger Bank A	-	-	1.79	5.36	1.79	5.36
Dogger Bank B	-	-	2.24	6.73	2.24	6.73
Dogger Bank C	-	-	0.76	2.29	0.76	2.29
Dogger Bank South	-	-	6.63	19.90	6.63	19.90
Dudgeon Extension	-	-	0.38	1.14	0.38	1.14
Dudgeon	-	-	0.34	1.03	0.34	1.03
East Anglia One	-	-	0.12	0.37	0.12	0.37
East Anglia One North	-	-	0.08	0.25	0.08	0.25
East Anglia Three	-	-	0.99	2.98	0.99	2.98
East Anglia Two	-	-	0.10	0.30	0.10	0.30
Five Estuaries	-	-	0.50	1.50	0.50	1.50
Galloper	-	-	0.13	0.39	0.13	0.39
Greater Gabbard	-	-	0.11	0.34	0.11	0.34
Green Volt	2.55	4.25	0.02	0.07	2.57	4.32
Gunfleet Sands	-	-	0.01	0.02	0.01	0.02
Hornsea One	-	-	1.95	5.85	1.95	5.85
Hornsea Project Four	-	-	1.25	3.75	1.25	3.75
Hornsea Project Three	-	-	1.86	5.59	1.86	5.59
Hornsea Project Two	-	-	1.59	4.76	1.59	4.76
Humber Gateway	-	-	0.01	0.04	0.01	0.04
Hywind	-	-	0.17	0.52	0.17	0.52
Inch Cape	-	-	0.84	2.53	0.84	2.53
Lincs and Lynn and Inner Dowsing	-	-	0.02	0.06	0.02	0.06
London Array	-	-	0.01	0.04	0.01	0.04
Moray East	42.78	71.30	0.31	0.94	43.09	72.24

Project	Breeding Season		Non-breeding Season		Annual	
	Low ¹	High	Low	High	Low	High
Moray West	24.00	40.00	1.75	5.26	25.75	45.26
Muir Mhor	-	-	0.37	1.11	0.37	1.11
Neart na Gaoithe	-	-	1.44	4.32	1.44	4.32
Norfolk Boreas	-	-	0.40	1.20	0.40	1.20
Norfolk Vanguard	-	-	0.63	1.89	0.63	1.89
North Falls	-	-	0.90	2.71	0.90	2.71
Ossian	-	-	0.44	1.33	0.44	1.33
Outer Dowsing	-	-	2.18	6.55	2.18	6.55
Pentland	0.48	0.80	-	-	0.48	0.80
Race Bank	-	-	0.03	0.08	0.03	0.08
Rampion	-	-	1.11	3.34	1.11	3.34
Rampion 2	-	-	1.80	5.41	1.80	5.41
Salamander	-	-	0.12	0.35	0.12	0.35
Seagreen Alpha	-	-	0.26	0.79	0.26	0.79
Seagreen Bravo	-	-	0.31	0.92	0.31	0.92
Sheringham Shoal	-	-	0.38	1.14	0.38	1.14
Sheringham Shoal Extension	-	-	1.18	3.53	1.18	3.53
Sofia	-	-	1.19	3.58	1.19	3.58
Teesside	-	-	0.02	0.06	0.02	0.06
Thanet	-	-	0.01	0.03	0.01	0.03
Triton Knoll	-	-	0.29	0.88	0.29	0.88
West of Orkney	0.51	0.85	-	-	0.51	0.85
Westernmost Rough	-	-	0.09	0.26	0.09	0.26
Total	112.62	181.22	43.15	129.48	155.77	310.70
Total excluding Berwick Bank	111.72	179.72	37.93	113.82	149.65	293.54
Total excluding Bowdun	112.62	181.22	43.02	129.06	155.64	310.28

¹ Low and high displacement scenarios are presented in Table 5.3

5.7.272 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank (Table 5.83).

Table 5.83: In-combination PVA Results for Razorbill, Impacted by Distributional Responses, at East Caithness Cliffs SPA (initial population size: 40,373 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Baseline Simulated Population Size	Impact Scenario	Impacted Simulated Population Size	Median Counterfactual (CI)	
			Growth Rate	Population Size
Including Berwick Bank				
78,286	Low	68,350	0.996 (0.995 to 0.996)	0.872 (0.851 to 0.893)
	High	59,620	0.991 (0.991 to 0.992)	0.761 (0.741 to 0.780)
Excluding Berwick Bank				
78,286	Low	68,734	0.996 (0.995 to 0.996)	0.877 (0.856 to 0.899)
	High	60,354	0.992 (0.991 to 0.992)	0.772 (0.753 to 0.792)

- 5.7.273 It was found that under all scenarios the CGR was greater or equal to 0.991, indicating that the growth rate of the razorbill is unlikely to decrease by more than 0.9% (Table 5.83). The population size was found to increase under all scenarios. However, the CPS, after 30 years, was found to range from 0.761 to 0.877 indicating a maximum decrease in population size of 23.9%.
- 5.7.274 A comparison of the Seabird 2000 and Seabirds Count censuses found that the razorbill population at East Caithness Cliffs SPA has increased by 69% (Burnell *et al.*, 2023), with most recent census count of 30,129 individuals, roughly double the citation population (15,800 individuals).
- 5.7.275 NEEOG-funded surveys for East Caithness Cliffs SPA recorded a total of 53,216 individuals in 2025 (Zisman *et al.*, 2025). This indicates a notable increase of 195% when compared to the Seabird 2000 census and 77% when compared to the Seabirds Count census (Burnell *et al.*, 2023).
- 5.7.276 Although the razorbill population was found to increase under all in-combination scenarios, it is expected that the impact on the growth rate (up to 0.9%) could adversely affect the population size (e.g. 23.9% decrease for the high displacement scenario, including Berwick Bank). However, it should be noted that the impacts from the Proposed Development contribute only 0.14% of the total mortalities for the high displacement scenario including and excluding Berwick Bank.
- 5.7.277 Therefore, an adverse effect on the razorbill feature or seabird assemblage (due to impacts to razorbill) features of East Caithness Cliffs SPA **could not be ruled out** including or excluding Berwick Bank.

Fair Isle SPA

- 5.7.278 Fair Isle SPA located on the most southernly island of the Shetland group, halfway between Shetland and Orkney. The SPA boundary is coincident with Fair Isle SSSI, with a marine extension extending approximately 2 km. The site is located 270.49 km from the Array Area and was classified in 1994, with the marine extension classified in 2009 (NatureScot, ND).
- 5.7.279 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.
- 5.7.280 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.84.

Table 5.84: The Relevant Components of the Breeding Seabird Assemblage and Impacts Included Within the Assessment for Fair Isle SPA

Impact	Fulmar	Kittiwake	Gannet
Collision Risk Mortality due to Collision with Rotor Blades	x	✓	✓
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓	✓	✓
Disturbance and Displacement to Birds from Vessel Movements	x	x	x
Disturbance to Prey Species and Their Habitat	✓	✓	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓	✓	✓
Direct Impacts from UXO Clearance	x	x	✓
Indirect Impacts from Construction/Decommissioning Noise	✓	✓	✓

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.281 Of the impacts screened in for assessment (Table 3.7), both collision risk and distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Collision Risk Mortality due to Collision with Rotor Blades

- 5.7.282 Quantitative assessment was carried out for collision mortality due to the Array Area following the methodology described in Section 5.4, 'Impact 1: Collision Risk Mortality due to Collision with Rotor Blades' for kittiwake and gannet.
- 5.7.283 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values and methodology presented in Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).

5.7.284 The number of apportioned mortalities is presented in Table 5.85, with the change in survival rate presented in Table 5.86. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for gannet and kittiwake, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage (due to impacts to the aforementioned species) of Fair Isle SPA as a result of collision risk with respect to the O&M phase of the Proposed Development.

Table 5.85: Apportioned Mortalities due to Collision Risk During the O&M phase of the Proposed Development at Fair Isle SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Kittiwake (Option 1)	4.69	0.97 (0.100)	0.000	0.00	SM	0.895	0.599	0.002	0.00	0.00
					AM	0.34	0.579	0.002	0.00	
Kittiwake (Option 2)	37.59	0.972 (0.100)	0.009	0.01	SM	7.22	0.599	0.002	0.01	0.02
					AM	2.76	0.579	0.002	0.00	
Gannet	23.64	0.972 (0.100)	0.009	0.19	SM	0.37	0.659	0.032	0.01	0.21
					AM	1.04	0.531	0.025	0.01	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.86: Change in Survival Rate due to Collision Risk During the O&M Phase of the Proposed Development at Fair Isle SPA

Species	Model Option	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Kittiwake	1	896	0.00	0.000	No AEOSI
	2	896	0.02	0.002	No AEOSI
Gannet	1	9,942	0.21	0.002	No AEOSI

Distributional Responses due to Offshore Infrastructure

- 5.7.285 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure' for fulmar, kittiwake and gannet.
- 5.7.286 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.287 The number of apportioning mortalities is presented in Table 5.87, with the change in survival rate presented in Table 5.88. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for fulmar or gannet, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage of Fair Isle SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Table 5.87: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Fair Isle SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.067	0.06 to 0.16	Migration	0.87 to 1.73	0.599	0.086	0.04 to 0.09	0.14 to 0.32
					Winter	0.13 to 0.27	0.719	0.092	0.01 to 0.02	
Kittiwake	5 to 16	0.970 (0.100)	0.000	0.00 to 0.00	SM	0.53 to 2.13	0.599	0.002	0.00 to 0.00	0.00 to 0.01
					AM	0.47 to 1.87	0.579	0.002	0.00 to 0.00	
Gannet	4 to 13	0.972 (0.100)	0.009	0.03 to 0.10	SM	0.64 to 1.27	0.659	0.032	0.01 to 0.03	0.05 to 0.14
					AM	0.36 to 0.73	0.531	0.025	0.00 to 0.01	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.88: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Fair Isle SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	64,982	0.14 to 0.32	0.000 to 0.000	No AEOSI
Kittiwake	896	0.00 to 0.01	0.000 to 0.001	No AEOSI
Gannet	9,942	0.05 to 0.14	0.001 to 0.001	No AEOSI

Combined Impacts of Collision Risk and Distributional Responses

- 5.7.288 As kittiwake were assessed for both collision risk and distributional responses, the combined impact has been used to determine whether a PVA is required. It was found that 0.02 mortalities are expected to occur due to collision risk (Table 5.85) and 0.00 to 0.01 mortalities due to distributional responses (Table 5.87). Therefore, it is expected that a total of 0.02 to 0.03 kittiwake mortalities will occur due to the Proposed Development alone, equivalent to a decrease in survival rate of 0.003 to 0.003 percentage points.
- 5.7.289 When using Option 1 of the sCRM, the number of mortalities due to collision risk was reduced to 0.00 (Table 5.85) and the expected mortalities from collision risk and distributional responses is 0.00 to 0.01, equivalent to a decrease in survival rate of 0.001 to 0.001 percentage points.
- 5.7.290 As gannet were assessed for both collision risk and distributional responses, the combined impact has been used to determine whether a PVA is required. It was found that 0.21 mortalities are expected to occur due to collision risk (Table 5.85) and 0.05 to 0.14 mortalities due to distributional responses (Table 5.87). Therefore, it is expected that a total of 0.26 to 0.35 gannet mortalities will occur due to the Proposed Development alone, equivalent to a decrease in survival rate of 0.003 to 0.004 percentage points.
- 5.7.291 As the decrease in survival rate, due to collision risk and distributional responses, did not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for gannet, kittiwake or breeding seabird assemblage (due to impacts to the aforementioned species) it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage of Fair Isle SPA as a result of the combined impact of collision risk and distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

- 5.7.292 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to fulmar, gannet or kittiwake). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.293 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Fair Isle SPA due to the following impacts:
- collision risk mortality due to collision with rotor blades;
 - distributional responses due to offshore infrastructure; and
 - combined impacts of collision risk and distributional responses.

Qualitative Impacts

5.7.294 Of the impacts screened in for assessment, four impacts have been assessed qualitatively:

- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
- temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance');
- direct impacts from UXO clearance (Section 5.5, 'Impact 6: Direct Impacts from UXO Clearance'); and
- indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').

5.7.295 No site-specific qualitative assessments were required in order to address the impacts for the breeding seabird assemblage at Fair Isle SPA.

Conclusion for Qualitative Assessment

5.7.296 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to fulmar, gannet or kittiwake). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.

5.7.297 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Fair Isle SPA due to the following impacts:

- disturbance to prey species and their habitats;
- temporary habitat loss and/or habitat disturbance;
- direct impacts due to UXO clearance; and
- indirect impacts from construction/decommissioning noise.

5.7.298 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

5.7.299 As highlighted in Table 5.19, in-combination assessment was required for gannet.

Gannet

5.7.300 It was found that the Proposed Development alone resulted in 0.26 to 0.35 annual mortalities for gannet, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.89.

Table 5.89: Number of Mortalities Due to Collision Risk and Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Gannet at Fair Isle SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Collisions ¹			Displacement ²			Annual Consented Collisions + Displacement	Annual As-built Collisions + Displacement
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual		
Bowdun	0.19	0.02	0.21	0.03 to 0.10	0.02 to 0.04	0.05 to 0.14	0.26 to 0.35	0.26 to 0.35
Aberdeen	-	0.01	0.01	-	-	-	0.01	0.01
Aspen	0.07	0.02	0.09	0.05 to 0.15	-	0.05 to 0.15	0.14 to 0.24	0.14 to 0.24
Ayre	0.58	0.03	0.61	0.12 to 0.48	-	0.12 to 0.48	0.73 to 1.09	0.73 to 1.09
Beatrice	-	0.11 (0.06)	0.11 (0.06)	-	-	-	0.11	0.06
Berwick Bank	0.20	0.04	0.24	0.10 to 0.30	0.12 to 0.36	0.22 to 0.66	0.47 to 0.91	0.47 to 0.91
Blyth Demo	-	0.01	0.01	-	-	-	0.01	0.01
Buchan	0.19	0.01	0.20	0.13 to 0.37	-	0.13 to 0.37	0.33 to 0.57	0.33 to 0.57
Caledonia (North & South)	0.20	0.01	0.21	0.12 to 0.36	0.03 to 0.09	0.15 to 0.45	0.36 to 0.65	0.36 to 0.65
Cenos	0.40	0.02	0.42	0.04 to 0.12	0.02 to 0.07	0.06 to 0.19	0.48 to 0.61	0.48 to 0.61
Dogger Bank A and B	-	0.30	0.30	-	0.19 to 0.56	0.19 to 0.56	0.49 to 0.87	0.49 to 0.87
Dogger Bank C and Sofia	-	0.05	0.05	-	0.12 to 0.35	0.12 to 0.35	0.17 to 0.41	0.17 to 0.41
Dogger Bank South	-	0.05	0.05	-	0.22 to 0.66	0.22 to 0.66	0.27 to 0.70	0.27 to 0.70
Dudgeon	-	0.12 (0.05)	0.12 (0.05)	-	0.00 to 0.01	0.00 to 0.01	0.12 to 0.13	0.06 to 0.06
East Anglia One	-	0.19 (0.13)	0.19 (0.13)	-	0.24 to 0.72	0.24 to 0.72	0.43 to 0.91	0.37 to 0.85
East Anglia One North	-	0.03	0.03	-	0.04 to 0.11	0.04 to 0.11	0.06 to 0.13	0.06 to 0.13
East Anglia Three	-	0.07	0.07	-	0.15 to 0.44	0.15 to 0.44	0.21 to 0.50	0.21 to 0.50
East Anglia Two	-	0.06	0.06	-	0.08 to 0.24	0.08 to 0.24	0.14 to 0.30	0.14 to 0.30
Five Estuaries	-	0.03	0.03	-	0.05 to 0.16	0.05 to 0.16	0.08 to 0.19	0.08 to 0.19

Project	Collisions ¹			Displacement ²			Annual Consented Collisions + Displacement	Annual As-built Collisions + Displacement
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual		
Galloper	-	0.08 (0.04)	0.08 (0.04)	-	0.09 to 0.28	0.09 to 0.28	0.18 to 0.36	0.13 to 0.31
Greater Gabbard	-	0.03	0.03	-	0.02 to 0.05	0.02 to 0.05	0.05 to 0.08	0.04 to 0.08
Green Volt	0.30	0.01	0.31	0.03 to 0.09	0.01 to 0.03	0.04 to 0.12	0.35 to 0.43	0.35 to 0.43
Gunfleet Sands	-	0.00	0.00	-	0.00 to 0.01	0.00 to 0.01	0.00 to 0.01	0.00 to 0.01
Hornsea Four	-	0.02	0.02	-	0.10 to 0.30	0.10 to 0.30	0.12 to 0.32	0.12 to 0.32
Hornsea Project One	-	0.03	0.03	-	0.08 to 0.23	0.08 to 0.23	0.10 to 0.25	0.10 to 0.25
Hornsea Project Three	-	0.03	0.03	-	0.13 to 0.39	0.13 to 0.39	0.16 to 0.42	0.16 to 0.42
Hornsea Project Two	-	0.04	0.04	-	0.09 to 0.26	0.09 to 0.26	0.13 to 0.30	0.13 to 0.30
Humber Gateway	-	0.01 (0.00)	0.01 (0.00)	-	-	-	0.01	0.00
Inch Cape	-	0.02	0.02	-	0.07 to 0.22	0.07 to 0.22	0.10 to 0.25	0.10 to 0.25
Kentish Flats	-	0.02	0.02	-	-	-	0.02	0.02
Lincs	-	0.03	0.03	-	-	-	0.03	0.03
London Array	-	0.03 (0.01)	0.03 (0.01)	-	-	-	0.03	0.01
Moray East	-	0.08	0.08	-	0.03 to 0.08	0.03 to 0.08	0.11 to 0.16	0.11 to 0.16
Moray West	-	0.01	0.01	-	0.05 to 0.14	0.05 to 0.14	0.05 to 0.15	0.05 to 0.15
Muir Mhor	0.10	0.01	0.11	0.05 to 0.14	0.06 to 0.17	0.10 to 0.30	0.21 to 0.41	0.21 to 0.41
Neart na Gaoithe	-	0.03	0.03	-	0.07 to 0.20	0.07 to 0.20	0.10 to 0.24	0.10 to 0.24
Norfolk Boreas	-	0.04	0.04	-	0.17 to 0.52	0.17 to 0.52	0.22 to 0.56	0.22 to 0.56
Norfolk Vanguard	-	0.06	0.06	-	0.21 to 0.63	0.21 to 0.63	0.27 to 0.69	0.27 to 0.69
North Falls	-	0.02	0.02	-	0.04 to 0.13	0.04 to 0.13	0.06 to 0.15	0.06 to 0.15
Ossian	0.30	0.01	0.31	0.10 to 0.30	0.07 to 0.20	0.17 to 0.50	0.48 to 0.82	0.48 to 0.82
Outer Dowsing	-	0.01	0.01	-	0.07 to 0.20	0.07 to 0.20	0.07 to 0.21	0.07 to 0.21

Project	Collisions ¹			Displacement ²			Annual Consented Collisions + Displacement	Annual As-built Collisions + Displacement
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual		
Pentland	-	-	-	0.03 to 0.09	0.00 to 0.01	0.03 to 0.10	0.03 to 0.10	0.03 to 0.10
Race Bank	-	0.03 (0.02)	0.03 (0.02)	-	0.01 to 0.02	0.01 to 0.02	0.04 to 0.05	0.02 to 0.03
Rampion	-	0.09 (0.06)	0.09 (0.06)	-	0.04 to 0.11	0.04 to 0.11	0.13 to 0.20	0.10 to 0.17
Rampion 2	-	0.02	0.02	-	0.02 to 0.07	0.02 to 0.07	0.05 to 0.09	0.05 to 0.09
Salamander	-	0.01	0.01	0.00 to 0.01	0.03 to 0.09	0.03 to 0.10	0.04 to 0.11	0.04 to 0.11
Seagreen (1 & 1A)	-	0.08	0.08	-	0.08 to 0.24	0.08 to 0.24	0.16 to 0.32	0.16 to 0.32
Sheringham Shoal Extension & Dudgeon Extension	-	0.01	0.01	-	0.05 to 0.14	0.05 to 0.14	0.05 to 0.15	0.05 to 0.15
Sheringham Shoal	-	0.02	0.02	-	0.00 to 0.01	0.00 to 0.01	0.02 to 0.03	0.02 to 0.03
Triton Knoll	-	0.19 (0.07)	0.19 (0.07)	-	0.00 to 0.01	0.00 to 0.01	0.19 to 0.20	0.07 to 0.08
West of Orkney	-	0.03	0.03	-	0.11 to 0.33	0.11 to 0.33	0.14 to 0.36	0.14 to 0.36
Total	2.53	2.28 (1.87)	4.80 (4.39)	0.80 to 2.51	3.06 to 9.14	3.86 to 11.65	8.66 to 16.46	8.25 to 16.04
Total excluding Berwick Bank	2.34	2.23 (1.82)	4.56 (4.15)	0.70 to 2.21	2.94 to 8.77	3.64 to 10.99	8.20 to 15.55	7.78 to 15.13
Total excluding Bowdun	2.34	2.26 (1.84)	4.59 (4.18)	0.76 to 2.41	3.04 to 9.10	3.81 to 11.51	8.40 to 16.11	7.99 to 15.69

¹ The number of mortalities due to ‘consented’ collisions are presented, with the number of ‘as-built’ collisions presented in parentheses where relevant.

² Low and high displacement scenarios are presented in Table 5.3

5.7.301 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank and using consented and as-built collisions (Table 5.90).

Table 5.90: In-combination PVA Results for Gannet, Impacted by Collision Risk and Distributional Responses, at Fair Isle SPA (initial population size: 9,942 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Berwick Bank Offshore Wind Farm included or excluded	Displacement Scenario	Baseline Median Population Size (Breeding Adults)	Impacted Median Population Size (Breeding Adults)	Counterfactual Growth Rate (CGR)	Counterfactual Population Size (CPS)
‘Consented’ mortalities					
Including Berwick Bank	Low	12,984	12,589	0.999 (0.998 to 1.000)	0.969 (0.923 to 1.018)
	High		12,241	0.998 (0.997 to 0.999)	0.942 (0.898 to 0.988)
Excluding Berwick Bank	Low		12,596	0.999 (0.998 to 1.000)	0.970 (0.924 to 1.020)
	High		12,284	0.998 (0.997 to 1.000)	0.945 (0.899 to 0.992)
‘As-built’ mortalities					
Including Berwick Bank	Low	12,984	12,602	0.999 (0.998 to 1.000)	0.970 (0.924 to 1.019)
	High		12,258	0.998 (0.997 to 0.999)	0.943 (0.898 to 0.990)
Excluding Berwick Bank	Low		12,623	0.999 (0.998 to 1.000)	0.972 (0.925 to 1.021)
	High		12,289	0.998 (0.997 to 1.000)	0.946 (0.902 to 0.994)

5.7.302 Using consented mortalities (Table 5.90), it was found that under all scenarios the CGR was greater or equal to 0.998, indicating that the growth rate of the gannet is unlikely to decrease by more than 0.2%. The population size was found to increase under all scenarios and the CPS, after 30 years, ranged from 0.942 to 0.970.

5.7.303 When accounting for as-built corrections, it was found the median CGR was unchanged when compared to the corresponding consented scenario. Moreover, the median CPS also showed little difference with the largest difference (0.002 or 0.2%) recorded for the low displacement scenario excluding Berwick Bank.

- 5.7.304 A comparison of the Seabird 2000 and Seabirds Count censuses found that the gannet population at Fair Isle SPA has increased by 165% (Burnell *et al.*, 2023), with most recent census count of 4,971 AON more than double the citation population (1,166 AON). Surveys carried out by Tremblett *et al.* (2024) found that population sizes decreased by 3%, suggesting that HPAI has had a relatively small negative impact on the gannet population.
- 5.7.305 Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined. It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Fair Isle SPA on gannet including or excluding Berwick Bank.

Farne Islands SPA

- 5.7.306 Farne Islands SPA is a group of islands 2 km to 6 km off the coast of Northumberland in north-east England and is located approximately 140.24 km from the Array Area. The SPA was first classified in 1985. The surrounding marine environment is protected by the Northumberland Marine SPA, classified in 2017 (Natural England, ND).
- 5.7.307 The conservation objectives have been determined by Natural England, as presented in Paragraphs 5.3.8 to 5.3.10.
- 5.7.308 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.91.

Table 5.91: The Relevant Features and Impacts Included Within the Assessment for Farne Islands SPA

Impact	Kittiwake ¹	Arctic tern ²	Puffin ¹
Collision Risk Mortality due to Collision with Rotor Blades	✓	✓	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓	x	✓
Disturbance and Displacement to Birds from Vessel Movements	x	x	x
Disturbance to Prey Species and Their Habitat	✓	✓	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓	✓	✓
Direct Impacts from UXO Clearance	x	x	✓
Indirect Impacts from Construction/Decommissioning Noise	✓	✓	✓

¹ Named component of the seabird assemblage only.

² Qualifying Feature and named component of the seabird assemblage only.

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.309 Of the impacts screened in for assessment (Table 3.7), both collision risk and distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 61.

Collision Risk Mortality due to Collision with Rotor Blades

- 5.7.310 Quantitative assessment was carried out for collision mortality due to the Array Area following the methodology described in Section 5.4, 'Impact 1: Collision Risk Mortality due to Collision with Rotor Blades' for Arctic tern and kittiwake.
- 5.7.311 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values and methodology presented in Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.312 The number of apportioned mortalities is presented in Table 5.92, with the change in survival rate presented in Table 5.93. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for Arctic tern or kittiwake, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the Arctic tern feature or breeding seabird assemblage of Farne Islands SPA as a result of collision risk with respect to the O&M phase of the Proposed Development.

Table 5.92: Apportioned Mortalities due to Collision Risk During the O&M phase of the Proposed Development at Farne Islands SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ²	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Kittiwake (Option 1)	4.69	0.970 (0.100)	0.013	0.06	SM	0.90	0.599	0.009	0.01	0.06
					AM	0.34	0.579	0.008	0.00	
Kittiwake (Option 2)	37.59			0.44	SM	7.22	0.599	0.009	0.04	0.50
					AM	2.76	0.579	0.008	0.01	
Arctic tern¹	-	-	-	-	-	0.19	0.707	0.033	0.00	0.00

¹ Species assessed during the non-breeding season only

² SM = Spring Migration; AM = Autumn Migration

Table 5.93: Change in Survival Rate due to Collision Risk During the O&M Phase of the Proposed Development at Farne Islands SPA

Species	Model Option	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Kittiwake	1	8,804	0.06	0.001	No AEOSI
	2		0.50	0.006	No AEOSI
Arctic tern¹	2	3,420	0.00	0.000	No AEOSI

¹ Species assessed during the non-breeding season only

Distributional Responses due to Offshore Infrastructure

- 5.7.313 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure' for kittiwake and puffin
- 5.7.314 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.315 The number of apportioning mortalities is presented in Table 5.94, with the change in survival rate presented in Table 5.95. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake or puffin, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage of Farne Islands SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Table 5.94: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Farne Islands SPA
(Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Kittiwake	5 to 16	0.970 (0.100)	0.013	0.06 to 0.19	SM	0.53 to 2.13	0.599	0.009	0.00 to 0.01	0.06 to 0.21
					AM	0.47 to 1.87	0.579	0.008	0.00 to 0.01	
Puffin ¹	7 to 11	0.463 (0.070)	0.301	0.91 to 1.42	-	-	-	-	-	0.91 to 1.42

¹ Species assessed during the breeding season only

² SM = Spring Migration; AM = Autumn Migration

Table 5.95: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Farne Islands SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Kittiwake	8,804	0.06 to 0.21	0.001 to 0.002	No AEOSI
Puffin ¹	87,504	0.91 to 1.42	0.001 to 0.002	No AEOSI

¹ Species assessed during the breeding season only

Combined Impacts of Collision Risk and Distributional Responses

- 5.7.316 As kittiwake were assessed for both collision risk and distributional responses, the combined impact has been used to determine whether a PVA is required. It was found that 0.50 mortalities are expected to occur due to collision risk (Table 5.92) and 0.06 to 0.21 mortalities due to distributional responses (Table 5.94). Therefore, it is expected that a total of 0.56 to 0.70 kittiwake mortalities will occur due to the Proposed Development alone, equivalent to a decrease in survival rate of 0.006 to 0.008 percentage points.
- 5.7.317 When using Option 1 of the sCRM, the number of mortalities due to collision risk was reduced to 0.06 (Table 5.92) and the expected mortalities from collision risk and distributional responses is reduced to 0.13 to 0.27, equivalent to a decrease in survival rate of 0.001 to 0.003 percentage points.
- 5.7.318 As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage feature (due to impacts to kittiwake) of Farne Islands SPA as a result of collision risk and distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

- 5.7.319 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the Arctic tern or breeding seabird assemblage (due to impacts to Arctic tern, kittiwake or puffin) features. Therefore, it is expected that the population and distribution of the features will be maintained, so the conservation objectives of the SPA will not be undermined.
- 5.7.320 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Farne Islands SPA due to the following impacts:
- collision risk mortality due to collision with rotor blades;
 - distributional responses due to offshore infrastructure; and
 - combined impacts of collision risk and distributional responses.

Qualitative Impacts

- 5.7.321 Of the impacts screened in for assessment, four impacts have been assessed qualitatively:
- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
 - temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance');
 - direct impacts from UXO clearance (Section 5.5, 'Impact 6: Direct Impacts from UXO Clearance'); and

- indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').

5.7.322 No site-specific qualitative assessments were required in order to address the impacts for Arctic tern feature or breeding seabird assemblage of Farne Islands SPA.

Conclusion for Qualitative Assessment

5.7.323 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the Arctic tern or breeding seabird assemblage (due to impacts to Arctic tern, kittiwake or puffin) features. Therefore, it is expected that the population and distribution of the features will be maintained, so the conservation objectives of the SPA will not be undermined.

5.7.324 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Farne Islands SPA due to the following impacts:

- disturbance to prey species and their habitats;
- temporary habitat loss and/or habitat disturbance;
- direct impacts due to UXO clearance; and
- indirect impacts from construction/decommissioning noise.

5.7.325 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

5.7.326 As highlighted in Table 5.19, in-combination assessment was required for kittiwake and puffin.

Kittiwake

5.7.327 It was found that the Proposed Development alone resulted in 0.13 to 0.27 and 0.56 to 0.70 annual mortalities for kittiwake using Option 1 and 2 of the sCRM respectively, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.96.

5.7.328 Although the RIAA for MarramWind was not available at the time of data analysis, it should be noted that MarramWind was found to contribute 0.33 to 0.39 mortalities (MarramWind, 2026), which is equivalent to a 0.7% increase in mortalities for the high mortality displacement (using Option 2 sCRM) scenario. The inclusion of MarramWind is not expected to change the conclusions drawn.

Table 5.96: Number of Mortalities Due to Collision Risk and Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Kittiwake at Farne Islands SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Bowdun (Option 1)	0.06	0.01	0.06	0.06 to 0.19	0.01 to 0.02	0.06 to 0.21	0.13 to 0.27	0.13 to 0.27
Bowdun (Option 2)	0.44	0.05	0.50	0.06 to 0.19	0.01 to 0.02	0.06 to 0.21	0.56 to 0.70	0.56 to 0.70
Aberdeen	-	0.02	0.02	-	-	-	0.02	0.02
Aspen	0.02	0.02	0.04	0.00 to 0.01	0.00 to 0.01	0.00 to 0.02	0.04 to 0.06	0.04 to 0.06
Ayre	-	0.07	0.07	-	0.01 to 0.04	0.01 to 0.04	0.08 to 0.11	0.09 to 0.11
Beatrice	-	0.18 (0.10)	0.18 (0.10)	-	0.04 to 0.11	0.04 to 0.11	0.22 to 0.29	0.14 to 0.21
Berwick Bank	17.60	1.54	19.14	2.50 to 7.50	0.43 to 1.28	2.93 to 8.78	22.07 to 27.92	22.07 to 27.92
Blyth Demo	-	0.01	0.01	-	0.03 to 0.08	0.03 to 0.08	0.04 to 0.09	0.04 to 0.09
Buchan	0.02	0.03 (0.02)	0.06 (0.04)	-	0.01 to 0.02	0.01 to 0.02	0.06 to 0.08	0.05 to 0.06
Caledonia (North & South)	-	0.07	0.07	0.01 to 0.03	0.01 to 0.03	0.02 to 0.06	0.09 to 0.13	0.09 to 0.13
Cenos	0.23	0.03	0.26	0.02 to 0.06	0.00 to 0.00	0.02 to 0.06	0.28 to 0.32	0.28 to 0.32
Dogger Bank A and B	-	1.53	1.53	-	0.32 to 0.97	0.32 to 0.97	1.85 to 2.50	1.86 to 2.50
Dogger Bank C and Sofia	-	1.09 (1.10)	1.09 (1.10)	-	0.24 to 0.72	0.24 to 0.72	1.33 to 1.81	1.34 to 1.81
Dogger Bank South	3.80	1.03	4.83	0.59 to 1.77	0.32 to 0.96	0.91 to 2.73	5.74 to 7.55	5.74 to 7.56
East Anglia One	-	0.7 (0.48)	0.7 (0.48)	-	0.03 to 0.10	0.03 to 0.10	0.74 to 0.80	0.51 to 0.57

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
East Anglia One North	-	0.05	0.05	-	0.01 to 0.03	0.01 to 0.03	0.06 to 0.08	0.06 to 0.08
East Anglia Three	-	0.30	0.30	-	0.08 to 0.24	0.08 to 0.24	0.38 to 0.54	0.38 to 0.54
East Anglia Two	-	0.05	0.05	-	0.01 to 0.02	0.01 to 0.02	0.06 to 0.08	0.06 to 0.08
Five Estuaries	-	0.11 (0.12)	0.11 (0.12)	-	0.01 to 0.04	0.01 to 0.04	0.13 to 0.16	0.13 to 0.16
Galloper	-	0.21 (0.09)	0.21 (0.09)	-	-	-	0.21	0.09
Greater Gabbard	-	0.09	0.09	-	-	-	0.09	0.09
Green Volt	0.10	0.05	0.15	0.01 to 0.02	0.00 to 0.01	0.01 to 0.03	0.16 to 0.18	0.16 to 0.18
Hornsea One	-	0.06 (0.03)	0.06 (0.03)	-	0.55 to 1.65	0.55 to 1.65	0.62 to 1.72	0.58 to 1.68
Hornsea Project Four	-	0.08	0.08	-	0.11 to 0.32	0.11 to 0.32	0.18 to 0.40	0.18 to 0.40
Hornsea Project Three	-	0.29	0.29	-	0.11 to 0.33	0.11 to 0.33	0.40 to 0.61	0.40 to 0.61
Hornsea Project Two	-	0.04	0.04	-	0.06 to 0.18	0.06 to 0.18	0.10 to 0.22	0.10 to 0.22
Humber Gateway	-	0.02 (0.01)	0.02 (0.01)	-	-	-	0.02	0.01
Hywind	-	0.01	0.01	-	-	-	0.01	0.01
Inch Cape	-	0.13	0.13	-	0.04 to 0.11	0.04 to 0.11	0.17 to 0.24	0.17 to 0.24
Kentish Flats	-	0.01	0.01	-	-	-	0.01	0.01
Kentish Flats Extension	-	0.01	0.01	-	-	-	0.01	0.01
Kincardine	-	0.03	0.03	-	-	-	0.03	0.03
Lincs	-	0.01	0.01	-	-	-	0.01	0.01
London Array	-	0.01	0.01	-	-	-	0.01	0.01
Moray East	-	0.03	0.03	-	-	-	0.03	0.03

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Moray West	-	0.13	0.13	-	0.04 to 0.13	0.04 to 0.13	0.17 to 0.26	0.17 to 0.26
Muir Mhor	0.34	0.05	0.39	0.05 to 0.16	0.01 to 0.04	0.07 to 0.20	0.46 to 0.60	0.46 to 0.60
Neart na Gaoithe	-	0.08	0.08	-	0.04 to 0.11	0.04 to 0.11	0.12 to 0.19	0.12 to 0.19
Norfolk Boreas	-	0.18	0.18	-	0.06 to 0.18	0.06 to 0.18	0.24 to 0.36	0.24 to 0.37
Norfolk Vanguard	-	0.15	0.15	-	0.04 to 0.11	0.04 to 0.11	0.19 to 0.26	0.19 to 0.26
North Falls	-	0.09	0.09	-	0.02 to 0.07	0.02 to 0.07	0.11 to 0.15	0.11 to 0.15
Ossian	1.10	0.07	1.17	0.35 to 1.06	0.02 to 0.06	0.37 to 1.11	1.54 to 2.28	1.54 to 2.28
Outer Dowsing	0.30	0.10	0.40	-	0.12 to 0.36	0.12 to 0.36	0.52 to 0.75	0.52 to 0.75
Pentland	-	-	-	-	0.00 to 0.01	0.00 to 0.01	0.01 to 0.01	0.01 to 0.01
Race Bank	-	0.10 (0.06)	0.10 (0.06)	-	-	-	0.10	0.06
Salamander	0.07	-	0.07	0.05 to 0.16	0.00 to 0.01	0.06 to 0.17	0.06 to 0.17	0.13 to 0.24
Seagreen	-	0.92	0.92	-	0.08 to 0.23	0.08 to 0.23	0.08 to 0.23	1.00 to 1.15
Sheringham Shoal Extension and Dudgeon Extension	-	0.03	0.03	-	0.05 to 0.14	0.05 to 0.14	0.05 to 0.14	0.08 to 0.17
Teesside	-	0.09 (0.08)	0.09 (0.08)	-	-	-	0.09	0.08
Triton Knoll	-	0.63 (0.23)	0.63 (0.23)	-	0.01 to 0.03	0.01 to 0.03	0.64 to 0.66	0.24 to 0.26
West of Orkney	-	0.22	0.22	-	0.03 to 0.10	0.03 to 0.10	0.25 to 0.32	0.25 to 0.32
Option 1								
Total	23.64	10.77 (9.83)	34.41 (33.47)	3.64 to 10.96	2.95 to 8.86	6.60 to 19.81	41.01 to 54.22	40.06 to 53.28

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Total excluding Berwick Bank	6.04	9.23 (8.28)	15.26 (14.32)	1.14 to 3.46	2.51 to 7.54	3.66 to 11.00	18.92 to 26.26	17.98 to 25.32
Total excluding Bowdun	23.58	10.76 (9.82)	34.35 (33.40)	3.59 to 10.77	2.95 to 8.84	6.53 to 19.61	40.88 to 53.95	39.93 to 53.01
Option 2								
Total	24.02	10.82 (9.88)	34.84 (33.90)	3.64 to 10.96	2.95 to 8.86	6.60 to 19.81	41.44 to 54.65	40.49 to 53.71
Total excluding Berwick Bank	6.42	9.27 (8.33)	15.70 (14.75)	1.14 to 3.46	2.51 to 7.54	3.66 to 11.00	19.35 to 26.69	18.41 to 25.75
Total excluding Bowdun	23.58	10.76 (9.82)	34.35 (33.40)	3.59 to 10.77	2.95 to 8.84	6.53 to 19.61	40.88 to 53.95	39.93 to 53.01

¹ The number of mortalities due to ‘consented’ collisions are presented, with the number of ‘as-built’ collisions presented in parentheses where relevant.

² Low and high displacement scenarios are presented in Table 5.3

5.7.329 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank and using consented and as-built collisions (Table 5.97).

Table 5.97: In-combination PVA Results for Kittiwake, Impacted by Collision Risk (Option 2) and Distributional Responses, at Farne Islands SPA (initial population size: 8,804 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Berwick Bank Offshore Wind Farm included or excluded	Displacement Scenario	Baseline Median Population Size (Breeding Adults)	Impacted Median Population Size (Breeding Adults)	Counterfactual Growth Rate (CGR)	Counterfactual Population Size (CPS)
‘Consented’ mortalities					
Including Berwick Bank	Low	15,960	13,399	0.994 (0.993 to 0.996)	0.841 (0.790 to 0.894)
	High		12,644	0.993 (0.991 to 0.994)	0.795 (0.747 to 0.847)
Excluding Berwick Bank	Low		14,683	0.997 (0.996 to 0.999)	0.923 (0.868 to 0.979)
	High		14,235	0.996 (0.995 to 0.998)	0.894 (0.842 to 0.950)
‘As-built’ mortalities					
Including Berwick Bank	Low	15,960	13,432	0.995 (0.993 to 0.996)	0.844 (0.793 to 0.897)
	High		12,714	0.993 (0.991 to 0.994)	0.798 (0.750 to 0.850)
Excluding Berwick Bank	Low		14,724	0.998 (0.996 to 0.999)	0.925 (0.869 to 0.985)
	High		14,265	0.997 (0.995 to 0.998)	0.898 (0.844 to 0.958)

5.7.330 Using consented mortalities (Table 5.97), it was found that under all scenarios the CGR was greater or equal to 0.993, indicating that the growth rate of the kittiwake is unlikely to decrease by more than 0.7%. The population size was found to increase under all scenarios and the CPS, after 30 years, ranged from 0.795 to 0.923, indicating a maximum decrease of 20.5% in population size.

5.7.331 When accounting for as-built corrections, it was found that the impact to the growth rate decreased by no more than 0.1% for all scenarios modelled. Moreover, the median CPS also showed little difference with the largest difference recorded being 0.004, or 0.4%.

5.7.332 A comparison of the most recent seabird censuses found that the kittiwake population at Farne Islands SPA has shown a long-term decrease in size, with a 14% decrease recorded between the Seabird 2000 and Seabirds Count censuses (Burnell *et al.*, 2023). Furthermore, it has also been shown that the HPAI outbreak is likely to have further impacted the population with Tremlett *et al.* (2024) recording a decrease of 14% at the SPA.

5.7.333 Additionally, PVA run using site-specific flight height data shows that impacts to the growth rate are unchanged and impacts to the population size are expected to decrease by no more than 0.3% (presented in Table 3.5 of Appendix 3B: Offshore Ornithology Special Protection Area Population Viability Analysis Technical Report (TWP-BOW-RPS-ENV-RPT-00027)). Therefore, using site-specific sCRM (Option 1) is unlikely to impact the conclusions for AEOSI.

5.7.334 Due to the decrease in population between censuses and following the HPAI outbreak and given the relatively large impact on growth rate (up to 0.7%) and population size (up to 20.5%), adverse effects due to impacts to kittiwake of Farne Islands SPA **could not be ruled out** including or excluding Berwick Bank.

Puffin

5.7.335 It was found that the Proposed Development alone resulted in 0.91 to 1.42 annual mortalities for puffin, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.98.

Table 5.98: Number of Mortalities Due to Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Puffin at Farne Islands SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Breeding Season	
	Low ²	High
Bowdun	0.91	1.42
Aspen	1.07	1.78
Berwick Bank	12.84	21.40
Cenos	0.91	1.52
Dogger Bank South	1.61	2.68
Inch Cape	2.54	4.23
Muir Mhor ¹	4.20	4.20
Neart na Gaoithe	1.91	3.18
Ossian	7.23	12.05
Salamander	1.48	2.47
Seagreen	9.09	15.15
Total	43.78	70.07
Total excluding Berwick Bank	30.94	48.67
Total excluding Bowdun	42.87	68.65

¹ Values calculated using SeabORD

² Low and high displacement scenarios are presented in Table 5.3

5.7.336 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank (Table 5.99).

Table 5.99: In-combination PVA Results for Puffin, Impacted by Distributional Responses, at Farne Islands SPA (initial population size: 87,504 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Baseline Simulated Population Size	Impact Scenario	Impacted Simulated Population Size	Median Counterfactual (CI)	
			Growth Rate	Population Size
Including Berwick Bank				
13,969	Low	13,678	0.999 (0.998 to 1.001)	0.982 (0.946 to 1.019)
	High	13,542	0.999 (0.998 to 1.000)	0.970 (0.934 to 1.008)
Excluding Berwick Bank				
13,969	Low	13,776	1.000 (0.998 to 1.001)	0.987 (0.951 to 1.025)
	High	13,685	0.999 (0.998 to 1.000)	0.980 (0.943 to 1.017)

5.7.337 It was found that under all scenarios the CGR was greater or equal to 0.999, indicating that the growth rate of the puffin is unlikely to decrease by more than 0.1% (Table 5.99). The population size was found to increase under all scenarios. However, the CPS, after 30 years, was found to range from 0.970 to 0.987 indicating a maximum decrease in population size of just 3.0%.

5.7.338 A comparison of the most recent seabird censuses found that the puffin population at Farne Islands SPA has shown a long-term decrease in size, with a 21% decrease recorded between the Seabird 2000 and Seabirds Count censuses (Burnell *et al.*, 2023). However, as puffin have not been included within HPAI surveys by Tremlett *et al.* (2024), there is little evidence on the possible impact.

5.7.339 Therefore, it is expected that the population and distribution of the features will be maintained, so the conservation objectives of the SPA will not be undermined. It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Farne Islands SPA on puffin including or excluding Berwick Bank.

Fetlar SPA

5.7.340 Fetlar SPA is an island in the Shetland group, lying to the east and south respectively of the larger islands of Yell and Unst, and is located approximately 441.65 km from the Array Area. The SPA boundary overlaps with North Fetlar SSSI, Lamb Hoga SSSI and Trona Mires SSSI and extends approximately 2 km into the marine environment. The SPA was classified in 1994, with the marine extension classified in 2009 (NatureScot, ND).

5.7.341 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.

5.7.342 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.100.

Table 5.100: The Relevant Components of the Breeding Seabird Assemblage and Impacts Included Within the Assessment for Fetlar SPA

Impact	Fulmar
Collision Risk Mortality due to Collision with Rotor Blades	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓
Disturbance and Displacement to Birds from Vessel Movements	x
Disturbance to Prey Species and Their Habitat	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓
Direct Impacts from UXO Clearance	x
Indirect Impacts from Construction/Decommissioning Noise	✓

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.343 Of the impacts screened in for assessment (Table 3.7), only distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Distributional Responses due to Offshore Infrastructure

- 5.7.344 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure'.
- 5.7.345 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.346 The number of apportioned mortalities is presented in Table 5.101, with the change in survival rate presented in Table 5.102. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g), it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the fulmar feature of Fetlar SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

- 5.7.347 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to fulmar). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.

5.7.348 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Fetlar SPA due to the following impacts:

- distributional responses due to offshore infrastructure.

Qualitative Impacts

5.7.349 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:

- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
- temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance'); and
- indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').

5.7.350 No site-specific qualitative assessments were required in order to address the impacts for fulmar at Fetlar SPA.

Conclusion for Qualitative Assessment

5.7.351 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to fulmar). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.

5.7.352 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Fetlar SPA due to the following impacts:

- disturbance to prey species and their habitats;
- temporary habitat loss and/or habitat disturbance; and
- indirect impacts from construction/decommissioning noise.

5.7.353 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

Table 5.101: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Fetlar SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.010	0.01 to 0.02	Migration	0.87 to 1.73	0.599	0.026	0.01 to 0.03	0.03 to 0.06
					Winter	0.13 to 0.27	0.719	0.062	0.01 to 0.01	

Table 5.102: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Fetlar SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	18,354	0.03 to 0.06	0.000 to 0.000	No AEOSI

In-combination Assessment

- 5.7.354 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar, no in-combination assessment was required for Fetlar SPA.

Flamborough and Filey Coast SPA

- 5.7.355 Flamborough and Filey Coast SPA is strip of cliffs and hinterland between Bridlington and Scarborough and is located approximately 300.38 km from the Array Area. The SPA boundary extends approximately 2 km into the marine environment (Natural England, ND). The site was renamed Flamborough and Bempton Cliffs SPA at the same time the marine extension was classified in 2018.
- 5.7.356 The conservation objectives have been determined by Natural England, as presented in Paragraphs 5.3.8 to 5.3.10.
- 5.7.357 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.103.

Table 5.103: The Relevant Features and Impacts Included Within the Assessment for Flamborough and Filey Coast SPA

Impact	Fulmar ¹	Gannet ²	Kittiwake ²	Razorbill ²
Collision Risk Mortality due to Collision with Rotor Blades	x	✓	✓	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓	✓	✓	✓
Disturbance and Displacement to Birds from Vessel Movements	x	x	x	✓
Disturbance to Prey Species and Their Habitat	✓	✓	✓	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓	✓	✓	✓
Direct Impacts from UXO Clearance	x	✓	x	✓
Indirect Impacts from Construction/Decommissioning Noise	✓	✓	✓	✓

¹ Named component of the seabird assemblage only.

² Qualifying feature and named component of the seabird assemblage.

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.358 Of the impacts screened in for assessment (Table 3.7), both collision risk and distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Collision Risk Mortality due to Collision with Rotor Blades

- 5.7.359 A quantitative assessment was carried out for collision mortality due to the Array Area following the methodology described in Section 5.4, 'Impact 1: Collision Risk Mortality due to Collision with Rotor Blades' for kittiwake and gannet.

- 5.7.360 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values and methodology presented in Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.361 The number of apportioned mortalities is presented in Table 5.104, with the change in survival rate presented in Table 5.105. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for gannet or kittiwake, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the kittiwake, gannet or breeding seabird assemblage (due to impacts to the aforementioned species) features of Flamborough and Filey Coast SPA as a result of collision risk with respect to the O&M phase of the Proposed Development.

Table 5.104: Apportioned Mortalities due to Collision Risk During the O&M phase of the Proposed Development at Flamborough and Filey Coast SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Kittiwake (Option 1)	4.69	0.970 (0.100)	0.032	0.13	SM	0.90	0.599	0.104	0.06	0.20
					AM	0.34	0.579	0.086	0.02	
Kittiwake (Option 2)	37.59			1.04	SM	7.22	0.599	0.104	0.45	1.63
					AM	2.76	0.579	0.086	0.14	
Gannet	23.64	0.972 (0.100)	0.027	0.000	SM	0.37	0.659	0.091	0.02	0.63
					AM	1.04	0.531	0.084	0.05	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.105: Change in Survival Rate due to Collision Risk During the O&M Phase of the Proposed Development at Flamborough and Filey Coast SPA

Species	Model Option	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Kittiwake	1	91,008	0.20	0.000	No AEOSI
	2		1.63	0.002	No AEOSI
Gannet	2	26,784	0.63	0.002	No AEOSI

Distributional Responses due to Offshore Infrastructure

- 5.7.362 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure' for kittiwake, gannet, razorbill and fulmar.
- 5.7.363 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.364 The number of apportioning mortalities is presented in Table 5.106, with the change in survival rate presented in Table 5.107. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for any species assessed, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the gannet, kittiwake, razorbill or breeding seabird assemblage (due to impacts to the aforementioned species and fulmar) features of Flamborough and Filey Coast SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Table 5.106: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Flamborough and Filey Coast SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ²	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.002	0.00 to 0.01	Migration	0.87 to 1.73	0.599	0.003	0.00 to 0.00	0.00 to 0.01
					Winter	0.13 to 0.27	0.719	0.003	0.00 to 0.00	
Kittiwake	5 to 16	0.970 (0.100)	0.032	0.14 to 0.44	SM	0.53 to 2.13	0.599	0.104	0.03 to 0.13	0.20 to 0.67
					AM	0.47 to 1.87	0.579	0.086	0.02 to 0.09	
Gannet	4 to 13	0.972 (0.100)	0.027	0.10 to 0.31	SM	0.64 to 1.27	0.659	0.091	0.04 to 0.08	0.15 to 0.42
					AM	0.36 to 0.73	0.531	0.084	0.02 to 0.03	
Razorbill ¹	-	-	-	-	Migration	2.93 to 9.53	0.511	0.057	0.08 to 0.28	0.10 to 0.33
					Winter	1.07 to 3.47	0.486	0.034	0.02 to 0.06	

¹ Species only assessed during the non-breeding season

² SM = Spring Migration; AM = Autumn Migration

Table 5.107: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Flamborough and Filey Coast SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	1,692	0.00 to 0.01	0.000 to 0.001	No AEOSI
Kittiwake	91,008	0.20 to 0.67	0.000 to 0.001	No AEOSI
Gannet	26,784	0.15 to 0.42	0.001 to 0.002	No AEOSI
Razorbill	37,476	0.10 to 0.33	0.000 to 0.001	No AEOSI

Combined Impacts of Collision Risk and Distributional Responses

- 5.7.365 As kittiwake were assessed for both collision risk and distributional responses, the combined impact has been used to determine whether a PVA is required. It was found that 1.63 mortalities are expected to occur due to collision risk (Table 5.104) and 0.20 to 0.67 mortalities due to distributional responses (Table 5.106). Therefore, it is expected that a total of 1.83 to 2.30 kittiwake mortalities will occur due to the Proposed Development alone, equivalent to a decrease in survival rate of 0.002 to 0.003 percentage points.
- 5.7.366 When using Option 1 of the sCRM, the number of mortalities due to collision risk was reduced to 0.20 (Table 5.104) and the expected mortalities from collision risk and distributional responses is reduced to 0.40 to 0.87 equivalent to a decrease in survival rate of 0.000 to 0.001 percentage points.
- 5.7.367 As gannet were assessed for both collision risk and distributional responses, the combined impact has been used to determine whether a PVA is required. It was found that 0.63 mortalities are expected to occur due to collision risk (Table 5.104) and 0.15 to 0.42 mortalities due to distributional responses (Table 5.105). Therefore, it is expected that a total of 0.78 to 1.05 gannet mortalities will occur due to the Proposed Development alone, equivalent to a decrease in survival rate of 0.003 to 0.004 percentage points.
- 5.7.368 As the decrease in survival rate, due to collision risk and distributional responses, does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for both kittiwake and gannet it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the gannet, kittiwake or the breeding seabird assemblage (due to impacts to the aforementioned species) features of Flamborough and Filey Coast SPA as a result of the combined impact of collision risk and distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

- 5.7.369 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the gannet, kittiwake, razorbill and breeding seabird assemblage (due to impacts to the aforementioned species and fulmar) features. Therefore, it is expected that the population and distribution of the features will be maintained, so the conservation objectives of the SPA will not be undermined.
- 5.7.370 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Flamborough and Filey Coast SPA due to the following impacts:
- collision risk mortality due to collision with rotor blades;
 - distributional responses due to offshore infrastructure; and
 - combined impacts of collision risk and distributional responses.

Qualitative Impacts

5.7.371 Of the impacts screened in for assessment, five impacts have been assessed qualitatively:

- disturbance and displacement to birds from vessel movements (Section 5.5, 'Impact 3: Disturbance to Birds from Vessel Movements');
- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
- temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance');
- direct impacts from UXO clearance (Section 5.5, 'Impact 6: Direct Impacts from UXO Clearance'); and
- indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').

5.7.372 No site-specific qualitative assessments were required in order to address the impacts for gannet, kittiwake, razorbill and the breeding seabird assemblage at Flamborough and Filey Coast SPA.

Conclusion for Qualitative Assessment

5.7.373 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the gannet, kittiwake, razorbill and breeding seabird assemblage (due to impacts to the aforementioned species and fulmar) features. Therefore, it is expected that the population and distribution of the features will be maintained, so the conservation objectives of the SPA will not be undermined.

5.7.374 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Flamborough and Filey Coast SPA due to the following impacts:

- disturbance and displacement to birds due to vessel movements;
- disturbance to prey species and their habitats;
- temporary habitat loss and/or habitat disturbance;
- direct impacts due to UXO clearance; and
- indirect impacts from construction/decommissioning noise.

5.7.375 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

5.7.376 As highlighted in Table 5.19, in-combination assessment was required for kittiwake, gannet and razorbill.

Kittiwake

- 5.7.377 It was found that the Proposed Development alone resulted in 0.40 to 0.87 and 1.83 to 2.30 annual mortalities for kittiwake using Option 1 and 2 of the sCRM respectively, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.108.
- 5.7.378 Although the RIAA for MarramWind was not available at the time of data analysis, it should be noted that MarramWind was found to contribute 1.09 to 1.15 mortalities (MarramWind, 2026), which is equivalent to a 0.2% increase in mortalities for the high mortality displacement (using Option 2 sCRM) scenario. The inclusion of MarramWind is not expected to change the conclusions drawn.

Table 5.108: Number of Mortalities Due to Collision Risk and Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Kittiwake at Flamborough and Filey Coast SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Collisions			Displacement			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Bowdun (Option 1)	0.13	0.07	0.20	0.14 to 0.44	0.06 to 0.23	0.20 to 0.67	0.40 to 0.87	0.40 to 0.87
Bowdun (Option 2)	1.04	0.59	1.63	0.14 to 0.44	0.06 to 0.23	0.20 to 0.67	1.83 to 2.30	1.83 to 2.30
Aberdeen	-	0.25 (0.20)	0.25 (0.20)	-	0.01 to 0.02	0.01 to 0.02	0.26 to 0.28	0.20 to 0.22
Aspen	0.01	0.23	0.24	-	0.02 to 0.07	0.02 to 0.07	0.26 to 0.31	0.27 to 0.31
Ayre	-	0.78	0.78	-	0.15 to 0.45	0.15 to 0.45	0.93 to 1.23	0.93 to 1.23
Beatrice	-	1.98 (1.09)	1.98 (1.09)	-	0.42 to 1.25	0.42 to 1.25	2.39 to 3.22	1.51 to 2.34
Berwick Bank	0.40	16.82 (16.87)	17.22 (17.27)	0.05 to 0.15	4.66 to 13.98	4.71 to 14.13	21.93 to 31.35	21.98 to 31.41
Blyth Demo	-	0.14	0.14	-	0.28 to 0.83	0.28 to 0.83	0.42 to 0.97	0.42 to 0.97
Buchan	-	0.38 (0.17)	0.38 (0.17)	-	0.08 to 0.25	0.08 to 0.25	0.47 to 0.63	0.25 to 0.42
Caledonia (North & South)	-	0.74	0.74	-	0.11 to 0.34	0.11 to 0.34	0.85 to 1.07	0.85 to 1.07
Cenos	-	0.32	0.32	-	0.02 to 0.05	0.02 to 0.05	0.33 to 0.37	0.34 to 0.37
Dogger Bank A and B	40.60	16.69 (16.74)	57.29 (57.34)	-	3.54 to 10.61	3.54 to 10.61	60.82 to 67.89	60.88 to 67.95
Dogger Bank C and Sofia	19.20	11.95 (11.98)	31.15 (31.18)	-	2.61 to 7.84	2.61 to 7.84	33.76 to 38.98	33.8 to 39.02

Project	Collisions			Displacement			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Dogger Bank South	184.60	11.23 (11.26)	195.83 (195.86)	-	3.48 to 10.45	3.48 to 10.45	199.31 to 206.28	199.35 to 206.32
East Anglia One	-	7.69 (5.21)	7.69 (5.21)	-	0.36 to 1.07	0.36 to 1.07	8.05 to 8.77	5.56 to 6.28
East Anglia One North	-	0.53	0.53	-	0.11 to 0.33	0.11 to 0.33	0.64 to 0.86	0.64 to 0.86
East Anglia Three	-	3.28 (3.29)	3.28 (3.29)	-	0.88 to 2.65	0.88 to 2.65	4.16 to 5.93	4.17 to 5.94
East Anglia Two	-	0.58 (0.59)	0.58 (0.59)	-	0.08 to 0.24	0.08 to 0.24	0.66 to 0.82	0.67 to 0.83
Five Estuaries	-	1.26	1.26	-	0.15 to 0.45	0.15 to 0.45	1.41 to 1.71	1.41 to 1.71
Galloper	-	2.28 (0.96)	2.28 (0.96)	-	-	-	2.28	0.96
Greater Gabbard	-	1.00	1.00	-	-	-	1.00	1.00
Green Volt	-	0.60	0.60	-	0.04 to 0.13	0.04 to 0.13	0.64 to 0.73	0.64 to 0.73
Hornsea One	4.60	0.71 (0.29)	5.31 (4.89)	-	6.02 to 18.07	6.02 to 18.07	11.33 to 23.37	10.91 to 22.96
Hornsea Project Four	51.10	0.84 (0.85)	51.94 (51.95)	-	1.16 to 3.49	1.16 to 3.49	53.11 to 55.44	53.11 to 55.44
Hornsea Project Three	36.70	3.15 (3.16)	39.85 (39.86)	-	1.18 to 3.55	1.18 to 3.55	41.04 to 43.41	41.05 to 43.42
Hornsea Project Two	9.70	0.45	10.15	-	0.64 to 1.92	0.64 to 1.92	10.79 to 12.06	10.79 to 12.07
Humber Gateway	1.4 (0.60)	0.19 (0.08)	1.59 (1.48)	-	-	-	1.59	0.68
Hywind	-	0.07	0.07	-	-	-	0.07	0.07
Inch Cape	-	1.46	1.46	-	0.4 to 1.2	0.4 to 1.2	1.86 to 2.66	1.86 to 2.66
Kentish Flats	-	0.06	0.06	-	-	-	0.06	0.06
Kentish Flats Extension	-	0.15 (0.09)	0.15 (0.09)	-	-	-	0.15	0.09

Project	Collisions			Displacement			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Kincardine	-	0.37	0.37	-	-	-	0.37	0.37
Lincs	0.50	0.07	0.57	-	-	-	0.57	0.57
London Array	-	0.16 (0.06)	0.16 (0.06)	-	-	-	0.16	0.06
Lynn and Inner Dowsing	-	0.32	0.32	-	-	-	0.32	0.32
Moray East	-	1.37	1.37	-	-	-	1.37	1.37
Moray West	-	0.58	0.58	-	0.48 to 1.43	0.48 to 1.43	1.06 to 2.01	1.06 to 2.01
Muir Mhor	-	0.87	0.87	-	0.15 to 0.45	0.15 to 0.45	1.02 to 1.32	1.02 to 1.32
Neart na Gaoithe	-	2.01 (2.02)	2.01 (2.02)	-	0.4 to 1.21	0.4 to 1.21	2.41 to 3.22	2.42 to 3.22
Norfolk Boreas	8.30	1.63	9.93	-	0.66 to 1.97	0.66 to 1.97	10.59 to 11.9	10.59 to 11.91
Norfolk Vanguard	13.60	0.93	14.53	-	0.41 to 1.24	0.41 to 1.24	14.94 to 15.77	14.95 to 15.77
North Falls	-	0.73	0.73	-	0.24 to 0.73	0.24 to 0.73	0.97 to 1.46	0.97 to 1.46
Ossian	2.70	1.06	3.76	0.89 to 2.67	0.21 to 0.64	1.1 to 3.31	4.86 to 7.07	4.86 to 7.07
Outer Dowsing	15.20	0.05	15.25	-	1.3 to 3.9	1.3 to 3.9	16.55 to 19.15	16.55 to 19.15
Pentland	-	1.09 (0.65)	1.09 (0.65)	-	0.03 to 0.09	0.03 to 0.09	1.12 to 1.18	0.67 to 0.73
Race Bank	1.4 (0.80)	-	1.40	-	-	-	1.40	0.80
Salamander	-	-	-	-	0.04 to 0.12	0.04 to 0.12	0.04 to 0.12	0.04 to 0.12
Seagreen	-	10.02 (10.05)	10.02 (10.05)	-	0.85 to 2.56	0.85 to 2.56	10.88 to 12.58	10.91 to 12.62
Sheringham Shoal Extension and Dudgeon Extension	6.20	0.33	6.53	-	0.5 to 1.51	0.5 to 1.51	7.03 to 8.04	7.03 to 8.04

Project	Collisions			Displacement			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Teesside	-	0.97 (0.82)	0.97 (0.82)	-	-	-	0.97	0.82
Thanet	-	0.03 (0.02)	0.03 (0.02)	-	-	-	0.03	0.02
Triton Knoll	17.9 (6.50)	6.86 (2.50)	24.76 (20.40)	-	0.10 to 0.31	0.10 to 0.31	24.86 to 25.07	9.1 to 9.31
West of Orkney	-	2.39 (2.40)	2.39 (2.40)	-	0.38 to 1.13	0.38 to 1.13	2.77 to 3.52	2.78 to 3.53
Westermost Rough	0.10	0.01	0.11	-	-	-	0.11	0.11
Option 1								
Total	414.34 (401.54)	117.68 (107.38)	532.03 (508.92)	1.08 to 3.27	32.24 to 96.78	33.32 to 100.05	565.35 to 632.07	542.24 to 608.96
Total excluding Berwick Bank	413.94 (401.14)	100.81 (90.50)	514.75 (491.64)	1.03 to 3.12	27.45 to 82.40	28.48 to 85.51	543.23 to 600.26	520.12 to 577.15
Total excluding Bowdun	414.21 (401.41)	117.61 (107.31)	531.82 (508.72)	0.94 to 2.82	32.19 to 96.56	33.13 to 99.38	564.95 to 631.20	541.84 to 608.09
Option 2								
Total	415.25 (402.45)	118.20 (107.89)	533.45 (510.35)	1.08 to 3.27	32.24 to 96.78	33.32 to 100.05	566.78 to 633.50	543.67 to 610.39
Total excluding Berwick Bank	414.85 (402.05)	101.32 (91.02)	516.18 (493.07)	1.03 to 3.12	27.45 to 82.40	28.48 to 85.51	544.66 to 601.69	521.55 to 578.58
Total excluding Bowdun	414.21 (401.41)	117.61 (107.31)	531.82 (508.72)	0.94 to 2.82	32.19 to 96.56	33.13 to 99.38	564.95 to 631.20	541.84 to 608.09

5.7.379 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank and using consented and as-built collisions (Table 5.109).

Table 5.109: In-combination PVA Results for Kittiwake, Impacted by Collision Risk (Option 2) and Distributional Responses, at Flamborough and Filey Coast SPA (initial population size: 22,590 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Berwick Bank Offshore Wind Farm included or excluded	Displacement Scenario	Baseline Median Population Size (Breeding Adults)	Impacted Median Population Size (Breeding Adults)	Counterfactual Growth Rate (CGR)	Counterfactual Population Size (CPS)
‘Consented’ mortalities					
Including Berwick Bank	Low	168,033	133,607	0.993 (0.992 to 0.993)	0.795 (0.779 to 0.811)
	High		129,981	0.992 (0.991 to 0.992)	0.774 (0.758 to 0.789)
Excluding Berwick Bank	Low		134,714	0.993 (0.992 to 0.993)	0.802 (0.786 to 0.818)
	High		131,417	0.992 (0.992 to 0.993)	0.784 (0.768 to 0.800)
‘As-built’ mortalities					
Including Berwick Bank	Low	168,033	134,874	0.993 (0.992 to 0.993)	0.802 (0.786 to 0.818)
	High		131,155	0.992 (0.991 to 0.993)	0.781 (0.765 to 0.797)
Excluding Berwick Bank	Low		135,982	0.993 (0.993 to 0.994)	0.810 (0.794 to 0.826)
	High		132,619	0.992 (0.992 to 0.993)	0.791 (0.775 to 0.806)

5.7.380 Using consented mortalities (Table 5.109), it was found that under all scenarios the CGR was greater or equal to 0.992, indicating that the growth rate of the kittiwake is unlikely to decrease by more than 0.8%. The population size was found to increase under all scenarios and the CPS, after 30 years, ranged from 0.774 to 0.802.

5.7.381 When accounting for as-built corrections, it was found the median CGR was unchanged when compared to the corresponding consented scenario. Moreover, the median CPS also showed little difference with the largest difference (0.008, or 0.8%), for the collision risk and low displacement scenario excluding Berwick Bank.

5.7.382 A comparison of the Seabird 2000 and Seabirds Count censuses found that the kittiwake population at Flamborough and Filey Coast SPA has decreased by 7% (Burnell *et al.*, 2023), with most recent census count of 45,504 AON is slightly greater than the citation population (44,520 AON). Although Flamborough and Filey Coast SPA is not included within counts undertaken by Tremblett *et al.*

(2023), the closest SPAs included, such as Farne Islands SPA and St Abb's Head to Fast Castle SPA, show conflicting results with the population decreasing by 17% and increasing by 7% at both sites respectively. Thus, it is difficult to determine the impact of HPAI on kittiwake at Flamborough and Filey Coast SPA.

- 5.7.383 Although the kittiwake population has remained around citation levels, the long-term declining trends in population size combined with the predicted impacts on growth rate (up to 0.8%) and population size (up to 22.6%), suggest that the Proposed Development in-combination with other projects may lead to further declines. However, it should be noted that the Proposed Development alone contributes just 0.36% and 0.38% of the total mortalities for the consented collision and high displacement scenarios including and excluding Berwick Bank respectively.
- 5.7.384 Additionally, PVA run using site-specific flight height data found the impacts to growth rate are unchanged and impacts to population size are expected to decrease by no more than 0.1% (presented in Table 3.5 of Appendix 3B: Offshore Ornithology Special Protection Area Population Viability Analysis Technical Report (TWP-BOW-RPS-ENV-RPT-00027)). Therefore, using site-specific sCRM (Option 1) is unlikely to impact the conclusions for AEOSI.
- 5.7.385 Therefore, an adverse effect on the kittiwake and the breeding seabird assemblage (due to impacts to kittiwake) features of Flamborough and Filey Coast SPA **could not be ruled out** including or excluding Berwick Bank.

Gannet

- 5.7.386 It was found that the Proposed Development alone resulted in 0.78 to 1.05 annual mortalities for gannet, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.110.
- 5.7.387 Although the RIAA for MarramWind was not available at the time of data analysis, it should be noted that MarramWind was found to contribute 0.25 to 0.28 mortalities (MarramWind, 2026), which is equivalent to a 0.1% increase in mortalities for the high mortality displacement scenario. The inclusion of MarramWind is not expected to change the conclusions drawn.

Table 5.110: Number of Mortalities Due to Collision Risk and Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Gannet at Flamborough and Filey Coast SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Collisions ¹			Displacement ²			Annual Consented Collisions + Displacement	Annual As-built Collisions + Displacement
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual		
Bowdun	0.56	0.07	0.63	0.10 to 0.31	0.05 to 0.11	0.15 to 0.42	0.78 to 1.05	0.78 to 1.05
Aberdeen	-	0.01	0.01	-	-	-	0.01	0.01
Aspen	0.11	0.08	0.19	0.08 to 0.23	0.15 to 0.46	0.23 to 0.69	0.42 to 0.88	0.42 to 0.88
Ayre	0.00 (0.08)	0.08	0.08	-	0.05 to 0.11	0.05 to 0.11	0.13 to 0.19	0.21 to 0.27
Beatrice	-	0.19 (0.12)	0.19 (0.12)	-	-	-	0.19	0.12
Berwick Bank	1.50	0.08	1.58	0.40 to 1.20	0.22 to 0.66	0.62 to 1.86	2.2 to 3.44	2.2 to 3.44
Blyth Demo	-	0.03	0.03	-	-	-	0.03	0.03
Buchan	0.05	0.04	0.09	0.03 to 0.10	0.08 to 0.23	0.11 to 0.33	0.2 to 0.42	0.2 to 0.42
Caledonia (North & South)	-	0.01	0.01	-	0.05 to 0.14	0.05 to 0.14	0.06 to 0.16	0.06 to 0.16
Cenos	-	0.03	0.03	-	0.04 to 0.11	0.04 to 0.11	0.07 to 0.14	0.07 to 0.14
Dogger Bank A and B	29.50	0.76	30.26	4.04 to 12.13	0.37 to 1.1	4.41 to 13.22	34.66 to 43.48	34.66 to 43.48
Dogger Bank C and Sofia	5.40	0.14	5.54	7.88 to 23.63	0.27 to 0.82	8.15 to 24.44	13.68 to 29.98	13.68 to 29.98
Dogger Bank South	8.20	0.09	8.29	10.92 to 32.76	0.51 to 1.54	11.44 to 34.31	19.72 to 42.59	19.72 to 42.59
Dudgeon	16.20 (7.50)	0.44 (0.20)	16.64 (16.40)	0.37 to 1.11	0.01 to 0.03	0.38 to 1.15	17.02 to 17.79	8.09 to 8.85
East Anglia One	2.50 (1.70)	0.86 (0.59)	3.36 (3.09)	1.13 to 3.38	1.09 to 3.28	2.22 to 6.66	5.58 to 10.02	4.5 to 8.94
East Anglia One North	9.00	0.11	9.11	1.04 to 3.13	0.15 to 0.46	1.2 to 3.59	10.31 to 12.7	10.31 to 12.7

Project	Collisions ¹			Displacement ²			Annual Consented Collisions + Displacement	Annual As-built Collisions + Displacement
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual		
East Anglia Three	3.50	0.26	3.76	2.88 to 8.65	0.57 to 1.72	3.46 to 10.37	7.22 to 14.13	7.22 to 14.13
East Anglia Two	9.10	0.26	9.36	1.34 to 4.03	0.33 to 1	1.68 to 5.03	11.04 to 14.39	11.04 to 14.39
Five Estuaries	-	0.11	0.11	0.99 to 2.97	0.23 to 0.69	1.22 to 3.66	1.33 to 3.77	1.33 to 3.77
Galloper	-	0.32 (0.14)	0.32 (0.14)	-	0.37 to 1.11	0.37 to 1.11	0.69 to 1.43	0.51 to 1.25
Greater Gabbard	-	0.10	0.10	-	0.06 to 0.18	0.06 to 0.18	0.16 to 0.29	0.16 to 0.28
Green Volt	0.30	0.03	0.33	0.03 to 0.09	0.03 to 0.08	0.06 to 0.17	0.38 to 0.5	0.38 to 0.5
Gunfleet Sands	-	-	-	-	0.01 to 0.02	0.01 to 0.02	0.01 to 0.02	0.01 to 0.02
Hornsea Four	10.40	0.06	10.46	6.18 to 18.55	0.39 to 1.17	6.57 to 19.71	17.03 to 30.17	17.03 to 30.17
Hornsea Project One	1.90	0.10	2.00	4.7 to 14.09	0.3 to 0.9	5 to 15	7 to 16.99	7 to 16.99
Hornsea Project Three	4.40	0.10	4.50	5.91 to 17.72	0.49 to 1.48	6.4 to 19.21	10.9 to 23.71	10.9 to 23.71
Hornsea Project Two	5.10	0.15	5.25	3.2 to 9.6	0.38 to 1.15	3.58 to 10.75	8.83 to 16	8.83 to 16
Humber Gateway	1.4 (0.7)	0.02 (0.01)	1.42 (1.41)	-	-	-	1.42	0.71
Hywind	-	0.01	0.01	-	-	-	0.01	0.01
Inch Cape	-	0.05	0.05	-	0.14 to 0.42	0.14 to 0.42	0.19 to 0.47	0.19 to 0.47
Kentish Flats	-	0.08 (0.06)	0.08 (0.06)	-	-	-	0.08	0.06
Kentish Flats Extension	-	-	-	-	0 to 0.01	0 to 0.01	0 to 0.01	0 to 0.01
Lincs	1.50	0.11	1.61	-	-	-	1.61	1.61
London Array	-	0.11 (0.05)	0.11 (0.05)	-	-	-	0.11	0.05
Lynn and Inner Dowsing	0.20	0.01	0.21	-	-	-	0.21	0.21
Moray East	-	0.15	0.15	-	0.04 to 0.13	0.04 to 0.13	0.2 to 0.28	0.2 to 0.28

Project	Collisions ¹			Displacement ²			Annual Consented Collisions + Displacement	Annual As-built Collisions + Displacement
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual		
Moray West	-	0.01	0.01	-	0.09 to 0.27	0.09 to 0.27	0.1 to 0.28	0.1 to 0.28
Muir Mhor	0.20	0.02	0.22	0.09 to 0.28	0.09 to 0.28	0.19 to 0.56	0.4 to 0.78	0.4 to 0.78
Neart na Gaoithe	-	0.08	0.08	-	0.14 to 0.41	0.14 to 0.41	0.22 to 0.49	0.22 to 0.49
Norfolk Boreas	10.30	0.16	10.46	8.6 to 25.81	0.71 to 2.12	9.31 to 27.93	19.77 to 38.39	19.77 to 38.39
Norfolk Vanguard	6.00	0.23	6.23	1.9 to 5.69	0.89 to 2.66	2.78 to 8.35	9.02 to 14.58	9.02 to 14.58
North Falls	0.40	0.07	0.47	0.34 to 1.01	0.16 to 0.48	0.5 to 1.49	0.97 to 1.96	0.97 to 1.96
Ossian	1.20	0.02	1.22	0.48 to 1.43	0.11 to 0.33	0.59 to 1.76	1.81 to 2.98	1.81 to 2.98
Outer Dowsing	1.00	0.03	1.03	3.49 to 10.47	0.26 to 0.77	3.75 to 11.24	4.77 to 12.27	4.77 to 12.27
Pentland	0.00	0.00	0.00	-	0 to 0.01	0 to 0.01	0 to 0.01	0 to 0.01
Race Bank	24.5 (13.1)	0.12 (0.06)	24.62 (24.56)	0.64 to 1.93	0.02 to 0.06	0.66 to 1.99	25.28 to 26.61	13.83 to 15.16
Rampion	0.00	0.41 (0.28)	0.41 (0.28)	-	0.17 to 0.52	0.17 to 0.52	0.58 to 0.93	0.46 to 0.8
Rampion 2	0.00	0.09	0.09	-	0.08 to 0.23	0.08 to 0.23	0.17 to 0.32	0.17 to 0.32
Salamander	0.00	0.02	0.02	-	0.05 to 0.14	0.05 to 0.14	0.06 to 0.16	0.06 to 0.16
Seagreen (1 & 1A)	0.00	0.18	0.18	-	0.16 to 0.49	0.16 to 0.49	0.34 to 0.67	0.34 to 0.67
Sheringham Shoal Extension & Dudgeon Extension	0.30	0.03	0.33	2.36 to 7.08	0.21 to 0.63	2.57 to 7.71	2.89 to 8.03	2.89 to 8.03
Sheringham Shoal	14.1 (13.2)	0.1 (0.09)	14.2 (14.19)	0.33 to 0.99	0.01 to 0.03	0.34 to 1.02	14.54 to 15.22	13.63 to 14.31
Teeside	1.7 (1.2)	0.00	1.70	0 to 0.01	-	0 to 0.01	1.71 to 1.71	1.21 to 1.21
Triton Knoll	19.5 (6.8)	0.71 (0.25)	20.21 (19.75)	-	0.01 to 0.04	0.01 to 0.04	20.23 to 20.25	7.06 to 7.09
West of Orkney	-	0.06	0.06	1.48 to 4.43	0.18 to 0.55	1.66 to 4.98	1.72 to 5.05	1.72 to 5.05
Westernmost Rough	0.10	0.00	0.10	-	-	-	0.1	0.1

Project	Collisions ¹			Displacement ²			Annual Consented Collisions + Displacement	Annual As-built Collisions + Displacement
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual		
Total	191.52 (155.82)	7.41 (5.88)	198.93 (161.71)	70.93 to 212.81	9.75 to 29.17	80.68 to 241.98	279.61 to 440.91	242.39 to 403.68
Total excluding Berwick Bank	190.02 (154.32)	7.33 (5.80)	197.35 (160.13)	70.53 to 211.61	9.53 to 28.51	80.06 to 240.12	277.41 to 437.47	240.19 to 400.25
Total excluding Bowdun	190.96 (155.26)	7.34 (5.82)	198.30 (161.08)	70.84 to 212.50	9.70 to 29.06	80.53 to 241.56	278.83 to 439.86	241.61 to 402.63

¹ The number of mortalities due to ‘consented’ collisions are presented, with the number of ‘as-built’ collisions presented in parentheses where relevant.

² Low and high displacement scenarios are presented in Table 5.3

5.7.388 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank and using consented and as-built collisions (Table 5.111).

Table 5.111: In-combination PVA Results for Gannet, Impacted by Collision Risk and Distributional Responses, at Flamborough and Filey Coast SPA (initial population size: 26,784 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Berwick Bank Offshore Wind Farm included or excluded	Displacement Scenario	Baseline Median Population Size (Breeding Adults)	Impacted Median Population Size (Breeding Adults)	Counterfactual Growth Rate (CGR)	Counterfactual Population Size (CPS)
‘Consented’ mortalities					
Including Berwick Bank	Low	35,863	24,441	0.988 (0.987 to 0.989)	0.682 (0.660 to 0.705)
	High		19,585	0.981 (0.980 to 0.982)	0.546 (0.527 to 0.566)
Excluding Berwick Bank	Low		24,491	0.988 (0.987 to 0.989)	0.685 (0.663 to 0.707)
	High		19,689	0.981 (0.980 to 0.982)	0.549 (0.530 to 0.568)
‘As-built’ mortalities					
Including Berwick Bank	Low	35,863	25,767	0.989 (0.988 to 0.990)	0.718 (0.694 to 0.742)
	High		20,604	0.982 (0.981 to 0.983)	0.575 (0.555 to 0.595)
Excluding Berwick Bank	Low		25,792	0.989 (0.989 to 0.990)	0.720 (0.698 to 0.744)
	High		20,727	0.982 (0.981 to 0.983)	0.578 (0.557 to 0.597)

5.7.389 Using consented mortalities (Table 5.111), it was found that under all scenarios the CGR was greater or equal to 0.981, indicating that the growth rate of the gannet is unlikely to decrease by more than 1.9%. The population size was found to increase under all scenarios and the CPS, after 30 years, ranged from 0.546 to 0.685, indicating a maximum decrease of 45.4%.

5.7.390 When accounting for as-built corrections, it was found the median CGR was decreased by 0.1% when compared to the corresponding consented scenarios. However, as-built differences led to a larger reduction in the impact to population size with a reduction of 3.6% recorded for the consented collisions and high displacement scenario.

5.7.391 A comparison of the Seabird 2000 and Seabirds Count censuses found that the gannet population at Flamborough and Filey Coast SPA has showed a large increase of 240% between censuses (Burnell *et al.*, 2023). Increases of 14% in population size, albeit smaller than those recorded in Burnell *et al.* (2023), were

also recorded by Tremlett *et al.* (2024) suggesting that the population is recovering from the recent HPAI outbreak.

5.7.392 Although the gannet population has shown significant increases between both seabird censuses and the population is still increasing despite the recent HPAI outbreak, the predicted impacts on growth rate (up to 1.9%) and population size (up to 45.4%), suggest that the Proposed Development in-combination with other projects may lead to declines in the population. However, it should be noted that the Proposed Development alone contributes just 0.24% and 0.26% of the total mortalities for the consented collision and high displacement scenarios including and excluding Berwick Bank respectively.

5.7.393 Therefore, an adverse effect on the gannet or breeding seabird assemblage (due to impacts to gannet) features of Flamborough and Filey Coast SPA **could not be ruled out** including or excluding Berwick Bank.

Razorbill

5.7.394 It was found that the Proposed Development alone resulted in 0.10 to 0.33 annual mortalities for razorbill, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.112.

5.7.395 Although the RIAA for MarramWind was not available at the time of data analysis, it should be noted that MarramWind was found to contribute 0.20 to 0.60 mortalities (MarramWind, 2026), which is equivalent to a 0.2% increase in mortalities for the high mortality displacement scenario. The inclusion of MarramWind is not expected to change the conclusions drawn.

Table 5.112: Number of Mortalities Due to Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Razorbill at Flamborough and Filey Coast SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Breeding Season ¹		Non-breeding Season		Annual	
	Low ²	High	Low	High	Low	High
Bowdun	-	-	0.10	0.34	0.10	0.33
Aberdeen	-	-	0.02	0.06	0.02	0.06
Aspen	-	-	0.01	0.04	0.01	0.04
Ayre	-	-	0.23	0.68	0.23	0.68
Beatrice	-	-	0.43	1.28	0.43	1.28
Berwick Bank	-	-	3.40	10.21	3.40	10.21
Blyth Demo	-	-	0.05	0.14	0.05	0.14
Buchan	-	-	0.04	0.13	0.04	0.13
Caledonia (North & South)	-	-	0.50	1.51	0.50	1.51
Dogger Bank A	-	-	1.43	4.29	1.43	4.29
Dogger Bank B	-	-	1.80	5.39	1.80	5.39
Dogger Bank C	-	-	0.61	1.84	0.61	1.84
Dogger Bank South	-	-	5.31	15.92	5.31	15.92

Project	Breeding Season ¹		Non-breeding Season		Annual	
	Low ²	High	Low	High	Low	High
Dudgeon Extension	-	-	0.30	0.91	0.30	0.91
Dudgeon	-	-	0.28	0.83	0.28	0.83
East Anglia One	-	-	0.10	0.30	0.10	0.30
East Anglia One North	-	-	0.07	0.20	0.07	0.20
East Anglia Three	-	-	0.80	2.39	0.80	2.39
East Anglia Two	-	-	0.08	0.24	0.08	0.24
Five Estuaries	-	-	0.40	1.20	0.40	1.20
Galloper	-	-	0.10	0.31	0.10	0.31
Greater Gabbard	-	-	0.09	0.27	0.09	0.27
Green Volt	-	-	0.02	0.06	0.02	0.06
Gunfleet Sands	-	-	0.01	0.02	0.01	0.02
Hornsea One	-	-	1.56	4.68	1.56	4.68
Hornsea Project Four	-	-	1.00	3.00	1.00	3.00
Hornsea Project Three	-	-	1.49	4.48	1.49	4.48
Hornsea Project Two	-	-	1.27	3.80	1.27	3.80
Humber Gateway	-	-	0.01	0.03	0.01	0.03
Hywind	-	-	0.14	0.42	0.14	0.42
Inch Cape	-	-	0.68	2.03	0.68	2.03
Lincs and Lynn and Inner Dowsing	-	-	0.02	0.05	0.02	0.05
London Array	-	-	0.01	0.03	0.01	0.03
Moray East	-	-	0.25	0.75	0.25	0.75
Moray West	-	-	1.40	4.21	1.40	4.21
Muir Mhor	-	-	0.30	0.89	0.30	0.89
Neart na Gaoithe	-	-	1.15	3.45	1.15	3.45
Norfolk Boreas	-	-	0.32	0.96	0.32	0.96
Norfolk Vanguard	-	-	0.50	1.51	0.50	1.51
North Falls	-	-	0.72	2.17	0.72	2.17
Ossian	-	-	0.36	1.07	0.36	1.07
Outer Dowsing	-	-	1.75	5.24	1.75	5.24
Race Bank	-	-	0.02	0.06	0.02	0.06
Rampion	-	-	0.89	2.67	0.89	2.67
Rampion 2	-	-	1.44	4.33	1.44	4.33
Salamander	-	-	0.09	0.28	0.09	0.28
Seagreen Alpha	-	-	0.21	0.64	0.21	0.64
Seagreen Bravo	-	-	0.24	0.73	0.24	0.73
Sheringham Shoal	-	-	0.30	0.91	0.30	0.91

Project	Breeding Season ¹		Non-breeding Season		Annual	
	Low ²	High	Low	High	Low	High
Sheringham Shoal Extension	-	-	0.94	2.82	0.94	2.82
Sofia	-	-	0.95	2.86	0.95	2.86
Teesside	-	-	0.02	0.05	0.02	0.05
Thanet	-	-	0.01	0.02	0.01	0.02
Triton Knoll	-	-	0.24	0.71	0.24	0.71
Westermost Rough	-	-	0.07	0.21	0.07	0.21
Total	158.73	264.55	34.52	103.59	193.25	368.14
Total excluding Berwick Bank	158.73	264.55	30.35	91.06	189.08	355.61
Total excluding Bowdun	158.73	264.55	34.42	103.26	193.15	367.81

¹ Breakdown of mortalities per project not provided by Grant (2025)

² Low and high displacement scenarios are presented in Table 5.3

5.7.396 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank (Table 5.113).

Table 5.113: In-combination PVA Results for Razorbill for Distributional Responses at Flamborough and Filey Coast SPA (initial population size: 37,476 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Baseline Simulated Population Size	Impact Scenario	Impacted Simulated Population Size	Median Counterfactual (CI)	
			Growth Rate	Population Size
Including Berwick Bank				
70,681	Low	58,802	0.994 (0.993 to 0.995)	0.833 (0.811 to 0.853)
	High	49,897	0.989 (0.988 to 0.989)	0.705 (0.685 to 0.724)
Excluding Berwick Bank				
70,681	Low	59,039	0.994 (0.994 to 0.995)	0.836 (0.815 to 0.856)
	High	50,450	0.989 (0.988 to 0.990)	0.713 (0.694 to 0.731)

5.7.397 It was found that under all scenarios the CGR was greater or equal to 0.989, indicating that the growth rate of the razorbill is unlikely to decrease by more than 1.1% (Table 5.113). The population size was found to increase under all scenarios. However, the CPS, after 30 years, was found to range from 0.705 to 0.836 indicating a maximum decrease in population size of 29.5%.

5.7.398 A comparison of the Seabird 2000 and Seabirds Count censuses found that the razorbill population at Flamborough and Filey Coast SPA has showed a large increase of 230% between censuses (Burnell *et al.*, 2023). However, as razorbill were not included in surveys by Tremlett *et al.* (2024) it is unclear whether HPAI has had a negative impact on the population.

- 5.7.399 Despite the large increase in population size recorded by Burnell *et al.* (2023), due to the relatively high impacts recorded, adverse effects on the razorbill or breeding seabird assemblage (due to impacts to razorbill) features of Flamborough and Filey Coast SPA **could not be ruled out** including or excluding Berwick Bank.

Flannan Isles SPA

- 5.7.400 Flannan Isles SPA is a group of seven rock islands, outlying skerries and adjacent coastal waters lying approximately 30 km west of Lewis in the Outer Hebrides and is located approximately 475.63 km from the Array Area. The SPA boundary overlaps with Flannan Isles SSSI and extends approximately 2 km into the marine environment. The SPA was classified in 1992, with the marine extension classified in 2009 (NatureScot, ND).
- 5.7.401 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.
- 5.7.402 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.114.

Table 5.114: The Relevant Components of the Breeding Seabird Assemblage and Impacts Included Within the Assessment for Flannan Isles SPA

Impact	Fulmar
Collision Risk Mortality due to Collision with Rotor Blades	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓
Disturbance and Displacement to Birds from Vessel Movements	x
Disturbance to Prey Species and Their Habitat	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓
Direct Impacts from UXO Clearance	x
Indirect Impacts from Construction/Decommissioning Noise	✓

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.403 Of the impacts screened in for assessment (Table 3.7), only distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Distributional Responses due to Offshore Infrastructure

- 5.7.404 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure'.

5.7.405 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).

5.7.406 The number of apportioned mortalities is presented in Table 5.115, with the change in survival rate presented in Table 5.116. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g), it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage feature (due to impacts to fulmar) of Flannan Isles SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

5.7.407 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to fulmar). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.

5.7.408 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Flannan Isles SPA due to the following impacts:

- distributional responses due to offshore infrastructure.

Qualitative Impacts

5.7.409 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:

- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
- temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance'); and
- indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').

5.7.410 No site-specific qualitative assessments were required in order to address the impacts for fulmar at Flannan Isles SPA.

Conclusion for Qualitative Assessment

5.7.411 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to fulmar). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.

- 5.7.412 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Flannan Isles SPA due to the following impacts:
- disturbance to prey species and their habitats;
 - temporary habitat loss and/or habitat disturbance; and
 - indirect impacts from construction/decommissioning noise.
- 5.7.413 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

Table 5.115: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Flannan Isles SPA
(Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.002	0.00 to 0.01	Migration	0.87 to 1.73	0.599	0.001	0.00 to 0.00	0.00 to 0.01
					Winter	0.13 to 0.27	0.719	0.001	0.00 to 0.00	

Table 5.116: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Flannan Isles SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	6,132	0.00 to 0.01	0.000 to 0.000	No AEOSI

In-combination Assessment

- 5.7.414 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar, no in-combination assessment was required for Flannan Isles SPA.

Forth Islands SPA

- 5.7.415 Forth Islands SPA consists of islands supporting the main seabird colonies within the Firth of Forth. The SPA boundary overlaps with Long Craig SSSI, Inchmickery SSSI, Forth Islands SSSI, Bass Rock SSSI, Isle of May SSSI and Firth of Forth SPA. The initial SPA boundary was classified in 1990, before it was extended to include Long Craig in 2004. A marine extension of approximately 2 km was classified in 2004 (NatureScot, ND). The largest seabird colonies can be found at the Isle of May and Bass Rock which are located approximately 105.41 km and 118.26 km from the Array Area respectively.
- 5.7.416 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.
- 5.7.417 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.117.

Table 5.117: The Relevant Features and Impacts Included Within the Assessment for Forth Islands SPA

Impact	Kittiwake ¹	Gannet ²	Herring gull ^{1,3}	Guillemot ^{1,3}	Razorbill ¹	Puffin ²
Collision Risk Mortality due to Collision with Rotor Blades	✓	✓	x	x	x	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓	✓	x	x	✓	✓
Disturbance and Displacement to Birds from Vessel Movements	x	x	x	✓	✓	x
Disturbance to Prey Species and Their Habitat	✓	✓	✓	✓	✓	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓	✓	✓	✓	✓	✓
Direct Impacts from UXO Clearance	x	✓	x	✓	✓	✓
Indirect Impacts from Construction/Decommissioning Noise	✓	✓	✓	✓	✓	✓

¹ Named component of the seabird assemblage only.

² Qualifying feature and named component of the seabird assemblage only.

³ Connectivity with the Export Cable Corridor only

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.418 Of the impacts screened in for assessment (Table 3.7), both collision risk and distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Collision Risk Mortality due to Collision with Rotor Blades

- 5.7.419 A quantitative assessment was carried out for collision mortality due to the Array Area following the methodology described in Section 5.4, 'Impact 1: Collision Risk Mortality due to Collision with Rotor Blades' for kittiwake and gannet.
- 5.7.420 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values and methodology presented in Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.421 The number of apportioned mortalities is presented in Table 5.118, with the change in survival rate presented in Table 5.119. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake or gannet, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the gannet or breeding seabird assemblage features of Forth Islands SPA as a result of collision risk with respect to the O&M phase of the Proposed Development.

Table 5.118: Apportioned Mortalities due to Collision Risk During the O&M phase of the Proposed Development at Forth Islands SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Kittiwake (Option 1)	4.69	0.970 (0.100)	0.024	0.10	SM	0.90	0.599	0.009	0.00	0.10
					AM	0.34	0.579	0.007	0.00	
Kittiwake (Option 2)	37.59			0.79	SM	7.22	0.599	0.009	0.04	0.83
					AM	2.76	0.579	0.007	0.01	
Gannet	23.64	0.972 (0.100)	0.798	16.51	SM	0.37	0.659	0.457	0.11	16.85
					AM	1.04	0.531	0.420	0.23	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.119: Change in Survival Rate due to Collision Risk During the O&M Phase of the Proposed Development at Forth Islands SPA

Species	Model Option	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Kittiwake	1	9,084	0.10	0.001	No AEOSI
	2		0.83	0.009	No AEOSI
Gannet	2	150,518	16.85	0.011	No AEOSI

Distributional Responses due to Offshore Infrastructure

- 5.7.422 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure' for kittiwake, gannet, razorbill and puffin.
- 5.7.423 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.424 The number of apportioning mortalities is presented in Table 5.120, with the change in survival rate presented in Table 5.121. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake, gannet or puffin, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the gannet, puffin or breeding seabird assemblages (due to impacts to the aforementioned species) of Forth Islands SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.
- 5.7.425 As the decrease in survival rate exceeded the 0.02 percentage point threshold advised by NatureScot (2023g) for razorbill, a PVA is required to determine whether the impacts of distributional responses will result in AEOSI for the breeding seabird assemblage.

Required PVAs for Distributional Responses

Razorbill

- 5.7.426 A comparison of the Seabird 2000 and Seabirds Count censuses found that the razorbill population at Forth Islands SPA has increased by 23% (Burnell *et al.*, 2023), with most recent census count of 5,695 individuals, greater than the citation population (1,400 pairs). These trends are further supported by the PVA results which show in all scenarios razorbill populations are expected to continue to increase (Table 5.122).
- 5.7.427 The results of the PVA for razorbill (Table 5.122) shows that under the high displacement scenario impacts to the growth rate are expected to be negligible (0.0%), with the population size showing 1.2% decrease due to the Proposed Development alone. As this impact is relatively small and the razorbill population has been shown to increase between censuses, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI due to impacts to razorbill at Forth Islands SPA.

Table 5.120: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Forth Islands SPA
(Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ²	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Kittiwake	5 to 16	0.970 (0.100)	0.024	0.10 to 0.33	SM	0.53 to 2.13	0.599	0.009	0.00 to 0.01	0.11 to 0.35
					AM	0.47 to 1.87	0.579	0.007	0.00 to 0.01	
Gannet	4 to 13	0.972 (0.100)	0.798	2.79 to 9.08	SM	0.64 to 1.27	0.659	0.457	0.19 to 0.38	3.07 to 9.62
					AM	0.36 to 0.73	0.531	0.420	0.08 to 0.16	
Razorbill	48 to 80	0.508 (0.070)	0.064	1.44 to 2.40	Migration	2.93 to 9.53	0.511	0.015	0.02 to 0.07	1.47 to 2.49
					Winter	1.07 to 3.47	0.486	0.009	0.00 to 0.02	
Puffin ¹	7 to 11	0.463 (0.070)	0.525	1.58 to 2.48	-	-	-	-	-	1.58 to 2.48

¹ Species assessed during the breeding season only

² SM = Spring Migration; AM = Autumn Migration

Table 5.121: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Forth Islands SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Kittiwake	9,084	0.11 to 0.35	0.001 to 0.004	No AEOSI
Gannet	150,518	3.07 to 9.62	0.002 to 0.006	No AEOSI
Razorbill	7,631	1.47 to 2.49	0.019 to 0.033	PVA Required
Puffin ¹	85,846	1.58 to 2.48	0.002 to 0.003	No AEOSI

¹ Species assessed during the breeding season only

Table 5.122: Results of the Proposed Development Alone PVAs for Distributional Responses Only at Forth Islands SPA for the Operational Lifetime (30 years) of the Proposed Development

Species	Baseline Simulated Population Size	Impact Scenario	Impacted Simulated Population Size	Median Counterfactual (CI)	
				Growth Rate	Population Size
Razorbill	14,435	Low	14,296	1.000 (0.998 to 1.001)	0.993 (0.939 to 1.048)
		High	14,269	1.000 (0.998 to 1.001)	0.988 (0.936 to 1.042)

Combined Impacts of Collision Risk and Distributional Responses

- 5.7.428 As kittiwake were assessed for both collision risk and distributional responses, the combined impact has been used to determine whether a PVA is required. It was found that 0.83 mortalities are expected to occur due to collision risk (Table 5.118) and 0.11 to 0.35 mortalities due to distributional responses (Table 5.120). Therefore, it is expected that a total of 0.94 to 1.19 kittiwake mortalities will occur due to the Proposed Development alone, equivalent to a decrease in survival rate of 0.010 to 0.013 percentage points.
- 5.7.429 When using Option 1 of the sCRM, the number of mortalities due to collision risk was reduced to 0.10 (Table 5.118) and the expected mortalities from collision risk and distributional responses is reduced to 0.21 to 0.46, equivalent to a decrease in survival rate of 0.002 to 0.005 percentage points.
- 5.7.430 As gannet were assessed for both collision risk and distributional responses, the combined impact has been used to determine whether a PVA is required. It was found that 16.85 mortalities are expected to occur due to collision risk (Table 5.118) and 3.07 to 9.62 mortalities due to distributional responses (Table 5.120). Therefore, it is expected that a total of 19.92 to 26.48 gannet mortalities will occur due to the Proposed Development alone, equivalent to a decrease in survival rate of 0.013 to 0.018 percentage points.
- 5.7.431 As the decrease in survival rate, due to collision risk and distributional responses, did not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for both kittiwake and gannet it can be concluded, beyond reasonable scientific doubt, that there is no AEOSI to the gannet, kittiwake or breeding seabird assemblage features of Forth Islands SPA as a result of the combined impact of collision risk and distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

- 5.7.432 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the gannet, puffin and breeding seabird assemblage (due to impacts to the aforementioned species, guillemot, herring gull, kittiwake or razorbill) features. Therefore, it is expected that the features will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.

5.7.433 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Forth Islands SPA due to the following impacts:

- collision risk mortality due to collision with rotor blades;
- distributional responses due to offshore infrastructure; and
- combined impacts of collision risk and distributional responses.

Qualitative Impacts

5.7.434 Of the impacts screened in for assessment, five impacts have been assessed qualitatively:

- disturbance and displacement to birds from vessel movements (Section 5.5, 'Impact 3: Disturbance to Birds from Vessel Movements');
- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
- temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance');
- direct impacts from UXO clearance (Section 5.5, 'Impact 6: Direct Impacts from UXO Clearance'); and
- indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').

5.7.435 No site-specific qualitative assessments were required in order to address the impacts for gannet, puffin and the breeding seabird assemblage feature at Forth Islands SPA.

Conclusion for Qualitative Assessment

5.7.436 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to gannet, puffin and breeding seabird assemblage (due to impacts to the aforementioned species, guillemot, herring gull, kittiwake or razorbill) features. Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.

5.7.437 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Forth Islands SPA due to the following impacts:

- disturbance and displacement to birds due to vessel movements;
- disturbance to prey species and their habitats;
- temporary habitat loss and/or habitat disturbance;
- direct impacts due to UXO clearance; and
- indirect impacts from construction/decommissioning noise.

5.7.438 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

- 5.7.439 As highlighted in Table 5.19, in-combination assessment was required for kittiwake, gannet, razorbill and puffin.

Kittiwake

- 5.7.440 It was found that the Proposed Development alone resulted in 0.21 to 0.46 and 0.94 to 1.19 annual mortalities for kittiwake using Option 1 and 2 of the sCRM respectively, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.123.
- 5.7.441 Although the RIAA for MarramWind was not available at the time of data analysis, it should be noted that MarramWind was found to contribute 0.48 to 0.57 mortalities (MarramWind, 2026), which is equivalent to a 0.7% increase in mortalities for the high mortality displacement (using Option 2 of the sCRM) scenario. The inclusion of MarramWind is not expected to change the conclusions drawn.

Table 5.123: Number of Mortalities Due to Collision Risk and Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Kittiwake at Forth Islands SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Bowdun (Option 1)	0.10	0.00	0.10	0.10 to 0.33	0.00 to 0.02	0.11 to 0.35	0.21 to 0.46	0.21 to 0.46
Bowdun (Option 2)	0.79	0.05	0.83	0.10 to 0.33	0.00 to 0.02	0.11 to 0.35	0.94 to 1.19	0.94 to 1.19
Aberdeen	-	0.02	0.02	-	-	-	0.02	0.02
Aspen	0.06	0.02	0.08	0.01 to 0.03	0.00 to 0.01	0.01 to 0.04	0.09 to 0.11	0.09 to 0.11
Ayre	0.02	0.06	0.08	0.00 to 0.02	0.01 to 0.04	0.01 to 0.06	0.10 to 0.14	0.10 to 0.14
Beatrice	-	0.16 (0.09)	0.16 (0.09)	-	0.03 to 0.10	0.03 to 0.10	0.20 to 0.27	0.12 to 0.19
Berwick Bank	22.33	1.39	23.72	3.15 to 9.45	0.38 to 1.15	3.53 to 10.6	27.25 to 34.32	27.25 to 34.32
Blyth Demo	-	0.01	0.01	-	0.02 to 0.07	0.02 to 0.07	0.03 to 0.08	0.03 to 0.08
Buchan	0.05	0.03 (0.01)	0.08 (0.06)	0.20 to 0.20	0.01 to 0.02	0.21 to 0.22	0.29 to 0.30	0.27 to 0.28
Caledonia (North & South)	0.21	0.06	0.27	0.02 to 0.06	0.01 to 0.03	0.03 to 0.09	0.30 to 0.36	0.30 to 0.36
Cenos	0.41	0.03	0.44	0.03 to 0.09	-	0.03 to 0.09	0.47 to 0.53	0.47 to 0.53
Dogger Bank A and B	-	1.38	1.38	-	0.29 to 0.87	0.29 to 0.87	1.67 to 2.25	1.67 to 2.25
Dogger Bank C and Sofia	-	0.98 (0.99)	0.98 (0.99)	-	0.22 to 0.65	0.22 to 0.65	1.20 to 1.63	1.20 to 1.63
Dogger Bank South	-	0.93	0.93	-	0.29 to 0.86	0.29 to 0.86	1.21 to 1.79	1.22 to 1.79
East Anglia One	-	0.63 (0.43)	0.63 (0.43)	-	0.03 to 0.09	0.03 to 0.09	0.66 to 0.72	0.46 to 0.52
East Anglia One North	-	0.04	0.04	-	0.01 to 0.03	0.01 to 0.03	0.05 to 0.07	0.05 to 0.07

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
East Anglia Three	-	0.27	0.27	-	0.07 to 0.22	0.07 to 0.22	0.34 to 0.49	0.34 to 0.49
East Anglia Two	-	0.05	0.05	-	0.01 to 0.02	0.01 to 0.02	0.05 to 0.07	0.05 to 0.07
Five Estuaries	-	0.10	0.10	-	0.01 to 0.04	0.01 to 0.04	0.12 to 0.14	0.12 to 0.14
Galloper	-	0.19 (0.08)	0.19 (0.08)	-	-	-	0.19	0.08
Greater Gabbard	-	0.08	0.08	-	-	-	0.08	0.08
Green Volt	0.10	0.05	0.15	0.01 to 0.02	0.00 to 0.01	0.01 to 0.03	0.16 to 0.18	0.16 to 0.18
Hornsea One	-	0.06 (0.02)	0.06 (0.02)	-	0.50 to 1.49	0.50 to 1.49	0.55 to 1.55	0.52 to 1.51
Hornsea Project Four	-	0.07	0.07	-	0.10 to 0.29	0.10 to 0.29	0.17 to 0.36	0.17 to 0.36
Hornsea Project Three	-	0.26	0.26	-	0.10 to 0.29	0.10 to 0.29	0.36 to 0.55	0.36 to 0.55
Hornsea Project Two	-	0.04	0.04	-	0.05 to 0.16	0.05 to 0.16	0.09 to 0.19	0.09 to 0.20
Humber Gateway	-	0.02 (0.01)	0.02 (0.01)	-	-	-	0.02	0.01
Hywind	-	0.01	0.01	-	-	-	0.01	0.01
Inch Cape	5.09	0.12	5.21	2.05 to 6.15	0.03 to 0.10	2.08 to 6.25	7.29 to 11.46	7.29 to 11.46
Kentish Flats	-	0.00 (0.01)	0.00 (0.01)	-	-	-	0.00	0.01
Kentish Flats Extension	-	0.01	0.01	-	-	-	0.01	0.01
Kincardine	-	0.03	0.03	-	-	-	0.03	0.03
Lincs	-	0.01	0.01	-	-	-	0.01	0.01
London Array	-	0.01 (0.00)	0.01 (0.00)	-	-	-	0.01	0.00
Methil	0.37	0.00	0.37	-	-	-	0.37	0.37
Moray East	-	0.03	0.03	-	-	-	0.03	0.03
Moray West	-	0.11	0.11	-	0.04 to 0.12	0.04 to 0.12	0.15 to 0.23	0.15 to 0.23

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Muir Mhor	0.72	0.05	0.77	1.00 to 1.00	0.01 to 0.04	1.01 to 1.04	1.78 to 1.81	1.78 to 1.81
Neart na Gaoithe	1.98	0.07	2.05	2.30 to 6.90	0.03 to 0.1	2.33 to 7	4.38 to 9.05	4.38 to 9.05
Norfolk Boreas	-	0.17	0.17	-	0.05 to 0.16	0.05 to 0.16	0.22 to 0.33	0.22 to 0.33
Norfolk Vanguard	-	0.13	0.13	-	0.03 to 0.1	0.03 to 0.1	0.17 to 0.24	0.17 to 0.24
North Falls	-	0.08	0.08	-	0.02 to 0.06	0.02 to 0.06	0.10 to 0.14	0.10 to 0.14
Ossian	1.00	0.06	1.06	0.32 to 0.97	0.02 to 0.05	0.34 to 1.02	1.40 to 2.08	1.40 to 2.08
Outer Dowsing	-	0.09	0.09	-	0.11 to 0.32	0.11 to 0.32	0.19 to 0.41	0.19 to 0.41
Pentland	-	-	-	-	0.00 to 0.01	0.00 to 0.01	0.01 to 0.01	0.01 to 0.01
Race Bank	-	0.09 (0.05)	0.09 (0.05)	-	-	-	0.09	0.05
Salamander	0.17	0.00	0.17	0.08 to 0.24	0.00 to 0.01	0.08 to 0.25	0.25 to 0.42	0.25 to 0.42
Seagreen	7.00	0.83	7.83	1.35 to 4.05	0.07 to 0.21	1.42 to 4.26	9.25 to 12.09	9.25 to 12.09
Sheringham Shoal Extension and Dudgeon Extension	-	0.03	0.03	-	0.04 to 0.12	0.04 to 0.12	0.07 to 0.15	0.07 to 0.15
Teesside	-	0.08 (0.07)	0.08 (0.07)	-	-	-	0.08	0.07
Triton Knoll	-	0.57 (0.21)	0.57 (0.21)	-	0.01 to 0.03	0.01 to 0.03	0.57 to 0.59	0.21 to 0.23
West of Orkney	0.02	0.20	0.22	0.00 to 0.01	0.03 to 0.09	0.03 to 0.10	0.25 to 0.32	0.25 to 0.32
Option 1								
Total	39.63	9.70 (8.85)	49.33 (48.48)	10.63 to 29.53	2.66 to 7.98	13.29 to 37.51	62.61 to 86.83	61.76 to 85.98
Total excluding Berwick Bank	17.30	8.31 (7.46)	25.61 (24.76)	7.48 to 20.08	2.26 to 6.79	9.74 to 26.87	35.34 to 52.47	34.49 to 51.63

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Total excluding Bowdun	39.53	9.69 (8.84)	8.30 (7.45)	10.52 to 29.19	2.65 to 7.96	13.18 to 37.15	62.40 to 86.37	61.55 to 85.52
Option 2								
Total	40.31	9.74 (8.89)	50.06 (49.21)	10.63 to 29.53	2.66 to 7.98	13.29 to 37.50	63.34 to 87.56	62.49 to 86.71
Total excluding Berwick Bank	17.98	8.35 (7.50)	26.33 (25.49)	7.48 to 20.08	2.26 to 6.79	9.74 to 26.87	36.07 to 53.20	35.22 to 52.36
Total excluding Bowdun	39.53	9.69 (8.84)	49.22 (48.37)	10.52 to 29.19	2.65 to 7.96	13.18 to 37.15	62.40 to 86.37	61.55 to 85.52

¹ The number of mortalities due to ‘consented’ collisions are presented, with the number of ‘as-built’ collisions presented in parentheses where relevant.

² Low and high displacement scenarios are presented in Table 5.3

5.7.442 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank and using consented and as-built collisions (Table 5.124).

Table 5.124: In-combination PVA Results for Kittiwake, Impacted by Collision Risk (Option 2) and Distributional Responses, at Forth Islands SPA (initial population size: 22,590 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Berwick Bank Offshore Wind Farm included or excluded	Displacement Scenario	Baseline Median Population Size (Breeding Adults)	Impacted Median Population Size (Breeding Adults)	Counterfactual Growth Rate (CGR)	Counterfactual Population Size (CPS)	
‘Consented’ mortalities						
Including Berwick Bank	Low	15,856	12,271	0.992 (0.990 to 0.993)	0.773 (0.727 to 0.820)	
	High		11,103	0.989 (0.987 to 0.990)	0.700 (0.657 to 0.744)	
Excluding Berwick Bank	Low		13,718	0.995 (0.994 to 0.997)	0.864 (0.813 to 0.915)	
	High		12,781	0.993 (0.991 to 0.995)	0.805 (0.758 to 0.855)	
‘As-built’ mortalities						
Including Berwick Bank	Low		15,856	12,336	0.992 (0.990 to 0.993)	0.776 (0.730 to 0.823)
	High	11,152		0.989 (0.987 to 0.990)	0.703 (0.660 to 0.746)	
Excluding Berwick Bank	Low	13,731		0.995 (0.994 to 0.997)	0.867 (0.817 to 0.920)	
	High	12,819		0.993 (0.991 to 0.995)	0.809 (0.760 to 0.858)	

5.7.443 Using consented mortalities (Table 5.124), it was found that under all scenarios the CGR was greater or equal to 0.989, indicating that the growth rate of the kittiwake is unlikely to decrease by more than 1.1%. The population size was found to increase under all scenarios and the CPS, after 30 years, ranged from 0.700 to 0.864.

5.7.444 When accounting for as-built corrections, it was found the median CGR was unchanged when compared to the corresponding consented scenarios. Moreover, the median CPS also showed little difference for all scenarios, with the largest decrease impacts occurring for the for the consented collisions and high displacement scenario excluding Berwick Bank (0.004, or 0.4%).

- 5.7.445 A comparison of the Seabird 2000 and Seabirds Count censuses found that the kittiwake population at Forth Islands SPA has decreased by 22% (Burnell *et al.*, 2023), with most recent census count of 4,542 AON roughly half of the citation population (8,400). Surveys carried out by Tremblett *et al.* (2024) found that population sizes decreased by 29%, suggesting that HPAI has had a negative impact on the kittiwake population.
- 5.7.446 However, PVA run using site-specific flight height data found the impacts to growth rate are unchanged compared to PVAs run using Option 2 CRM outputs, and impacts to population size are expected to decrease by no more than 0.3% (presented in Table 3.5 of Appendix 3B: Offshore Ornithology Special Protection Area Population Viability Analysis Technical Report (TWP-BOW-RPS-ENV-RPT-00027)). Therefore, using site-specific sCRM (Option 1) is unlikely to impact the conclusions for AEOSI.
- 5.7.447 Due to the decreasing population trends between censuses (Burnell *et al.*, 2023) and following the HPAI outbreak (Tremlett *et al.*, 2024), as well as the relatively high predicted impacts, adverse effects on the seabird assemblage due to impacts to kittiwake of Forth Islands SPA **could not be ruled out** including or excluding Berwick Bank.

Gannet

- 5.7.448 It was found that the Proposed Development alone resulted in 19.92 to 26.48 annual mortalities for gannet, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.125.
- 5.7.449 Although the RIAA for MarramWind was not available at the time of data analysis, it should be noted that MarramWind was found to contribute 16.60 to 20.78 mortalities (MarramWind, 2026), which is equivalent to a 2.0% increase in mortalities for the high mortality displacement scenario. The inclusion of MarramWind is not expected to change the conclusions drawn.

Table 5.125: Number of Mortalities Due to Collision Risk and Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Gannet at Forth Islands SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Collisions ¹			Displacement ²			Annual Consented Collisions + Displacement	Annual As-built Collisions + Displacement
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual		
Bowdun	16.51	0.34	16.85	2.79 to 9.08	0.27 to 0.55	3.07 to 9.62	19.92 to 26.48	19.92 to 26.48
Aberdeen	1.20	0.15 (0.12)	1.35 (1.32)	-	-	-	1.35	1.32
Aspen	1.47	0.40	1.87	0.98 to 2.93	0.76 to 2.27	1.74 to 5.20	3.61 to 7.07	3.61 to 7.07
Ayre	0.65	0.42	1.07	0.13 to 0.54	0.27 to 0.55	0.40 to 1.09	1.47 to 2.16	1.47 to 2.16
Beatrice	-	1.93 (1.17)	1.93 (1.17)	-	-	-	1.93	1.17
Berwick Bank	106.80	1.21	108.01	29.4 to 88.2	3.29 to 9.88	32.69 to 98.08	140.71 to 206.09	140.71 to 206.09
Blyth Demo	2.50	0.19	2.69	-	-	-	2.69	2.69
Buchan	0.74	0.18	0.92	0.49 to 1.48	0.39 to 1.17	0.88 to 2.65	1.80 to 3.57	1.80 to 3.57
Caledonia (North & South)	2.50	0.14	2.64	1.28 to 3.84	0.48 to 1.44	1.76 to 5.28	4.40 to 7.91	4.40 to 7.91
Cenos	12.10	0.30	12.40	1.07 to 3.21	0.38 to 1.14	1.45 to 4.35	13.85 to 16.75	13.85 to 16.75
Dogger Bank A and B	5.70	5.20	10.90	0.78 to 2.35	4.19 to 12.57	4.97 to 14.92	15.88 to 25.82	15.88 to 25.82
Dogger Bank C and Sofia	1.00	0.79	1.79	1.53 to 4.58	2.24 to 6.71	3.76 to 11.29	5.56 to 13.08	5.56 to 13.08
Dogger Bank South	-	1.06	1.06	-	4.08 to 12.23	4.08 to 12.23	5.13 to 13.28	5.13 to 13.28
Dudgeon	-	2.11 (0.97)	2.11 (0.97)	-	0.06 to 0.17	0.06 to 0.17	2.17 to 2.28	1.03 to 1.15
East Anglia One	-	4.81 (3.26)	4.81 (3.26)	-	6.18 to 18.54	6.18 to 18.54	10.99 to 23.35	9.44 to 21.8
East Anglia One North	-	0.62	0.62	-	0.84 to 2.53	0.84 to 2.53	1.46 to 3.15	1.46 to 3.15
East Anglia Three	-	1.32	1.32	-	2.86 to 8.58	2.86 to 8.58	4.18 to 9.90	4.18 to 9.90

Project	Collisions ¹			Displacement ²			Annual Consented Collisions + Displacement	Annual As-built Collisions + Displacement
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual		
East Anglia Two	-	1.38	1.38	-	1.76 to 5.28	1.76 to 5.28	3.14 to 6.66	3.14 to 6.66
Five Estuaries	-	0.60	0.60	-	1.24 to 3.72	1.24 to 3.72	1.84 to 4.33	1.84 to 4.33
Galloper	-	1.56 (0.68)	1.56 (0.68)	-	1.91 to 5.72	1.91 to 5.72	3.47 to 7.28	2.58 to 6.39
Greater Gabbard	-	0.49 (0.47)	0.49 (0.47)	-	0.26 to 0.79	0.26 to 0.79	0.76 to 1.28	0.74 to 1.26
Green Volt	5.10	0.27	5.37	0.48 to 1.44	0.27 to 0.8	0.75 to 2.24	6.12 to 7.61	6.12 to 7.61
Gunfleet Sands	-	-	-	-	0.03 to 0.1	0.03 to 0.10	0.03 to 0.10	0.03 to 0.10
Hornsea Four	-	0.33	0.33	-	1.9 to 5.71	1.9 to 5.71	2.23 to 6.04	2.23 to 6.04
Hornsea Project One	-	0.45	0.45	-	1.52 to 4.57	1.52 to 4.57	1.98 to 5.03	1.98 to 5.03
Hornsea Project Three	-	0.46	0.46	-	2.4 to 7.21	2.4 to 7.21	2.86 to 7.67	2.86 to 7.67
Hornsea Project Two	-	0.72	0.72	-	2.09 to 6.28	2.09 to 6.28	2.82 to 7.00	2.82 to 7.00
Humber Gateway	-	0.1 (0.05)	0.1 (0.05)	-	-	-	0.10	0.05
Hywind	2.80	0.07	2.87	-	0.01 to 0.03	0.01 to 0.03	2.88 to 2.9	2.88 to 2.9
Inch Cape	68.40	0.50	68.90	14.6 to 43.79	1.4 to 4.21	16 to 48	84.9 to 116.9	84.9 to 116.9
Kentish Flats	-	0.32 (0.26)	0.32 (0.26)	-	-	-	0.32	0.26
Kentish Flats Extension	-	-	-	-	0.02 to 0.07	0.02 to 0.07	0.02 to 0.07	0.02 to 0.07
Kincardine	1.40	-	1.40	-	-	-	1.40	1.40
Lincs	-	0.45	0.45	-	-	-	0.45	0.45
London Array	-	0.48 (0.19)	0.48 (0.19)	-	-	-	0.48	0.19

Project	Collisions ¹			Displacement ²			Annual Consented Collisions + Displacement	Annual As-built Collisions + Displacement
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual		
Lynn and Inner Dowsing	-	0.05	0.05	-	-	-	0.05	0.05
Methil	5.80	-	5.80	-	-	-	5.80	5.80
Moray East	-	1.52	1.52	-	0.44 to 1.33	0.44 to 1.33	1.97 to 2.85	1.97 to 2.85
Moray West	-	0.11	0.11	-	0.91 to 2.72	0.91 to 2.72	1.02 to 2.83	1.02 to 2.83
Muir Mhor	2.90	0.18	3.08	1.29 to 3.86	0.95 to 2.85	2.24 to 6.71	5.31 to 9.79	5.31 to 9.79
Neart na Gaoithe	64.70	0.80	65.50	12.13 to 36.39	1.37 to 4.12	13.51 to 40.52	79 to 106.01	79 to 106.01
Norfolk Boreas	-	0.83	0.83	-	3.62 to 10.87	3.62 to 10.87	4.46 to 11.7	4.46 to 11.7
Norfolk Vanguard	-	1.20	1.20	-	4.71 to 14.14	4.71 to 14.14	5.92 to 15.34	5.92 to 15.34
North Falls	-	0.35	0.35	-	0.76 to 2.27	0.76 to 2.27	1.11 to 2.62	1.11 to 2.62
Ossian	19.90	0.23	20.13	6.9 to 20.7	1.09 to 3.28	7.99 to 23.98	28.12 to 44.11	28.12 to 44.11
Outer Dowsing	-	0.13	0.13	-	1.24 to 3.72	1.24 to 3.72	1.37 to 3.84	1.37 to 3.84
Pentland	0.10	-	0.10	0.11 to 0.33	0.05 to 0.15	0.16 to 0.48	0.26 to 0.58	0.26 to 0.58
Race Bank	-	0.57 (0.3)	0.57 (0.3)	-	0.1 to 0.29	0.10 to 0.29	0.67 to 0.86	0.40 to 0.59
Rampion	-	2.29 (1.59)	2.29 (1.59)	-	0.98 to 2.95	0.98 to 2.95	3.28 to 5.25	2.57 to 4.54
Rampion 2	-	0.46	0.46	-	0.34 to 1.03	0.34 to 1.03	0.80 to 1.49	0.80 to 1.49
Salamander	0.20	0.16	0.36	0.09 to 0.26	0.48 to 1.45	0.57 to 1.71	0.93 to 2.07	0.93 to 2.07
Seagreen (1 & 1A)	181.20	1.77	182.97	18.01 to 54.04	1.64 to 4.92	19.65 to 58.96	202.62 to 241.93	202.62 to 241.93
Sheringham Shoal Extension & Dudgeon Extension	-	0.14	0.14	-	1.15 to 3.46	1.15 to 3.46	1.30 to 3.60	1.30 to 3.60

Project	Collisions ¹			Displacement ²			Annual Consented Collisions + Displacement	Annual As-built Collisions + Displacement
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual		
Sheringham Shoal	-	0.56 (0.53)	0.56 (0.53)	-	0.05 to 0.16	0.05 to 0.16	0.62 to 0.73	0.58 to 0.69
Teeside	-	0.06 (0.04)	0.06 (0.04)	-	-	-	0.06	0.04
Triton Knoll	-	3.42 (1.2)	3.42 (1.2)	-	0.06 to 0.18	0.06 to 0.18	3.48 to 3.60	1.26 to 1.38
West of Orkney	-	0.63	0.63	-	1.85 to 5.56	1.85 to 5.56	2.49 to 6.19	2.49 to 6.19
Westermmost Rough	-	0.01	0.01	-	-	-	0.01	0.01
Total	503.79	44,84 (36.82)	548.61 (540.49)	92.06 to 277.01	62.94 to 188.28	155.00 to 465.29	703.51 to 1,013.80	695.49 to 1,005.78
Total excluding Berwick Bank	396.87	43.62 (35.60)	440.49 (432.47)	62.66 to 188.81	59.65 to 178.40	122.31 to 367.21	562.80 to 807.71	554.78 to 799.69
Total excluding Bowdun	487.16	44.49 (36.47)	531.66 (523.64)	89.26 to 267.93	62.67 to 187.73	151.93 to 455.67	683.59 to 987.32	675.57 to 979.30

¹ The number of mortalities due to ‘consented’ collisions are presented, with the number of ‘as-built’ collisions presented in parentheses where relevant.

² Low and high displacement scenarios are presented in Table 5.3

5.7.450 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank and using consented and as-built collisions (Table 5.126).

Table 5.126: In-combination PVA Results for Gannet, Impacted by Collision Risk and Distributional Responses, at Forth Islands SPA (initial population size: 22,590 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Berwick Bank Offshore Wind Farm included or excluded	Displacement Scenario	Baseline Median Population Size (Breeding Adults)	Impacted Median Population Size (Breeding Adults)	Counterfactual Growth Rate (CGR)	Counterfactual Population Size (CPS)
‘Consented’ mortalities					
Including Berwick Bank	Low	204,175	172,288	0.995 (0.994 to 0.995)	0.843 (0.831 to 0.855)
	High		159,692	0.992 (0.992 to 0.992)	0.782 (0.771 to 0.793)
Excluding Berwick Bank	Low		178,194	0.996 (0.995 to 0.996)	0.873 (0.860 to 0.884)
	High		167,889	0.994 (0.993 to 0.994)	0.822 (0.810 to 0.833)
‘As-built’ mortalities					
Including Berwick Bank	Low	204,175	172,516	0.995 (0.994 to 0.995)	0.845 (0.833 to 0.856)
	High		159,912	0.992 (0.992 to 0.993)	0.783 (0.772 to 0.794)
Excluding Berwick Bank	Low		178,504	0.996 (0.995 to 0.996)	0.874 (0.862 to 0.886)
	High		168,318	0.994 (0.993 to 0.994)	0.824 (0.812 to 0.835)

5.7.451 Using consented mortalities (Table 5.126), it was found that under all scenarios the CGR was greater or equal to 0.992, indicating that the growth rate of the gannet is unlikely to decrease by more than 0.8%. The population size was found to increase under all scenarios and the CPS, after 30 years, ranged from 0.782 to 0.873.

5.7.452 When accounting for as-built corrections, it was found the median CGR was unchanged when compared to the corresponding consented scenarios. Moreover, the median CPS also showed little difference, with the majority of scenarios showing a difference of 0.02, or 0.2%.

5.7.453 A comparison of the Seabird 2000 and Seabirds Count censuses found that the gannet population at Forth Islands SPA has increased by 57% (Burnell *et al.*, 2023), with most recent census count of 75,259 AON more than double the citation population (21,600 AON). Surveys carried out by Tremblett *et al.* (2024) found that population sizes decreased by 27%, suggesting that HPAI has had a negative impact on the gannet population.

5.7.454 The gannet population has been found to show a trend of increasing populations between censuses, but it is expected to be negatively impacted by HPAI. Moreover, the impact on growth rate (up to 0.8%) and the population size (up to 21.8%) is large enough that it could be possible for the Proposed Development in-combination with other projects to adversely impact the population.

5.7.455 Therefore, an adverse effect on the gannet feature of Forth Islands SPA **could not be ruled out** including or excluding Berwick Bank.

Razorbill

5.7.456 It was found that the Proposed Development alone resulted in 1.47 to 2.49 annual mortalities for razorbill, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.127.

5.7.457 Although the RIAA for MarramWind was not available at the time of data analysis, it should be noted that MarramWind was found to contribute 0.05 to 0.16 mortalities (MarramWind, 2026), which is equivalent to a 0.2% increase in mortalities for the high mortality displacement scenario. The inclusion of MarramWind is not expected to change the conclusions drawn.

Table 5.127: Number of Mortalities Due to Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Razorbill at Forth Islands SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Breeding Season		Non-breeding Season		Annual	
	Low ¹	High	Low	High	Low	High
Bowdun	1.44	2.40	0.03	0.09	1.47	2.49
Aberdeen	-	-	0.00	0.01	0.00	0.01
Aspen	-	-	0.00	0.01	0.00	0.01
Ayre	-	-	0.06	0.18	0.06	0.18
Beatrice	-	-	0.11	0.34	0.11	0.34
Berwick Bank	9.70	16.17	0.89	2.68	10.59	18.85
Blyth Demo	-	-	0.01	0.04	0.01	0.04
Buchan	-	-	0.01	0.03	0.01	0.03
Caledonia (North & South)	-	-	0.13	0.40	0.13	0.40
Dogger Bank A	-	-	0.38	1.13	0.38	1.13
Dogger Bank B	-	-	0.47	1.41	0.47	1.41
Dogger Bank C	-	-	0.16	0.48	0.16	0.48
Dogger Bank South	-	-	1.39	4.18	1.39	4.18
Dudgeon Extension	-	-	0.08	0.24	0.08	0.24
Dudgeon	-	-	0.07	0.22	0.07	0.22
East Anglia One	-	-	0.03	0.08	0.03	0.08
East Anglia One North	-	-	0.02	0.05	0.02	0.05
East Anglia Three	-	-	0.21	0.63	0.21	0.63

Project	Breeding Season		Non-breeding Season		Annual	
	Low ¹	High	Low	High	Low	High
East Anglia Two	-	-	0.02	0.06	0.02	0.06
Five Estuaries	-	-	0.11	0.32	0.11	0.32
Galloper	-	-	0.03	0.08	0.03	0.08
Greater Gabbard	-	-	0.02	0.07	0.02	0.07
Green Volt	-	-	0.00	0.01	0.00	0.01
Gunfleet Sands	-	-	0.00	0.00	0.00	0.00
Hornsea One	-	-	0.41	1.23	0.41	1.23
Hornsea Project Four	-	-	0.26	0.79	0.26	0.79
Hornsea Project Three	-	-	0.39	1.17	0.39	1.17
Hornsea Project Two	-	-	0.33	1.00	0.33	1.00
Humber Gateway	-	-	0.00	0.01	0.00	0.01
Hywind	-	-	0.04	0.11	0.04	0.11
Inch Cape	12.00	20.00	0.18	0.53	12.18	20.53
Lincs and Lynn and Inner Dowsing	-	-	0.00	0.01	0.00	0.01
London Array	-	-	0.00	0.01	0.00	0.01
Moray East	-	-	0.07	0.20	0.07	0.20
Moray West	-	-	0.37	1.11	0.37	1.11
Muir Mhor	-	-	0.08	0.23	0.08	0.23
Neart na Gaoithe	9.30	15.50	0.30	0.91	9.60	16.41
Norfolk Boreas	-	-	0.08	0.25	0.08	0.25
Norfolk Vanguard	-	-	0.13	0.40	0.13	0.40
North Falls	-	-	0.19	0.57	0.19	0.57
Ossian	-	-	0.09	0.28	0.09	0.28
Outer Dowsing	-	-	0.46	1.37	0.46	1.37
Race Bank	-	-	0.01	0.02	0.01	0.02
Rampion	-	-	0.23	0.70	0.23	0.70
Rampion 2	-	-	0.38	1.14	0.38	1.14
Salamander	-	-	0.02	0.07	0.02	0.07
Seagreen Alpha and Bravo	12.00	20.00	0.12	0.36	12.12	20.36
Sheringham Shoal	-	-	0.08	0.24	0.08	0.24
Sheringham Shoal Extension	-	-	0.25	0.74	0.25	0.74
Sofia	-	-	0.25	0.75	0.25	0.75
Teesside	-	-	0.00	0.01	0.00	0.01
Thanet	-	-	0.00	0.01	0.00	0.01
Triton Knoll	-	-	0.06	0.19	0.06	0.19
Westermost Rough	-	-	0.02	0.06	0.02	0.06

Project	Breeding Season		Non-breeding Season		Annual	
	Low ¹	High	Low	High	Low	High
Total	44.44	74.07	9.06	27.19	53.50	101.26
Total excluding Berwick Bank	34.74	57.90	7.96	23.90	42.71	81.81
Total excluding Bowdun	43.00	71.67	9.03	27.10	52.03	98.77

¹ Low and high displacement scenarios are presented in Table 5.3

5.7.458 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank (Table 5.128).

Table 5.128: In-combination PVA Results for Razorbill, Impacted by Collision Risk and Distributional Responses, at Forth Islands SPA (initial population size: 7,631 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Baseline Simulated Population Size	Impact Scenario	Impacted Simulated Population Size	Median Counterfactual (CI)	
			Growth Rate	Population Size
Including Berwick Bank				
14,435	Low	11,216	0.992 (0.990 to 0.993)	0.779 (0.736 to 0.825)
	High	9,008	0.985 (0.983 to 0.986)	0.623 (0.587 to 0.659)
Excluding Berwick Bank				
14,435	Low	11,802	0.994 (0.992 to 0.995)	0.820 (0.774 to 0.866)
	High	9,837	0.988 (0.986 to 0.989)	0.682 (0.643 to 0.722)

5.7.459 It was found that under all scenarios the CGR was greater or equal to 0.985, indicating that the growth rate of the razorbill is unlikely to decrease by more than 1.5% (Table 5.128). The population size was found to increase under all scenarios. However, the CPS, after 30 years, was found to range from 0.623 to 0.820 indicating a maximum decrease in population size of 37.7%.

5.7.460 Although the razorbill population at Forth Islands SPA has been found to increase between censuses (see Paragraph 5.7.426), and the impact of the Proposed Development in-combination with other projects is considered to be high (up to 1.5% decrease in growth rate), and may lead to long-term population declines. However, it should be noted that the Proposed Development alone only contributes 2.46% and 3.04% of mortalities for the high displacement scenario including and excluding Berwick Bank.

5.7.461 Therefore, an adverse effect on the gannet feature of Forth Islands SPA **could not be ruled out** including or excluding Berwick Bank.

Puffin

5.7.462 It was found that the Proposed Development alone resulted in 1.58 to 2.48 annual mortalities for puffin, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.129.

5.7.463 Although the RIAA for MarramWind was not available at the time of data analysis, it should be noted that MarramWind was found to contribute 4.06 to 6.76 mortalities (MarramWind, 2026), which is equivalent to a 2.2% increase in mortalities for the high mortality displacement scenario. The inclusion of MarramWind is not expected to change the conclusions drawn.

Table 5.129: Number of Mortalities Due to Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Puffin at Forth Islands SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Breeding Season	
	Low ²	High
Bowdun	1.58	2.48
Aspen	1.87	3.12
Berwick Bank	18.12	30.20
Buchan	1.99	3.32
Cenos	1.02	1.70
Dogger Bank South	2.30	3.84
Green Volt	1.04	1.73
Hywind	32.55	54.25
Inch Cape	0.23	0.38
Kincardine	2.30	3.84
Muir Mhor¹	10.20	10.20
Nearrt na Gaoithe	51.90	86.50
Ossian	6.85	11.41
Salamander	2.29	3.81
Seagreen	55.50	92.50
Total	187.43	305.43
Total excluding Berwick Bank	169.31	275.23
Total excluding Bowdun	185.85	302.95

¹ Values calculated using SeabORD

² Low and high displacement scenarios are presented in Table 5.3

5.7.464 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank (Table 5.130).

Table 5.130: In-combination PVA Results for Puffin, Impacted by Distributional Responses, at Forth Islands SPA (initial population size: 85,846 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Baseline Simulated Population Size	Impact Scenario	Impacted Simulated Population Size	Median Counterfactual (CI)	
			Growth Rate	Population Size
Including Berwick Bank				
12,723	Low	11,739	0.997 (0.996 to 0.999)	0.921 (0.884 to 0.959)
	High	11,180	0.996 (0.994 to 0.997)	0.874 (0.839 to 0.910)
Excluding Berwick Bank				
12,723	Low	11,847	0.998 (0.996 to 0.999)	0.928 (0.892 to 0.966)
	High	11,317	0.996 (0.995 to 0.997)	0.886 (0.851 to 0.922)

- 5.7.465 It was found that under all scenarios the CGR was greater or equal to 0.996, indicating that the growth rate of the puffin is unlikely to decrease by more than 0.4% (Table 5.130). The population size was found to increase under all scenarios. However, the CPS, after 30 years, was found to range from 0.874 to 0.928 indicating a maximum decrease in population size of 12.6%.
- 5.7.466 A comparison of the Seabird 2000 and Seabirds Count censuses found that the puffin population at Forth Islands SPA has decreased by 40% (Burnell *et al.*, 2023). However, the most recent census count of 42,923 AON more than double the citation population (14,000 pairs). As puffin were not included within Tremlett *et al.* (2024) surveys, it is unclear how this population has been impacted by HPAI.
- 5.7.467 Due to the notable decrease in population size between seabird censuses and lack of available information on the impact of HPAI, although the impacts are not expected to be large, an AEOSI due to impacts to puffin feature **cannot be ruled out** for Forth Islands SPA including or excluding Berwick Bank.

Foula SPA

- 5.7.468 Foula SPA is the most westerly of the Shetland islands and is located approximately 339.25 km from the Array Area. The SPA boundary overlaps with Foula SSSI and extends approximately 2 km into the marine environment. The SPA was classified in 1995, with the marine extension classified in 2009 (NatureScot, ND).
- 5.7.469 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.
- 5.7.470 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.131.

Table 5.131: The Relevant Components of the Breeding Seabird Assemblage and Impacts Included Within the Assessment for Foula SPA

Impact	Fulmar
Collision Risk Mortality due to Collision with Rotor Blades	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓
Disturbance and Displacement to Birds from Vessel Movements	x
Disturbance to Prey Species and Their Habitat	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓
Direct Impacts from UXO Clearance	x
Indirect Impacts from Construction/Decommissioning Noise	✓

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.471 Of the impacts screened in for assessment (Table 3.7), distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Distributional Responses due to Offshore Infrastructure

- 5.7.472 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, ‘Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure’ for fulmar.
- 5.7.473 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.474 The number of apportioning mortalities is presented in Table 5.132, with the change in survival rate presented in Table 5.133. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for fulmar, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage of Foula SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Table 5.132: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Foula SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.017	0.02 to 0.04	Migration	0.87 to 1.73	0.599	0.058	0.03 to 0.06	0.05 to 0.11
					Winter	0.13 to 0.27	0.719	0.062	0.01 to 0.01	

Table 5.133: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Foula SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	20,506	0.05 to 0.11	0.000 to 0.001	No AEOSI

Conclusion for Quantitative Assessment

- 5.7.475 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to fulmar). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.476 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Foula SPA due to the following impacts:
- distributional responses due to offshore infrastructure.

Qualitative Impacts

- 5.7.477 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:
- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
 - temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance'); and
 - indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').
- 5.7.478 No site-specific qualitative assessments were required in order to address the impacts for fulmar at Foula SPA.

Conclusion for Qualitative Assessment

- 5.7.479 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to fulmar). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.480 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Foula SPA due to the following impacts:
- disturbance to prey species and their habitats;
 - temporary habitat loss and/or habitat disturbance; and
 - indirect impacts from construction/decommissioning noise.

- 5.7.481 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

- 5.7.482 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar, no in-combination assessment was required for Foula SPA.

Fowlsheugh SPA

- 5.7.483 Fowlsheugh SPA is a 10.5 ha stretch of cliffs in Aberdeenshire, north-east Scotland, and is located approximately 40.93 km from the Array Area. The SPA boundary overlaps with Fowlsheugh SSSI and extends approximately 2 km into the marine environment. The SPA was classified in 1992, with the marine extension classified in 2009 (NatureScot, ND).
- 5.7.484 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.
- 5.7.485 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.134.

Table 5.134: The Relevant Features and Impacts Included Within the Assessment for Fowlsheugh SPA

Impact	Fulmar ¹	Kittiwake ²	Herring gull ¹	Guillemot ²	Razorbill ¹
Collision Risk Mortality due to Collision with Rotor Blades	x	✓	✓	x	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓	✓	x	✓	✓
Disturbance and Displacement to Birds from Vessel Movements	x	x	x	✓	✓
Disturbance to Prey Species and Their Habitat	✓	✓	✓	✓	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓	✓	✓	✓	✓
Direct Impacts from UXO Clearance	x	x	x	✓	✓
Indirect Impacts from Construction/Decommissioning Noise	✓	✓	✓	✓	✓

¹ Named component of the seabird assemblage only.

² Qualifying feature and named component of the seabird assemblage.

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.486 Of the impacts screened in for assessment (Table 3.7), both collision risk and distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Collision Risk Mortality due to Collision with Rotor Blades

- 5.7.487 A quantitative assessment was carried out for collision mortality due to the Array Area following the methodology described in Section 5.4, 'Impact 1: Collision Risk Mortality due to Collision with Rotor Blades' for kittiwake and herring gull.
- 5.7.488 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values and methodology presented in Appendix 3A: Offshore Ornithology

Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).

- 5.7.489 The number of apportioned mortalities is presented in Table 5.135, with the change in survival rate presented in Table 5.136. As the decrease in survival rate exceeded the 0.02 percentage point threshold advised by NatureScot (2023g) for both kittiwake and herring gull, a PVA is required to determine whether the impacts of collision risk will result in AEOSI.

Required PVAs for Collision Risk

Kittiwake

- 5.7.490 Although the impacts to kittiwake due to collision reached the threshold for PVA, as kittiwake are impacted by both collision risk and distributional responses, a PVA for the combined impacts was conducted with the results presented in Table 5.141 and discussed in Paragraphs 5.7.505 to 5.7.507.

Herring Gull

- 5.7.491 A comparison of the Seabird 2000 and Seabirds Count census found that the herring gull population at Fowlsheugh SPA has decreased by 13% (Burnell *et al.*, 2023). Moreover, the most recent count of 1,035 AON was found to be less than half of the citation population (3,190 pairs). These population trends were further exaggerated following the HPAI outbreak where it was found that the population size decreased by 25% (Tremlett *et al.*, 2024), suggesting that HPAI has had a notable impact on herring gull at Fowlsheugh SPA.
- 5.7.492 Despite the decreasing trends in population size, the results of the PVA for herring gull (Table 5.137) show that the growth rate was predicted to decrease by 0.1%, equivalent to a 4.1% decrease in population, due to the Proposed Development alone. Therefore, as the impact of the Proposed Development alone is expected to be small, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI due to impacts to herring gull at Fowlsheugh SPA.

Table 5.135: Apportioned Mortalities due to Collision Risk During the O&M phase of the Proposed Development at Fowlsheugh SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Kittiwake (Option 1)	4.69	0.970 (0.100)	0.337	1.38	SM	0.90	0.599	0.026	0.01	1.40
					AM	0.34	0.579	0.021	0.00	
Kittiwake (Option 2)	37.59			11.05	SM	7.22	0.599	0.026	0.11	11.20
					AM	2.76	0.579	0.021	0.03	
Herring gull	32.15	0.766 (0.350)	0.139	2.23	-	1.46	0.451	0.139	0.06	2.29

Table 5.136: Change in Survival Rate due to Collision Risk During the O&M Phase of the Proposed Development at Fowlsheugh SPA

Species	Model Option	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Kittiwake	1	28,078	1.40	0.005	No AEOSI ¹
Kittiwake	2		11.20	0.040	PVA Required
Herring gull	2	2,070	2.29	0.111	PVA Required

¹ Although the 0.02 percentage point threshold was not met, a PVA using Option 1 outputs was carried out to provide a comparison

Table 5.137: Results of the Proposed Development Alone PVAs for Collision Risk only at Fowlsheugh SPA for the Operational Lifetime (30 years) of the Proposed Development

Species	Baseline Simulated Population Size	Impacted Simulated Population Size	Median Counterfactual (CI)	
			Growth Rate	Population Size
Herring gull	2,513	2,399	0.999 (0.995 to 1.002)	0.959 (0.845 to 1.092)

Distributional Responses due to Offshore Infrastructure

- 5.7.493 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure' for fulmar, kittiwake, guillemot and razorbill.
- 5.7.494 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.495 The number of apportioning mortalities is presented in Table 5.138, with the change in survival rate presented in Table 5.139. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for fulmar, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage feature (due to impacts to fulmar) of Fowlsheugh SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.
- 5.7.496 As the decrease in survival rate exceeded the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake, guillemot and razorbill, a PVA is required to determine whether the impacts of distributional responses will result in AEOSI.

Required PVAs for Distributional Responses

Kittiwake

- 5.7.497 Although the impacts to kittiwake due to distributional responses reached the threshold for PVA, as kittiwake are impacted by both collision risk and distributional responses, a PVA for the combined impacts was conducted with the results presented in Table 5.141 and discussed in Paragraphs 5.7.505 to 5.7.506.

Guillemot

- 5.7.498 A comparison of the Seabird 2000 and Seabirds Count census found that the guillemot population at Fowlsheugh SPA remained relatively stable, increasing by 1% (Burnell *et al.*, 2023). Moreover, the most recent count of 69,828 individuals was found to be more than double the citation population (16,000 pairs). Furthermore, Tremlett *et al.* (2024) found that the guillemot population increase by 34% following the HPAI outbreak, suggesting that the guillemot population at Fowlsheugh SPA is in good condition.
- 5.7.499 The results of the PVA for guillemot (Table 5.140) shows that under the high displacement scenario the growth rate was predicted to decrease by 0.4%, equivalent to an 10.6% decrease in population, due to the Proposed Development alone. As this impact is relatively small and the guillemot population has been shown to remain consistent, even increasing in size following the HPAI outbreak, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI due to impacts to guillemot at Fowlsheugh SPA.

Razorbill

- 5.7.500 A comparison of the Seabird 2000 and Seabirds Count census found that the razorbill population at Fowlsheugh SPA has increased by 92% (Burnell *et al.*, 2023). Moreover, the most recent count of 14,063 individuals was found to be consistent with the citation population (5,800 pairs). As Tremlett *et al* (2024) did not survey razorbill, the impacts of HPAI on razorbill at Fowlsheugh SPA is unclear.
- 5.7.501 The results of the PVA for razorbill (Table 5.140) shows that under the high displacement scenario the growth rate was predicted to decrease by 0.1%, equivalent to a 3.8% decrease in population, due to the Proposed Development alone. As this impact is relatively small and the population has recorded notable increases, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI due to impacts to razorbill at Fowlsheugh SPA.

Table 5.138: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Fowlsheugh SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.045	0.04 to 0.11	Migration	0.87 to 1.73	0.599	0.001	0.00 to 0.00	0.04 to 0.11
					Winter	0.13 to 0.27	0.719	0.001	0.00 to 0.00	
Kittiwake	5 to 16	0.970 (0.100)	0.337	1.47 to 4.70	SM	0.53 to 2.13	0.599	0.026	0.01 to 0.03	1.48 to 4.76
					AM	0.47 to 1.87	0.579	0.021	0.01 to 0.02	
Guillemot	287 to 479	0.501 (0.070)	0.724	96.93 to 161.78	-	109 to 328	0.591	0.724	46.66 to 140.40	143.59 to 302.18
Razorbill	48 to 80	0.508 (0.070)	0.536	12.15 to 20.24	Migration	2.93 to 9.53	0.511	0.020	0.03 to 0.10	12.18 to 20.36
					Winter	1.07 to 3.47	0.486	0.012	0.01 to 0.02	

Table 5.139: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Fowlsheugh SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	1,050	0.04 to 0.11	0.004 to 0.010	No AEOSI
Kittiwake	28,078	1.48 to 4.76	0.005 to 0.017	No AEOSI
Guillemot	93,570	143.59 to 302.18	0.153 to 0.323	PVA Required
Razorbill	18,844	12.18 to 20.36	0.065 to 0.108	PVA Required

Table 5.140: Results of the Proposed Development Alone PVAs for Distributional Responses Only at Fowlsheugh SPA for the Operational Lifetime (30 years) of the Proposed Development

Species	Baseline Simulated Population Size	Impact Scenario	Impacted Simulated Population Size	Median Counterfactual (CI)	
				Growth Rate	Population Size
Guillemot	431,357	Low	408,990	0.998 (0.998 to 0.999)	0.948 (0.938 to 0.958)
		High	385,919	0.996 (0.996 to 0.997)	0.894 (0.884 to 0.904)
Razorbill	35,728	Low	34,898	0.999 (0.998 to 1.000)	0.977 (0.944 to 1.011)
		High	34,390	0.999 (0.998 to 1.000)	0.962 (0.929 to 0.996)

Combined Impacts of Collision Risk and Distributional Responses

- 5.7.502 As kittiwake were assessed for both collision risk and distributional responses, the combined impact has been used to determine whether a PVA is required. It was found that 11.20 mortalities are expected to occur due to collision risk (Table 5.135) and 1.48 to 4.76 mortalities due to distributional responses (Table 5.138). Therefore, it is expected that a total of 12.68 to 15.96 kittiwake mortalities will occur due to the Proposed Development alone, equivalent to a decrease in survival rate of 0.045 to 0.057 percentage points.
- 5.7.503 When using Option 1 of the sCRM, the number of mortalities due to collision risk was reduced to 1.40 (Table 5.135) and the expected mortalities from collision risk and distributional responses is reduced to 2.88 to 6.16, equivalent to a decrease in survival rate of 0.010 to 0.022 percentage points.
- 5.7.504 As the decrease in survival rate, due to collision risk (both Option 1 and 2) and distributional responses, exceeded the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake a PVA for the combined impact of collision risk and distributional responses was required.

Required PVAs for Collision Risk and Distributional Responses

Kittiwake

- 5.7.505 A comparison of the Seabird 2000 and Seabirds Count censuses found that the kittiwake population at Fowlsheugh SPA has decreased by 51% (Burnell *et al.*, 2023), with most recent census count of 14,039 AON, slightly less than half of the citation population (36,650 AON). However, during surveys undertaken by Tremblett *et al.* (2023), kittiwake at Fowlsheugh SPA was found to have increased by 64% during the HPAI outbreak suggesting the population is showing signs of recovery.
- 5.7.506 The results of the PVA for kittiwake (Option 2; Table 5.141) shows that under the high displacement scenario the growth rate was predicted to decrease by 0.1%, equivalent to a 2.0% decrease in population, due to the Proposed Development alone. Moreover, when using site-specific flight height data (Option 1;

Table 5.141), it was found that the growth rate was unchanged and any decrease in population is expected to be less than 1.0%.

- 5.7.507 As this impact is relatively small and the population has shown signs of recovery following the HPAI outbreak, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI due to impacts to kittiwake at Fowlsheugh SPA.

Table 5.141: Results of the Proposed Development Alone PVAs for Collision Risk and Distributional Responses at Fowlsheugh SPA for the Operational Lifetime (30 years) of the Proposed Development

Species	Baseline Simulated Population Size	Displacement Scenario	Impacted Median Population Size (Breeding Adults)	Counterfactual Growth Rate (CGR)	Counterfactual Population Size (CPS)
Option 1					
Kittiwake	51,919	Low	51,754	1.000 (0.999 to 1.001)	0.996 (0.963 to 1.030)
		High	51,468	1.000 (0.999 to 1.001)	0.992 (0.958 to 1.027)
Option 2					
Kittiwake	51,919	Low	51,040	0.999 (0.999 to 1.000)	0.984 (0.950 to 1.016)
		High	50,968	0.999 (0.998 to 1.000)	0.980 (0.946 to 1.012)

Conclusion for Quantitative Assessment

- 5.7.508 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the guillemot, kittiwake and breeding seabird assemblage (due to impacts to the aforementioned species, fulmar, herring gull and razorbill) features. Therefore, it is expected that the features will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.509 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Fowlsheugh SPA due to the following impacts:
- collision risk mortality due to collision with rotor blades;
 - distributional responses due to offshore infrastructure; and
 - combined impacts of collision risk and distributional responses.

Qualitative Impacts

5.7.510 Of the impacts screened in for assessment, five impacts have been assessed qualitatively:

- disturbance and displacement to birds from vessel movements (Section 5.5, 'Impact 3: Disturbance to Birds from Vessel Movements');
- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
- temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance');
- direct impacts from UXO clearance (Section 5.5, 'Impact 6: Direct Impacts from UXO Clearance'); and
- indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').

5.7.511 No site-specific qualitative assessments were required in order to address the impacts for fulmar, kittiwake, herring gull, guillemot and razorbill at Fowlsheugh SPA.

Conclusion for Qualitative Assessment

5.7.512 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the guillemot, kittiwake and breeding seabird assemblage (due to impacts to the aforementioned species, fulmar, herring gull and razorbill) features. Therefore, it is expected that the features will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.

5.7.513 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Fowlsheugh SPA due to the following impacts:

- disturbance and displacement to birds due to vessel movements;
- disturbance to prey species and their habitats;
- temporary habitat loss and/or habitat disturbance;
- direct impacts due to UXO clearance; and
- indirect impacts from construction/decommissioning noise.

5.7.514 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

5.7.515 As highlighted in Table 5.19, in-combination assessment was required for kittiwake, herring gull, guillemot and razorbill.

Kittiwake

- 5.7.516 It was found that the Proposed Development alone resulted in 2.88 to 6.16 and 12.68 to 15.96 annual mortalities for kittiwake using Option 1 and 2 of the sCRM respectively, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.142.
- 5.7.517 Although the RIAA for MarramWind was not available at the time of data analysis, it should be noted that MarramWind was found to contribute 2.25 to 2.68 mortalities (MarramWind, 2026), which is equivalent to a 1.0% increase in mortalities for the high mortality displacement (using Option 2 sCRM) scenario. The inclusion of MarramWind is not expected to change the conclusions drawn.

Table 5.142: Number of Mortalities Due to Collision Risk and Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Kittiwake at Fowlsheugh SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Bowdun (Option 1)	1.38	0.02	1.40	1.47 to 4.70	0.01 to 0.06	1.48 to 4.76	2.88 to 6.16	2.88 to 6.16
Bowdun (Option 2)	11.05	0.15	11.20	1.47 to 4.70	0.01 to 0.06	1.48 to 4.76	12.68 to 15.96	12.68 to 15.96
Aberdeen	0.61	0.06 (0.05)	0.67 (0.66)	-	0.00 to 0.01	0.00 to 0.01	0.67 to 0.68	0.66 to 0.66
Aspen	0.30	0.06	0.36	0.05 to 0.15	0.01 to 0.02	0.06 to 0.17	0.41 to 0.53	0.41 to 0.53
Ayre	0.13	0.19	0.32	0.02 to 0.09	0.04 to 0.11	0.06 to 0.2	0.38 to 0.52	0.38 to 0.53
Beatrice	-	0.49 (0.27)	0.49 (0.27)	-	0.1 to 0.31	0.1 to 0.31	0.59 to 0.8	0.37 to 0.58
Berwick Bank	67.35	4.17 (4.19)	71.52 (71.54)	9.5 to 28.5	1.16 to 3.47	10.66 to 31.97	82.18 to 103.5	82.2 to 103.51
Blyth Demo	-	0.03	0.03	-	0.07 to 0.21	0.07 to 0.21	0.1 to 0.24	0.1 to 0.24
Buchan	0.29	0.09 (0.04)	0.38 (0.33)	1.8 to 1.8	0.02 to 0.06	1.82 to 1.86	2.2 to 2.24	2.15 to 2.19
Caledonia (North & South)	1.35	0.18	1.53	0.15 to 0.45	0.03 to 0.08	0.18 to 0.53	1.71 to 2.07	1.71 to 2.07
Cenos	1.60	0.08	1.68	0.12 to 0.36	0 to 0.01	0.12 to 0.37	1.8 to 2.05	1.8 to 2.05
Dogger Bank A and B	-	4.14 (4.15)	4.14 (4.15)	-	0.88 to 2.63	0.88 to 2.63	5.02 to 6.77	5.03 to 6.79

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Dogger Bank C and Sofia	-	2.96 (2.97)	2.96 (2.97)	-	0.65 to 1.94	0.65 to 1.94	3.61 to 4.91	3.62 to 4.92
Dogger Bank South	-	2.79 (2.8)	2.79 (2.8)	-	0.86 to 2.59	0.86 to 2.59	3.65 to 5.38	3.66 to 5.39
East Anglia One	-	1.91 (1.29)	1.91 (1.29)	-	0.09 to 0.27	0.09 to 0.27	2 to 2.18	1.38 to 1.56
East Anglia One North	-	0.13	0.13	-	0.03 to 0.08	0.03 to 0.08	0.16 to 0.21	0.16 to 0.21
East Anglia Three	-	0.81 (0.82)	0.81 (0.82)	-	0.22 to 0.66	0.22 to 0.66	1.03 to 1.47	1.04 to 1.47
East Anglia Two	-	0.14 (0.15)	0.14 (0.15)	-	0.02 to 0.06	0.02 to 0.06	0.16 to 0.2	0.17 to 0.2
Five Estuaries	-	0.31	0.31	-	0.04 to 0.11	0.04 to 0.11	0.35 to 0.42	0.35 to 0.43
Galloper	-	0.57 (0.24)	0.57 (0.24)	-	-	-	0.57	0.24
Greater Gabbard	-	0.25	0.25	-	-	-	0.25	0.25
Green Volt	0.50	0.15	0.65	0.05 to 0.15	0.01 to 0.03	0.06 to 0.18	0.71 to 0.83	0.71 to 0.83
Hornsea One	-	0.18 (0.07)	0.18 (0.07)	-	1.49 to 4.48	1.49 to 4.48	1.67 to 4.66	1.57 to 4.56
Hornsea Project Four	-	0.21	0.21	-	0.29 to 0.87	0.29 to 0.87	0.5 to 1.08	0.5 to 1.08
Hornsea Project Three	-	0.78	0.78	-	0.29 to 0.88	0.29 to 0.88	1.08 to 1.66	1.08 to 1.67
Hornsea Project Two	-	0.11	0.11	-	0.16 to 0.48	0.16 to 0.48	0.27 to 0.59	0.27 to 0.59

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Humber Gateway	-	0.05 (0.02)	0.05 (0.02)	-	-	-	0.05	0.02
Hywind	2.18	0.02	2.20	-	-	-	2.2	2.2
Inch Cape	7.27	0.36	7.63	2.8 to 8.4	0.1 to 0.3	2.9 to 8.7	10.53 to 16.33	10.53 to 16.33
Kentish Flats	-	0.02	0.02	-	-	-	0.02	0.02
Kentish Flats Extension	-	0.04 (0.02)	0.04 (0.02)	-	-	-	0.04	0.02
Kincardine	8.12	0.09	8.21	1 to 3	-	1 to 3	9.21 to 11.21	9.21 to 11.21
Lincs	-	0.02	0.02	-	-	-	0.02	0.02
London Array	-	0.04 (0.01)	0.04 (0.01)	-	-	-	0.04	0.01
Moray East	-	0.08	0.08	-	-	-	0.08	0.08
Moray West	-	0.34	0.34	-	0.12 to 0.35	0.12 to 0.35	0.46 to 0.69	0.46 to 0.69
Muir Mhor	4.69	0.14 (0.15)	4.83 (4.84)	-	0.04 to 0.11	0.04 to 0.11	4.87 to 4.95	4.87 to 4.95
Neart na Gaoithe	0.51	0.21 (0.22)	0.72 (0.73)	0.59 to 1.77	0.1 to 0.3	0.69 to 2.07	1.41 to 2.79	1.42 to 2.8
Norfolk Boreas	-	0.50	0.50	-	0.16 to 0.49	0.16 to 0.49	0.66 to 0.99	0.66 to 0.99
Norfolk Vanguard	-	0.4 (0.41)	0.4 (0.41)	-	0.1 to 0.31	0.1 to 0.31	0.51 to 0.71	0.51 to 0.71
North Falls	-	0.23	0.23	-	0.06 to 0.18	0.06 to 0.18	0.29 to 0.41	0.29 to 0.41

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Ossian	4.70	0.18	4.88	1.57 to 4.72	0.05 to 0.16	1.63 to 4.88	6.51 to 9.76	6.51 to 9.76
Outer Dowsing	-	0.26	0.26	-	0.32 to 0.97	0.32 to 0.97	0.58 to 1.23	0.59 to 1.23
Pentland	-	0.01	0.01	-	0.01 to 0.02	0.01 to 0.02	0.02 to 0.03	0.02 to 0.03
Race Bank	-	0.27 (0.16)	0.27 (0.16)	-	-	-	0.27	0.16
Salamander	1.05	0.00	1.05	0.79 to 2.38	0.01 to 0.03	0.8 to 2.41	1.85 to 3.46	1.85 to 3.46
Seagreen	31.87	2.49 (2.5)	34.36 (34.37)	6 to 18	0.21 to 0.64	6.21 to 18.64	40.57 to 52.99	40.58 to 53
Sheringham Shoal Extension and Dudgeon Extension	-	0.08	0.08	-	0.13 to 0.38	0.13 to 0.38	0.21 to 0.46	0.21 to 0.46
Teesside	-	0.24 (0.2)	0.24 (0.2)	-	-	-	0.24	0.2
Thanet	-	0.01 (0)	0.01 (0)	-	-	-	0.01	0
Triton Knoll	-	1.7 (0.62)	1.7 (0.62)	-	0.03 to 0.08	0.03 to 0.08	1.73 to 1.78	0.65 to 0.7
West of Orkney	0.10	0.59 (0.6)	0.69 (0.7)	0.02 to 0.06	0.09 to 0.28	0.11 to 0.34	0.81 to 1.03	0.81 to 1.04
Option 1								
Total	133.99	29.21 (26.65)	163.20 (160.65)	25.94 to 74.53	8.00 to 24.02	93.94 to 98.56	197.14 to 261.76	194.58 to 259.21

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Total excluding Berwick Bank	66.64	25.02 (22.46)	91.67 (89.11)	16.44 to 46.03	6.81 to 20.45	23.25 to 66.49	114.91 to 158.15	112.36 to 155.60
Total excluding Bowdun	132.62	29.19 (26.63)	161.81 (159.25)	24.47 to 69.83	7.99 to 23.97	32.46 to 93.80	194.26 to 255.60	191.70 to 253.05
Option 2								
Total	143.67	29.34 (26.78)	173.01 (170.45)	25.94 to 74.53	8.00 to 24.02	93.94 to 98.56	206.94 to 271.56	204.38 to 269.01
Total excluding Berwick Bank	76.32	25.15 (22.59)	101.47 (98.91)	16.44 to 46.03	6.81 to 20.45	23.25 to 66.49	124.71 to 167.95	122.16 to 165.40
Total excluding Bowdun	132.62	29.19 (26.63)	161.81 (159.25)	24.47 to 69.83	7.99 to 23.97	32.46 to 93.80	194.26 to 255.60	191.70 to 153.05

¹ The number of mortalities due to ‘consented’ collisions are presented, with the number of ‘as-built’ collisions presented in parentheses where relevant.

² Low and high displacement scenarios are presented in Table 5.3

5.7.518 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank and using consented and as-built collisions (Table 5.143).

Table 5.143: In-combination PVA Results for Kittiwake, Impacted by Collision Risk (Option 2) and Distributional Responses, at Fowlsheugh SPA (initial population size: 28,078 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Berwick Bank Offshore Wind Farm included or excluded	Displacement Scenario	Baseline Median Population Size (Breeding Adults)	Impacted Median Population Size (Breeding Adults)	Counterfactual Growth Rate (CGR)	Counterfactual Population Size (CPS)
‘Consented’ mortalities					
Including Berwick Bank	Low	51,919	39,538	0.991 (0.990 to 0.992)	0.762 (0.735 to 0.788)
	High		36,319	0.989 (0.988 to 0.989)	0.700 (0.674 to 0.725)
Excluding Berwick Bank	Low		44,034	0.995 (0.994 to 0.996)	0.849 (0.820 to 0.878)
	High		41,539	0.993 (0.992 to 0.994)	0.802 (0.774 to 0.830)
‘As-built’ mortalities					
Including Berwick Bank	Low	51,919	39,711	0.991 (0.990 to 0.992)	0.765 (0.737 to 0.792)
	High		36,446	0.989 (0.988 to 0.990)	0.702 (0.676 to 0.727)
Excluding Berwick Bank	Low		44,233	0.995 (0.994 to 0.996)	0.852 (0.823 to 0.882)
	High		41,659	0.993 (0.992 to 0.994)	0.805 (0.777 to 0.833)

5.7.519 Using consented mortalities (Table 5.143), it was found that under all scenarios the CGR was greater or equal to 0.989, indicating that the growth rate of the kittiwake is unlikely to decrease by more than 1.1%. The population size was found to increase under all scenarios and the CPS, after 30 years, ranged from 0.700 to 0.849.

5.7.520 When accounting for as-built corrections, it was found the median CGR was unchanged when compared to the corresponding consented scenarios. Moreover, the median CPS also showed little difference with the impacts to population size decreasing by just 0.3% for the majority of scenarios.

5.7.521 Additionally, PVA run using site-specific flight height data found the impacts to growth rate are expected to decrease by up to 0.1% and the population size by no more than 1.1% (presented in Table 3.5 of Appendix 3B: Offshore Ornithology Special Protection Area Population Viability Analysis Technical Report (TWP-

BOW-RPS-ENV-RPT-00027)). Therefore, using site-specific sCRM (Option 1) is unlikely to impact the conclusions for AEOSI.

- 5.7.522 As described in Paragraph 5.7.505, the kittiwake population has shown a long-term decline in population size with recent signs of recovery following the most recent HPAI outbreak. Despite recent population increases, as the impacts from the Proposed Development in-combination with other projects is expected to be relatively large (up to 11% decrease in growth rate and 30.0% decrease in population size), an AEOSI due to impacts to the kittiwake population of Fowlsheugh SPA **could not be ruled out** including or excluding Berwick Bank.

Herring Gull

- 5.7.523 It was found that the Proposed Development alone resulted in 2.29 annual mortalities for herring gull, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.144.

Table 5.144: Number of Mortalities Due to Collision Risk for Each Project Included Within In-combination Assessment for Herring Gull at Fowlsheugh SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Breeding Season	Non-breeding Season ¹	Annual
Bowdun	2.23	0.06	2.29
Aberdeen	1.20	-	1.20
Berwick Bank	1.08	0.08	1.16
Inch Cape	0.12	0.08	0.20
Kincardine	0.60	-	0.60
Methil	-	0.41	0.41
Neart na Gaoithe	-	0.19	0.19
Seagreen	0.19	0.13	0.32
Total	5.42	0.95	6.36
Total excluding Berwick Bank	4.34	0.87	5.20
Total excluding Bowdun	3.19	0.88	4.07

¹ A correction factor of 0.675 has been used to account for continental and UK west coast breeding herring gull

- 5.7.524 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank (Table 5.145).

Table 5.145: In-combination PVA Results for Herring Gull, Impacted by Collision Risk, at Fowlsheugh SPA (initial population size: 2,070 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Baseline Median Population Size (Breeding Adults)	Impacted Median Population Size (Breeding Adults)	Counterfactual Growth Rate (CGR)	Counterfactual Population Size (CPS)
Including Berwick Bank			
2,513	2,243	0.996 (0.993 to 1.000)	0.891 (0.782 to 1.015)
Excluding Berwick Bank			
2,513	2,268	0.997 (0.993 to 1.001)	0.909 (0.796 to 1.039)

- 5.7.525 It was found that under all scenarios the CGR was greater or equal to 0.996, indicating that the growth rate of the herring gull is unlikely to decrease by more than 0.4% (Table 5.145). The population size was found to decrease slightly under all scenarios and the CPS, after 30 years, was found to range from 0.891 to 0.909 indicating a decrease of 10.9% in population size compared to the baseline simulation.
- 5.7.526 Although the impacts from the Proposed Development in-combination with other projects is expected to be small, due to the decreasing trend in population size which has been further impacted by the recent HPAI outbreak (see Paragraph 5.7.491) it is expected that the impacts may hinder recovery of herring gull at Fowlsheugh SPA.
- 5.7.527 Therefore, an AEOSI due to impacts to the herring gull population of Fowlsheugh SPA **could not be ruled out** including or excluding Berwick Bank
- Guillemot*
- 5.7.528 It was found that the Proposed Development alone resulted in 143.59 to 302.18 annual mortalities for guillemot, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.146.

Table 5.146: Number of Mortalities Due to Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Guillemot at Fowlsheugh SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Breeding Season		Non-breeding Season		Annual	
	Low ¹	High	Low	High	Low	High
Bowdun	96.93	161.78	46.66	140.40	143.59	302.18
Berwick Bank	229.59	382.65	30.30	90.90	259.89	473.55
Inch Cape	23.40	39.00	3.70	11.10	27.10	50.10
Kincardine	5.37	8.95	-	-	5.37	8.95
Neart na Gaoithe	3.84	6.40	2.15	6.45	5.99	12.85
Seagreen	111.00	185.00	26.00	78.00	137.00	263.00
Total	470.13	783.78	108.81	326.85	578.94	1,110.63
Total excluding Berwick Bank	240.54	401.13	78.51	235.95	319.05	637.08
Total excluding Bowdun	373.20	622.00	62.15	186.45	435.35	808.45

¹ Low and high displacement scenarios are presented in Table 5.3

5.7.529 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank (Table 5.147).

Table 5.147: In-combination PVA Results for Guillemot, Impacted by Distributional Responses, at Fowlsheugh SPA (initial population size: 93,570 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Baseline Simulated Population Size	Impact Scenario	Impacted Simulated Population Size	Median Counterfactual (CI)	
			Growth Rate	Population Size
Including Berwick Bank				
431,357	Low	347,770	0.993 (0.993 to 0.993)	0.806 (0.798 to 0.815)
	High	285,102	0.987 (0.986 to 0.987)	0.661 (0.653 to 0.669)
Excluding Berwick Bank				
431,357	Low	383,239	0.996 (0.996 to 0.996)	0.888 (0.879 to 0.898)
	High	340,270	0.992 (0.992 to 0.993)	0.789 (0.781 to 0.798)

5.7.530 It was found that under all scenarios the CGR was greater or equal to 0.987, indicating that the growth rate of the guillemot is unlikely to decrease by more than 1.3% (Table 5.39). The population size was found to decrease under all scenarios. However, the CPS, after 30 years, was found to range from 0.661 to 0.888 indicating a maximum decrease in population size of 33.9%.

5.7.531 Although the guillemot population was found to remain relatively stable by both Burnell *et al.* (2023) and Tremlett *et al.* (2024) (see Paragraph 5.7.498), the impact of the Proposed Development in-combination with other projects is considered to be relatively high and therefore may lead to negative impacts on the guillemot population at Fowlsheugh SPA.

5.7.532 Therefore, an AEOSI due to impacts to the guillemot population of Fowlsheugh SPA **could not be ruled out** including or excluding Berwick Bank.

Razorbill

- 5.7.533 It was found that the Proposed Development alone resulted in 12.18 to 20.36 annual mortalities for razorbill, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.148.
- 5.7.534 Although the RIAA for MarramWind was not available at the time of data analysis, it should be noted that MarramWind was found to contribute 0.07 to 0.21 mortalities (MarramWind, 2026), which is equivalent to a 0.1% increase in mortalities for the high mortality displacement scenario. The inclusion of MarramWind is not expected to change the conclusions drawn.

Table 5.148: Number of Mortalities Due to Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Razorbill at Fowlsheugh SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Breeding Season		Non-breeding Season		Annual	
	Low ²	High	Low	High	Low	High
Bowdun	12.15	20.24	0.04	0.12	12.18	20.36
Aberdeen	-	-	0.01	0.02	0.01	0.02
Aspen	-	-	0.00	0.01	0.00	0.01
Ayre	-	-	0.08	0.24	0.08	0.24
Beatrice	-	-	0.15	0.45	0.15	0.45
Berwick Bank	11.50	19.17	1.20	3.60	12.70	22.77
Blyth Demo	-	-	0.02	0.05	0.02	0.05
Buchan	-	-	0.01	0.04	0.01	0.04
Caledonia (North & South)	-	-	0.18	0.53	0.18	0.53
Dogger Bank A	-	-	0.50	1.51	0.50	1.51
Dogger Bank B	-	-	0.63	1.90	0.63	1.90
Dogger Bank C	-	-	0.22	0.65	0.22	0.65
Dogger Bank South	-	-	1.87	5.61	1.87	5.61
Dudgeon Extension	-	-	0.11	0.32	0.11	0.32
Dudgeon	-	-	0.10	0.29	0.10	0.29
East Anglia One	-	-	0.03	0.10	0.03	0.10
East Anglia One North	-	-	0.02	0.07	0.02	0.07
East Anglia Three	-	-	0.28	0.84	0.28	0.84
East Anglia Two	-	-	0.03	0.08	0.03	0.08
Five Estuaries	-	-	0.14	0.42	0.14	0.42
Galloper	-	-	0.04	0.11	0.04	0.11
Greater Gabbard	-	-	0.03	0.10	0.03	0.10
Green Volt	-	-	0.01	0.02	0.01	0.02
Gunfleet Sands	-	-	0.00	0.01	0.00	0.01
Hornsea One	-	-	0.55	1.65	0.55	1.65

Project	Breeding Season		Non-breeding Season		Annual	
	Low ²	High	Low	High	Low	High
Hornsea Project Four	-	-	0.35	1.06	0.35	1.06
Hornsea Project Three	-	-	0.53	1.58	0.53	1.58
Hornsea Project Two	-	-	0.45	1.34	0.45	1.34
Humber Gateway	-	-	0.00	0.01	0.00	0.01
Hywind	0.12	0.20	0.05	0.15	0.05	0.15
Inch Cape	12.00	20.00	0.24	0.71	0.24	0.71
Kincardine	0.24	0.40	-	-	0.24	0.40
Lincs and Lynn and Inner Dowsing	-	-	0.01	0.02	0.01	0.02
London Array	-	-	0.00	0.01	0.00	0.01
Moray East	-	-	0.09	0.26	0.09	0.26
Moray West	-	-	0.49	1.48	0.49	1.48
Muir Mhor ¹	0.60	0.60	0.10	0.31	0.70	0.91
Neart na Gaoithe	0.93	1.55	0.41	1.22	1.33	2.77
Norfolk Boreas	-	-	0.11	0.34	0.11	0.34
Norfolk Vanguard	-	-	0.18	0.53	0.18	0.53
North Falls	-	-	0.25	0.76	0.25	0.76
Ossian	16.55	27.59	0.13	0.38	16.68	27.97
Outer Dowsing	-	-	0.62	1.85	0.62	1.85
Race Bank	-	-	0.01	0.02	0.01	0.02
Rampion	-	-	0.31	0.94	0.31	0.94
Rampion 2	-	-	0.51	1.53	0.51	1.53
Salamander	1.44	2.40	0.03	0.10	1.47	2.50
Seagreen Alpha and Bravo	24.00	40.00	0.16	0.48	24.16	40.48
Sheringham Shoal	-	-	0.11	0.32	0.11	0.32
Sheringham Shoal Extension	-	-	0.33	1.00	0.33	1.00
Sofia	-	-	0.34	1.01	0.34	1.01
Teesside	-	-	0.01	0.02	0.01	0.02
Thanet	-	-	0.00	0.01	0.00	0.01
Triton Knoll	-	-	0.08	0.25	0.08	0.25
Westernmost Rough	-	-	0.02	0.07	0.02	0.07
Total	79.53	132.14	12.16	36.50	91.69	168.64
Total excluding Berwick Bank	68.02	112.97	10.69	32.09	78.72	145.06
Total excluding Bowdun	67.38	111.90	12.13	36.38	79.51	148.28

¹ Values calculated using SeabORD

² Low and high displacement scenarios are presented in Table 5.3

5.7.535 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank (Table 5.149).

Table 5.149: In-combination PVA Results for Razorbill, Impacted by Distributional Responses, at Fowlsheugh SPA (initial population size: 18,844 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Baseline Simulated Population Size	Impact Scenario	Impacted Simulated Population Size	Median Counterfactual (CI)	
			Growth Rate	Population Size
Including Berwick Bank				
35,728	Low	30,050	0.994 (0.994 to 0.995)	0.841 (0.811 to 0.871)
	High	25,907	0.990 (0.989 to 0.991)	0.727 (0.701 to 0.754)
Excluding Berwick Bank				
35,728	Low	30,803	0.995 (0.994 to 0.996)	0.862 (0.832 to 0.893)
	High	27,108	0.991 (0.990 to 0.992)	0.761 (0.733 to 0.788)

- 5.7.536 It was found that under all scenarios the CGR was greater or equal to 0.990, indicating that the growth rate of the razorbill is unlikely to decrease by more than 1.0% (Table 5.149). The population size was found to decrease under all scenarios. However, the CPS, after 30 years, was found to range from 0.727 to 0.862 indicating a maximum decrease in population size of 27.3%.
- 5.7.537 Although the razorbill population has been shown to increase between seabird censuses, as the predicted impacts from the Proposed Development in-combination with other projects is considered to be relatively high an AEOSI due to impacts to razorbill **could not be ruled out** including or excluding Berwick Bank.

Handa SPA

- 5.7.538 Handa SPA is an island on the west coast of Sutherland, Scotland, and is located approximately 351.31 km from the Array Area. The SPA boundary overlaps with Handa Island SSSI and extends approximately 2 km into the marine environment. The SPA was classified in 1990, with the marine extension classified in 2009 (NatureScot, ND).
- 5.7.539 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.
- 5.7.540 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.150.

Table 5.150: The Relevant Features and Impacts Included Within the Assessment for Handa SPA

Impact	Fulmar ¹	Razorbill ²
Collision Risk Mortality due to Collision with Rotor Blades	x	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓	✓
Disturbance and Displacement to Birds from Vessel Movements	x	✓

Impact	Fulmar ¹	Razorbill ²
Disturbance to Prey Species and Their Habitat	✓	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓	✓
Direct Impacts from UXO Clearance	x	✓
Indirect Impacts from Construction/Decommissioning Noise	✓	✓

¹ Named component of the seabird assemblage only.

² Qualifying feature and named component of the seabird assemblage only.

Proposed Development Alone Assessment

Quantitative Impacts

5.7.541 Of the impacts screened in for assessment (Table 3.7), distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Distributional Responses due to Offshore Infrastructure

5.7.542 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure' for fulmar and razorbill.

5.7.543 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).

5.7.544 The number of apportioning mortalities is presented in Table 5.151, with the change in survival rate presented in Table 5.152. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for fulmar or razorbill, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the razorbill or breeding seabird assemblage features of Handa SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Table 5.151: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Handa SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.001	0.00 to 0.00	Migration	0.87 to 1.73	0.599	0.000	0.00 to 0.00	0.00 to 0.00
					Winter	0.13 to 0.27	0.719	0.000	0.00 to 0.00	
Razorbill ¹	-	-	-	-	Migration	2.93 to 9.53	0.511	0.001	0.00 to 0.00	0.00 to 0.02
					Winter	1.07 to 3.47	0.486	0.006	0.00 to 0.01	

¹ Species assessed during the non-breeding season only.

Table 5.152: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Handa SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	1,446	0.00 to 0.00	0.000 to 0.000	No AEOSI
Razorbill ¹	10,997	0.00 to 0.02	0.000 to 0.000	No AEOSI

¹ Species assessed during the non-breeding season only.

Conclusion for Quantitative Assessment

- 5.7.545 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the razorbill and breeding seabird assemblage (due to impacts to razorbill and fulmar) features. . Therefore, it is expected that the features will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.546 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Handa SPA due to the following impacts:
- distributional responses due to offshore infrastructure.

Qualitative Impacts

- 5.7.547 Of the impacts screened in for assessment, five impacts have been assessed qualitatively:
- disturbance and displacement to birds from vessel movements (Section 5.5, 'Impact 3: Disturbance and Displacement to Birds From Vessel Movements');
 - disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
 - temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance');
 - direct impacts from UXO clearance (Section 5.5, 'Impact 6: Direct Impacts from UXO Clearance'); and
 - indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').
- 5.7.548 No site-specific qualitative assessments were required in order to address the impacts for fulmar or razorbill at Handa SPA.

Conclusion for Qualitative Assessment

- 5.7.549 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the razorbill and breeding seabird assemblage (due to impacts to razorbill and fulmar) features. Therefore, it is expected that the features will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.550 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Handa SPA due to the following impacts:
- disturbance and displacement to birds due to vessel movements;
 - disturbance to prey species and their habitats;
 - temporary habitat loss and/or habitat disturbance;
 - direct impacts due to UXO clearance; and

- indirect impacts from construction/decommissioning noise.

5.7.551 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

5.7.552 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar or razorbill, no in-combination assessment was required for Handa SPA.

Hermaness, Saxa Vord and Valla Field SPA

5.7.553 Hermaness, Saxa Vord and Valla Field SPA lies in the north-west corner of Unst, Shetland, and is located approximately 459.96 km from the Array Area. The SPA boundary is coincident with Hermaness SSSI, Saxa Vord SSSI and Valla Field SSSI and extends approximately 2 km into the marine environment. The SPA was classified in 2001, with the marine extension classified in 2009 (NatureScot, ND).

5.7.554 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.

5.7.555 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.153.

Table 5.153: The Relevant Features and Impacts Included Within the Assessment for Hermaness, Saxa Vord and Valla Field SPA

Impact	Fulmar ¹	Gannet ²
Collision Risk Mortality due to Collision with Rotor Blades	x	✓
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓	✓
Disturbance and Displacement to Birds from Vessel Movements	x	x
Disturbance to Prey Species and Their Habitat	✓	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓	✓
Direct Impacts from UXO Clearance	x	✓
Indirect Impacts from Construction/Decommissioning Noise	✓	✓

¹ Named component of the seabird assemblage only.

² Qualifying feature and named component of the seabird assemblage only.

Proposed Development Alone Assessment

Quantitative Impacts

5.7.556 Of the impacts screened in for assessment (Table 3.7), both collision risk and distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Collision Risk Mortality due to Collision with Rotor Blades

- 5.7.557 A quantitative assessment was carried out for collision mortality due to the Array Area following the methodology described in Section 5.4, 'Impact 1: Collision Risk Mortality due to Collision with Rotor Blades' for gannet.
- 5.7.558 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values and methodology presented in Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.559 The number of apportioned mortalities is presented in Table 5.154, with the change in survival rate presented in Table 5.155. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for gannet, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the gannet or breeding seabird assemblage feature of Hermaness, Saxa Vord and Valla Field SPA as a result of collision risk with respect to the O&M phase of the Proposed Development.

Table 5.154: Apportioned Mortalities due to Collision Risk During the O&M phase of the Proposed Development at Hermaness, Saxa Vord and Valla Field SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Gannet	23.64	0.972 (0.100)	0.020	0.41	SM	0.37	0.659	0.201	0.05	0.54
					AM	1.04	0.531	0.155	0.09	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.155: Change in Survival Rate due to Collision Risk During the O&M Phase of the Proposed Development at Hermaness, Saxa Vord and Valla Field SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Gannet	59,124	0.54	0.001	No AEOSI

Distributional Responses due to Offshore Infrastructure

- 5.7.560 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure' for fulmar and gannet.
- 5.7.561 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.562 The number of apportioning mortalities is presented in Table 5.156, with the change in survival rate presented in Table 5.157. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for fulmar and gannet, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the gannet or breeding seabird assemblage (due to impacts to gannet or fulmar) features of Hermaness, Saxa Vord and Valla Field SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Table 5.156: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Hermaness, Saxa Vord and Valla Field SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.013	0.01 to 0.03	Migration	0.87 to 1.73	0.599	0.020	0.01 to 0.02	0.02 to 0.06
					Winter	0.13 to 0.27	0.719	0.022	0.00 to 0.00	
Gannet	4 to 13	0.972 (0.100)	0.020	0.07 to 0.22	SM	0.64 to 1.27	0.659	0.201	0.08 to 0.17	0.18 to 0.45
					AM	0.36 to 0.73	0.531	0.155	0.03 to 0.06	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.157: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Hermaness, Saxa Vord and Valla Field SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	26,416	0.02 to 0.06	0.000 to 0.000	No AEOSI
Gannet	59,124	0.18 to 0.45	0.000 to 0.001	No AEOSI

Combined Impacts of Collision Risk and Distributional Responses

5.7.563 As gannet were assessed for both collision risk and distributional responses, the combined impact has been used to determine whether a PVA is required. It was found that 0.54 mortalities are expected to occur due to collision risk (Table 5.154) and 0.18 to 0.45 mortalities due to distributional responses (Table 5.156). Therefore, it is expected that a total of 0.72 to 0.99 gannet mortalities will occur due to the Proposed Development alone, equivalent to a decrease in survival rate of 0.001 to 0.002 percentage points.

5.7.564 As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for gannet, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the gannet or breeding seabird assemblage features of Hermaness, Saxa Vord and Valla Field SPA as a result of the combined impact of collision risk and distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

5.7.565 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the gannet and breeding seabird assemblage (due to impacts to fulmar) features. Therefore, it is expected that the features will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.

5.7.566 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Hermaness, Saxa Vord and Valla Field SPA due to the following impacts:

- collision risk mortality due to collision with rotor blades;
- distributional responses due to offshore infrastructure; and
- combined impacts of collision risk and distributional responses.

Qualitative Impacts

5.7.567 Of the impacts screened in for assessment, four impacts have been assessed qualitatively:

- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
- temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance');
- direct impacts from UXO clearance (Section 5.5, 'Impact 6: Direct Impacts from UXO Clearance'); and
- indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').

5.7.568 No site-specific qualitative assessments were required in order to address the impacts for fulmar or gannet at Hermaness, Saxa Vord and Valla Field SPA.

Conclusion for Qualitative Assessment

5.7.569 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the gannet and breeding seabird assemblage (due to impacts to fulmar) features. Therefore, it is expected that the features will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.

5.7.570 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Hermaness, Saxa Vord and Valla Field SPA due to the following impacts:

- disturbance to prey species and their habitats;
- temporary habitat loss and/or habitat disturbance;
- direct impacts due to UXO clearance; and
- indirect impacts from construction/decommissioning noise.

5.7.571 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

5.7.572 As highlighted in Table 5.19, in-combination assessment was required for gannet.

Gannet

5.7.573 It was found that the Proposed Development alone resulted in 0.72 to 0.99 annual mortalities for gannet, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.158.

5.7.574 Although the RIAA for MarramWind was not available at the time of data analysis, it should be noted that MarramWind was found to contribute 2.78 to 2.90 mortalities (MarramWind, 2026), which is equivalent to a 3.3% increase in mortalities for the high mortality displacement scenario. The inclusion of MarramWind is not expected to change the conclusions drawn.

Table 5.158: Number of Mortalities Due to Collision Risk and Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Gannet at Hermaness, Saxa Vord and Valla Field SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Collisions ¹			Displacement ²			Annual Consented Collisions + Displacement	Annual As-built Collisions + Displacement
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual		
Bowdun	0.41	0.13	0.54	0.07 to 0.22	0.11 to 0.23	0.18 to 0.45	0.72 to 0.99	0.72 to 0.99
Aberdeen	-	0.07 (0.05)	0.07 (0.05)	-	0 to 0.01	0 to 0.01	0.07 to 0.07	0.06 to 0.06
Aspen	0.09	0.15	0.24	0.06 to 0.19	0.31 to 0.92	0.37 to 1.11	0.61 to 1.35	0.61 to 1.35
Ayre	0.65	0.42	1.07	0.09 to 0.35	0.11 to 0.23	0.2 to 0.58	1.27 to 1.65	1.27 to 1.65
Beatrice	-	0.75 (0.46)	0.75 (0.46)	-	-	-	0.75	0.46
Berwick Bank	0.60	0.32	0.92	0.2 to 0.6	0.86 to 2.59	1.06 to 3.19	1.98 to 4.11	1.98 to 4.11
Blyth Demo	-	0.09	0.09	-	-	-	0.09	0.09
Buchan	0.74	0.18	0.92	1 to 0.3	0.15 to 0.44	1.15 to 0.74	2.07 to 1.66	2.07 to 1.66
Caledonia (North & South)	0.20	0.06	0.26	0.1 to 0.3	0.2 to 0.61	0.3 to 0.91	0.56 to 1.17	0.56 to 1.17
Cenos	0.90	0.11	1.01	0.08 to 0.24	0.17 to 0.5	0.25 to 0.74	1.26 to 1.75	1.26 to 1.75
Dogger Bank A and B	-	2.17	2.17	-	1.33 to 4	1.33 to 4	3.5 to 6.17	3.5 to 6.17
Dogger Bank C and Sofia	-	0.37	0.37	-	0.84 to 2.53	0.84 to 2.53	1.21 to 2.89	1.21 to 2.89
Dogger Bank South	-	0.33	0.33	-	1.56 to 4.69	1.56 to 4.69	1.89 to 5.02	1.89 to 5.02
Dudgeon	-	0.84 (0.39)	0.84 (0.39)	-	0.02 to 0.06	0.02 to 0.06	0.86 to 0.9	0.41 to 0.45
East Anglia One	-	1.38 (0.94)	1.38 (0.94)	-	1.71 to 5.12	1.71 to 5.12	3.09 to 6.5	2.64 to 6.05
East Anglia One North	-	0.18	0.18	-	0.25 to 0.75	0.25 to 0.75	0.43 to 0.93	0.43 to 0.93
East Anglia Three	-	0.47	0.47	-	1.04 to 3.12	1.04 to 3.12	1.51 to 3.59	1.51 to 3.59
East Anglia Two	-	0.44	0.44	-	0.57 to 1.72	0.57 to 1.72	1.01 to 2.15	1.01 to 2.15

Project	Collisions ¹			Displacement ²			Annual Consented Collisions + Displacement	Annual As-built Collisions + Displacement
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual		
Five Estuaries	-	0.18	0.18	-	0.39 to 1.16	0.39 to 1.16	0.57 to 1.35	0.57 to 1.35
Galloper	-	0.6 (0.26)	0.6 (0.26)	-	0.65 to 1.96	0.65 to 1.96	1.25 to 2.56	0.91 to 2.22
Greater Gabbard	-	0.2 (0.19)	0.2 (0.19)	-	0.12 to 0.37	0.12 to 0.37	0.32 to 0.57	0.32 to 0.57
Green Volt	0.50	0.07	0.57	0.04 to 0.12	0.07 to 0.21	0.11 to 0.33	0.68 to 0.9	0.68 to 0.9
Gunfleet Sands	-	0.00	0.00	-	0.01 to 0.04	0.01 to 0.04	0.01 to 0.04	0.01 to 0.04
Hornsea Four	-	0.11	0.11	-	0.72 to 2.16	0.72 to 2.16	0.83 to 2.27	0.83 to 2.27
Hornsea Project One	-	0.19	0.19	-	0.54 to 1.62	0.54 to 1.62	0.73 to 1.81	0.73 to 1.81
Hornsea Project Three	-	0.20	0.20	-	0.92 to 2.76	0.92 to 2.76	1.12 to 2.96	1.12 to 2.96
Hornsea Project Two	-	0.28	0.28	-	0.63 to 1.89	0.63 to 1.89	0.91 to 2.16	0.91 to 2.16
Humber Gateway	-	0.05 (0.02)	0.05 (0.02)	-	-	-	0.05	0.02
Hywind	-	0.02	0.02	-	0 to 0.01	0 to 0.01	0.02 to 0.03	0.02 to 0.03
Inch Cape	-	0.16	0.16	-	0.53 to 1.59	0.53 to 1.59	0.69 to 1.75	0.69 to 1.75
Kentish Flats	-	0.16 (0.13)	0.16 (0.13)	-	0.01 to 0.02	0.01 to 0.02	0.16 to 0.17	0.13 to 0.15
Lincs	-	0.23	0.23	-	-	-	0.23	0.23
London Array	-	0.24 (0.1)	0.24 (0.1)	-	-	-	0.24	0.1
Lynn and Inner Dowsing	-	0.03	0.03	-	-	-	0.03	0.03
Moray East	-	0.57	0.57	-	0.19 to 0.57	0.19 to 0.57	0.76 to 1.14	0.76 to 1.14
Moray West	-	0.04	0.04	-	0.34 to 1.02	0.34 to 1.02	0.38 to 1.06	0.38 to 1.06
Muir Mhor	0.20	0.07	0.27	0.10 to 0.31	0.40 to 1.19	0.50 to 1.50	0.77 to 1.77	0.77 to 1.77
Neart na Gaoithe	-	0.25	0.25	-	0.48 to 1.44	0.48 to 1.44	0.73 to 1.69	0.73 to 1.69
Norfolk Boreas	-	0.29	0.29	-	1.25 to 3.74	1.25 to 3.74	1.53 to 4.02	1.53 to 4.02

Project	Collisions ¹			Displacement ²			Annual Consented Collisions + Displacement	Annual As-built Collisions + Displacement
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual		
Norfolk Vanguard	-	0.41	0.41	-	1.49 to 4.48	1.49 to 4.48	1.90 to 4.89	1.90 to 4.89
North Falls	-	0.14	0.14	-	0.30 to 0.91	0.30 to 0.91	0.45 to 1.06	0.45 to 1.06
Ossian	0.70	0.10	0.80	0.20 to 0.60	0.48 to 1.44	0.68 to 2.04	1.48 to 2.84	1.48 to 2.84
Outer Dowsing	-	0.05	0.05	-	0.48 to 1.44	0.48 to 1.44	0.53 to 1.49	0.53 to 1.49
Pentland	-	-	-	0.04 to 0.12	0.02 to 0.06	0.06 to 0.18	0.06 to 0.18	0.06 to 0.18
Race Bank	-	0.21 (0.11)	0.21 (0.11)	-	0.04 to 0.12	0.04 to 0.12	0.25 to 0.33	0.15 to 0.23
Rampion	-	0.65 (0.45)	0.65 (0.45)	-	0.27 to 0.80	0.27 to 0.80	0.91 to 1.44	0.71 to 1.24
Rampion 2	-	0.17	0.17	-	0.16 to 0.47	0.16 to 0.47	0.32 to 0.64	0.32 to 0.64
Salamander	-	0.06	0.06	0.01 to 0.02	0.22 to 0.65	0.23 to 0.68	0.29 to 0.74	0.29 to 0.74
Seagreen (1 & 1A)	-	0.54	0.54	-	0.57 to 1.72	0.57 to 1.72	1.11 to 2.26	1.11 to 2.26
Sheringham Shoal Extension & Dudgeon Extension	-	0.04	0.04	-	0.34 to 1.02	0.34 to 1.02	0.38 to 1.06	0.38 to 1.06
Sheringham Shoal	-	0.15 (0.14)	0.15 (0.14)	-	0.02 to 0.05	0.02 to 0.05	0.17 to 0.20	0.16 to 0.19
Teeside	-	0.02 (0.01)	0.02 (0.01)	-	-	-	0.02	0.01
Triton Knoll	-	1.34 (0.47)	1.34 (0.47)	-	0.03 to 0.09	0.03 to 0.09	1.37 to 1.43	0.5 to 0.56
West of Orkney	-	0.25	0.25	-	0.78 to 2.33	0.78 to 2.33	1.02 to 2.58	1.02 to 2.58
Westermest Rough	-	0.01 (0.00)	0.01 (0.00)	-	-	-	0.01	0.00
Total	4.17	16.16 (13.22)	20.32 (17.39)	1.99 to 3.38	21.69 to 64.85	23.68 to 68.23	44.00 to 88.55	41.07 to 85.61
Total excluding Berwick Bank	3.57	15.84 (12.90)	19.40 (16.47)	1.79 to 2.78	20.83 to 62.26	22.62 to 65.03	42.02 to 84.44	39.08 to 81.50

Project	Collisions ¹			Displacement ²			Annual Consented Collisions + Displacement	Annual As-built Collisions + Displacement
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual		
Total excluding Bowdun	3.76	16.02 (13.09)	19.78 (16.85)	1.92 to 3.15	21.58 to 64.62	23.50 to 67.78	43.28 to 87.56	40.35 to 84.62

¹ The number of mortalities due to ‘consented’ collisions are presented, with the number of ‘as-built’ collisions presented in parentheses where relevant.

² Low and high displacement scenarios are presented in Table 5.3

5.7.575 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank and using consented and as-built collisions (Table 5.159).

Table 5.159: In-combination PVA Results for Gannet, Impacted by Collision Risk and Distributional Responses, at Hermaness, Saxa Vord and Valla Field SPA (initial population size: 22,590 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Berwick Bank Offshore Wind Farm included or excluded	Displacement Scenario	Baseline Median Population Size (Breeding Adults)	Impacted Median Population Size (Breeding Adults)	Counterfactual Growth Rate (CGR)	Counterfactual Population Size (CPS)
‘Consented’ mortalities					
Including Berwick Bank	Low	76,839	74,691	0.999 (0.999 to 1.000)	0.973 (0.954 to 0.993)
	High		72,669	0.998 (0.998 to 0.999)	0.947 (0.929 to 0.965)
Excluding Berwick Bank	Low		74,813	0.999 (0.999 to 1.000)	0.974 (0.956 to 0.994)
	High		72,915	0.998 (0.998 to 0.999)	0.950 (0.931 to 0.968)
‘As-built’ mortalities					
Including Berwick Bank	Low	76,839	74,820	0.999 (0.999 to 1.000)	0.975 (0.956 to 0.995)
	High		72,778	0.998 (0.998 to 0.999)	0.949 (0.930 to 0.967)
Excluding Berwick Bank	Low		74,962	0.999 (0.999 to 1.000)	0.976 (0.957 to 0.996)
	High		73,014	0.998 (0.998 to 0.999)	0.951 (0.932 to 0.970)

5.7.576 Using consented mortalities (Table 5.159), it was found that under all scenarios the CGR was greater or equal to 0.998, indicating that the growth rate of the gannet is unlikely to decrease by more than 0.2%. The population size was found to increase under all scenarios and the CPS, after 30 years, ranged from 0.947 to 0.974, indicating that the population is expected to decrease by no more than 5.3%.

5.7.577 When accounting for as-built corrections, it was found the median CGR was unchanged when compared to the corresponding consented scenarios. Moreover, the median CPS was found to be higher, indicating the impact to population sizes is likely to be reduced by no more than 0.2% under all modelled scenarios.

5.7.578 A comparison of the Seabird 2000 and Seabirds Count censuses found that the gannet population at Hermaness, Saxa Vord and Valla Field SPA has increased by 89% (Burnell *et al.*, 2023), with most recent census count of 29,562 AON greater than the citation population (16,400 AON). Surveys carried out by

Tremblett *et al.* (2024) found that population sizes decreased by 37%, suggesting that HPAI has had a negative impact on the gannet population.

- 5.7.579 The gannet population has been found to show a trend of increasing populations between censuses, but it is expected to be negatively impacted by HPAI. The results of the PVA indicate that the population will increase under all scenarios and that the impact on growth rate is relatively small, indicating that the gannet population is likely to continue to increase following the HPAI outbreak.
- 5.7.580 Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined. It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Hermaness, Saxa Vord and Valla Field SPA on gannet including or excluding Berwick Bank.

High Island, Inishshark and Davillaun SPA

- 5.7.581 High Island, Inishshark and Davillaun SPA consists of multiple islands 3 km to 5 km north-west of Aughrus Point, County Galway, and is approximately 984.67 km from the Array Area. The SPA boundary extends 200 m around each island into the marine environment (NPWS, ND).
- 5.7.582 The conservation objectives have been determined by NPWS, as presented in Paragraphs 5.3.11 to 5.3.12.
- 5.7.583 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.160.

Table 5.160: The Relevant Features and Impacts Included Within the Assessment for High Island, Inishshark and Davillaun SPA

Impact	Fulmar
Collision Risk Mortality due to Collision with Rotor Blades	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓
Disturbance and Displacement to Birds from Vessel Movements	x
Disturbance to Prey Species and Their Habitat	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓
Direct Impacts from UXO Clearance	x
Indirect Impacts from Construction/Decommissioning Noise	✓

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.584 Of the impacts screened in for assessment (Table 3.7), only distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Distributional Responses due to Offshore Infrastructure

- 5.7.585 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, ‘Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure’.
- 5.7.586 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.587 The number of apportioned mortalities is presented in Table 5.161, with the change in survival rate presented in Table 5.162. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g), it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the fulmar feature of High Island, Inishshark and Davillaun SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Table 5.161: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at High Island, Inishshark and Davillaun SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.000	0.00 to 0.00	Migration	0.87 to 1.73	0.599	0.000	0.00 to 0.00	0.00 to 0.00
					Winter	0.13 to 0.27	0.719	0.000	0.00 to 0.00	

Table 5.162: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at High Island, Inishshark and Davillaun SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	3,982	0.00 to 0.00	0.000 to 0.000	No AEOSI

Conclusion for Quantitative Assessment

5.7.588 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the fulmar feature. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the feature, so the conservation objectives of the SPA will not be undermined.

5.7.589 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the High Island, Inishshark and Davillaun SPA due to the following impacts:

- distributional responses due to offshore infrastructure.

Qualitative Impacts

5.7.590 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:

- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
- temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance'); and
- indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').

5.7.591 No site-specific qualitative assessments were required in order to address the impacts for fulmar at High Island, Inishshark and Davillaun SPA.

Conclusion for Qualitative Assessment

5.7.592 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to fulmar feature. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the feature, so the conservation objectives of the SPA will not be undermined.

5.7.593 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the High Island, Inishshark and Davillaun SPA due to the following impacts:

- disturbance to prey species and their habitats;
- temporary habitat loss and/or habitat disturbance; and
- indirect impacts from construction/decommissioning noise.

5.7.594 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

5.7.595 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar, no in-combination assessment was required for High Island, Inishshark and Davillaun SPA.

Horn Head to Fanad Head SPA

- 5.7.596 Horn Head to Fanad Head SPA is comprised of a number of separate sections of the north County Donegal coastline and is located approximately 740.19 km from the Array Area. The SPA boundary extends into 500m into the marine environment at Horn Head and to the high-water mark forming the seaward boundary for the rest (NPWS, ND).
- 5.7.597 The conservation objectives have been determined by NPWS, as presented in Paragraphs 5.3.11 to 5.3.12.
- 5.7.598 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.163.

Table 5.163: The Relevant Features and Impacts Included Within the Assessment for Horn Head to Fanad Head SPA

Impact	Fulmar ¹
Collision Risk Mortality due to Collision with Rotor Blades	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓
Disturbance and Displacement to Birds from Vessel Movements	x
Disturbance to Prey Species and Their Habitat	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓
Direct Impacts from UXO Clearance	x
Indirect Impacts from Construction/Decommissioning Noise	✓

¹ Qualifying feature and named component of seabird assemblage

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.599 Of the impacts screened in for assessment (Table 3.7), only distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Distributional Responses due to Offshore Infrastructure

- 5.7.600 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure'.
- 5.7.601 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).

- 5.7.602 The number of apportioned mortalities is presented in Table 5.164, with the change in survival rate presented in Table 5.165. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g), it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the fulmar and breeding seabird assemblage (due to impacts to fulmar) features of Horn Head to Fanad Head SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Table 5.164: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Horn Head to Fanad Head SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.000	0.00 to 0.00	Migration	0.87 to 1.73	0.599	0.000	0.00 to 0.00	0.00 to 0.00
					Winter	0.13 to 0.27	0.719	0.000	0.00 to 0.00	

Table 5.165: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Horn Head to Fanad Head SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	1,316	0.00 to 0.00	0.000 to 0.000	No AEOSI

Conclusion for Quantitative Assessment

- 5.7.603 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact fulmar and breeding seabird assemblage (due to impacts to fulmar) features. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the features, so the conservation objectives of the SPA will not be undermined.
- 5.7.604 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Horn Head to Fanad Head SPA due to the following impacts:
- distributional responses due to offshore infrastructure.

Qualitative Impacts

- 5.7.605 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:
- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
 - temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance'); and
 - indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').
- 5.7.606 No site-specific qualitative assessments were required in order to address the impacts for fulmar at Horn Head to Fanad Head SPA.

Conclusion for Qualitative Assessment

- 5.7.607 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the fulmar and breeding seabird assemblage (due to impacts to fulmar) features. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the features, so the conservation objectives of the SPA will not be undermined.
- 5.7.608 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Horn Head to Fanad Head SPA due to the following impacts:
- disturbance to prey species and their habitats;
 - temporary habitat loss and/or habitat disturbance; and
 - indirect impacts from construction/decommissioning noise.

- 5.7.609 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

- 5.7.610 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar, no in-combination assessment was required for Horn Head to Fanad Head SPA.

Hoy SPA

- 5.7.611 Hoy SPA covers the northern and western two thirds of Hoy Island, located at the south-western end of the Orkney archipelago. The SPA boundary overlaps with Hoy SSSI and extends approximately 2 km into the marine environment. The SPA is approximately 223.12 km from the Array Area and was classified in 2000, with the marine extension classified in 2009 (NatureScot, ND).
- 5.7.612 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.
- 5.7.613 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.166.

Table 5.166: The Relevant Components of the Breeding Seabird Assemblage and Impacts Included Within the Assessment for Hoy SPA

Impact	Fulmar	Kittiwake	Puffin
Collision Risk Mortality due to Collision with Rotor Blades	x	✓	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓	✓	✓
Disturbance and Displacement to Birds from Vessel Movements	x	x	x
Disturbance to Prey Species and Their Habitat	✓	✓	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓	✓	✓
Direct Impacts from UXO Clearance	x	x	x
Indirect Impacts from Construction/Decommissioning Noise	✓	✓	✓

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.614 Of the impacts screened in for assessment (Table 3.7), both collision risk and distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Collision Risk Mortality due to Collision with Rotor Blades

- 5.7.615 A quantitative assessment was carried out for collision mortality due to the Array Area following the methodology described in Section 5.4, 'Impact 1: Collision Risk Mortality due to Collision with Rotor Blades' for kittiwake.
- 5.7.616 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values and methodology presented in Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).

5.7.617 The number of apportioned mortalities is presented in Table 5.167, with the change in survival rate presented in Table 5.168. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage feature of Hoy SPA as a result of collision risk with respect to the O&M phase of the Proposed Development.

Table 5.167: Apportioned Mortalities due to Collision Risk During the O&M phase of the Proposed Development at Hoy SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Kittiwake (Option 1)	4.69	0.970 (0.100)	0.000	0.00	SM	0.90	0.599	0.001	0.00	0.00
					AM	0.34	0.579	0.001	0.00	
Kittiwake (Option 2)	37.59			0.01	SM	7.22	0.599	0.001	0.00	0.01
					AM	2.76	0.579	0.001	0.00	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.168: Change in Survival Rate due to Collision Risk During the O&M Phase of the Proposed Development at Hoy SPA

Species	Model Option	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Kittiwake	1	532	0.00	0.000	No AEOSI
	2		0.01	0.003	No AEOSI

Distributional Responses due to Offshore Infrastructure

- 5.7.618 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure' for fulmar, kittiwake and puffin.
- 5.7.619 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.620 The number of apportioning mortalities is presented in Table 5.169, with the change in survival rate presented in Table 5.170. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for fulmar, kittiwake or puffin, it can be concluded, beyond reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage feature of Hoy SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Table 5.169: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Hoy SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ²	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.048 (0.000)	0.081	0.08 to 0.19	Migration	0.87 to 1.73	0.599	0.057	0.03 to 0.06	0.11 to 0.26
					Winter	0.13 to 0.27	0.719	0.061	0.01 to 0.01	
Kittiwake	5 to 16	0.970 (0.100)	0.000	0.00 to 0.00	SM	0.53 to 2.13	0.599	0.001	0.00 to 0.00	0.00 to 0.01
					AM	0.47 to 1.87	0.579	0.001	0.00 to 0.00	
Puffin ¹	7 to 11	0.463 (0.070)	0.001	0.00 to 0.00	-	-	-	-	-	0.00 to 0.00

¹ Species assessed during the breeding season only.

² SM = Spring Migration; AM = Autumn Migration

Table 5.170: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Hoy SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	41,082	0.11 to 0.26	0.000 to 0.001	No AEOSI
Kittiwake	532	0.00 to 0.01	0.000 to 0.001	No AEOSI
Puffin ¹	860	0.00 to 0.00	0.000 to 0.001	No AEOSI

¹ Species assessed during the breeding season only.

Combined Impacts of Collision Risk and Distributional Responses

- 5.7.621 As kittiwake were assessed for both collision risk and distributional responses, the combined impact has been used to determine whether a PVA is required. It was found that 0.01 mortalities are expected to occur due to collision risk (Table 5.167) and 0.00 to 0.01 mortalities due to distributional responses (Table 5.169). Therefore, it is expected that a total of 0.02 to 0.02 kittiwake mortalities will occur due to the Proposed Development alone, equivalent to a decrease in survival rate of 0.003 to 0.004 percentage points.
- 5.7.622 When using Option 1 of the sCRM, the number of mortalities due to collision risk was reduced to 0.00 (Table 5.167) and the expected mortalities from collision risk and distributional responses is reduced to 0.00 to 0.01, equivalent to a decrease in survival rate of 0.001 to 0.001 percentage points.
- 5.7.623 As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage features of Hoy SPA as a result of the combined impact of collision risk and distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

- 5.7.624 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to fulmar, kittiwake or puffin). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.625 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Hoy SPA due to the following impacts:
- collision risk mortality due to collision with rotor blades;
 - distributional responses due to offshore infrastructure; and
 - combined impacts of collision risk and distributional responses.

Qualitative Impacts

- 5.7.626 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:
- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
 - temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance'); and
 - indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise')

- No site-specific qualitative assessments were required in order to address the impacts for fulmar, kittiwake or puffin at Hoy SPA.

Conclusion for Qualitative Assessment

- 5.7.627 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to fulmar, kittiwake or puffin). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.628 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Hoy SPA due to the following impacts:
- disturbance to prey species and their habitats;
 - temporary habitat loss and/or habitat disturbance; and
 - indirect impacts from construction/decommissioning noise.

- 5.7.629 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

- 5.7.630 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for kittiwake or puffin, no in-combination assessment was required for Hoy SPA. Although the number of mortalities for fulmar was greater than this threshold, fulmar have only recently been begun to be assessed within applications and therefore there is insufficient information to carry out in-combination assessment.

Iveragh Peninsula SPA

- 5.7.631 Iveragh Peninsula SPA is located on the west coast of County Kerry, approximately 1,161.11 km from the Array Area. The SPA boundary is formed by the high water mark, except for at Doulus Head/Killelan Mountain where the boundary extends 500 m seawards into the marine environment (NPWS, ND).
- 5.7.632 The conservation objectives have been determined by NPWS, as presented in Paragraphs 5.3.11 to 5.3.12.
- 5.7.633 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.171.

Table 5.171: The Relevant Features and Impacts Included Within the Assessment for Iveragh Peninsula SPA

Impact	Fulmar
Collision Risk Mortality due to Collision with Rotor Blades	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓
Disturbance and Displacement to Birds from Vessel Movements	x
Disturbance to Prey Species and Their Habitat	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓
Direct Impacts from UXO Clearance	x
Indirect Impacts from Construction/Decommissioning Noise	✓

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.634 Of the impacts screened in for assessment (Table 3.7), only distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Distributional Responses due to Offshore Infrastructure

- 5.7.635 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure'.
- 5.7.636 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.637 The number of apportioned mortalities is presented in Table 5.172, with the change in survival rate presented in Table 5.173. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g), it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the fulmar feature of Iveragh Peninsula SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

- 5.7.638 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the fulmar feature. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the feature, so the conservation objectives of the SPA will not be undermined.

5.7.639 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Iveragh Peninsula SPA due to the following impacts:

- distributional responses due to offshore infrastructure.

Qualitative Impacts

5.7.640 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:

- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
- temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance'); and
- indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').

5.7.641 No site-specific qualitative assessments were required in order to address the impacts for fulmar at Iveragh Peninsula SPA.

Conclusion for Qualitative Assessment

5.7.642 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the fulmar feature. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the feature, so the conservation objectives of the SPA will not be undermined.

5.7.643 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Iveragh Peninsula SPA due to the following impacts:

- disturbance to prey species and their habitats;
- temporary habitat loss and/or habitat disturbance; and
- indirect impacts from construction/decommissioning noise.

5.7.644 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

5.7.645 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar, no in-combination assessment was required for Iveragh Peninsula SPA.

Table 5.172: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Iveragh Peninsula SPA
(Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.000	0.00 to 0.00	Migration	0.87 to 1.73	0.599	0.000	0.00 to 0.00	0.00 to 0.00
					Winter	0.13 to 0.27	0.719	0.000	0.00 to 0.00	

Table 5.173: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Iveragh Peninsula SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	2,060	0.00 to 0.00	0.000 to 0.000	No AEOSI

Kerry Head SPA

- 5.7.646 Kerry Head SPA is located to the south of the mouth of the River Shannon in County Kerry. Kerry Head SPA is approximately 1,116.50 km from the Array Area and the SPA boundary extends into the marine environment up to the high water mark (NPWS, ND).
- 5.7.647 The conservation objectives have been determined by NPWS, as presented in Paragraphs 5.3.11 to 5.3.12.
- 5.7.648 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.174.

Table 5.174: The Relevant Features and Impacts Included Within the Assessment for Kerry Head SPA

Impact	Fulmar
Collision Risk Mortality due to Collision with Rotor Blades	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓
Disturbance and Displacement to Birds from Vessel Movements	x
Disturbance to Prey Species and Their Habitat	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓
Direct Impacts from UXO Clearance	x
Indirect Impacts from Construction/Decommissioning Noise	✓

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.649 Of the impacts screened in for assessment (Table 3.7), only distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Distributional Responses due to Offshore Infrastructure

- 5.7.650 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure'.
- 5.7.651 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.652 The number of apportioned mortalities is presented in Table 5.175, with the change in survival rate presented in Table 5.176. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g), it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the fulmar feature of Kerry Head SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

- 5.7.653 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the fulmar feature. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the feature, so the conservation objectives of the SPA will not be undermined.
- 5.7.654 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Kerry Head SPA due to the following impacts:
- distributional responses due to offshore infrastructure.

Qualitative Impacts

- 5.7.655 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:
- disturbance to prey species and their habitats (Section 5.5, ‘Impact 4: Disturbance to Prey Species and their Habitats’);
 - temporary habitat loss and/or habitat disturbance (Section 5.5, ‘Impact 5: Temporary Habitat Loss and/or Habitat Disturbance’); and
 - indirect impacts from construction/decommissioning noise (Section 5.5, ‘Impact 7: Indirect Impacts from Construction/Decommissioning Noise’).
- 5.7.656 No site-specific qualitative assessments were required in order to address the impacts for fulmar at Kerry Head SPA.

Conclusion for Qualitative Assessment

- 5.7.657 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the fulmar feature. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the feature, so the conservation objectives of the SPA will not be undermined.
- 5.7.658 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Kerry Head SPA due to the following impacts:
- disturbance to prey species and their habitats;
 - temporary habitat loss and/or habitat disturbance; and
 - indirect impacts from construction/decommissioning noise.
- 5.7.659 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

Table 5.175: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Kerry Head SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.000	0.00 to 0.00	Migration	0.87 to 1.73	0.599	0.000	0.00 to 0.00	0.00 to 0.00
					Winter	0.13 to 0.27	0.719	0.000	0.00 to 0.00	

Table 5.176: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Kerry Head SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	602	0.00 to 0.00	0.000 to 0.000	No AEOSI

In-combination Assessment

- 5.7.660 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar, no in-combination assessment was required for Kerry Head SPA.

Lambay Island SPA

- 5.7.661 Lambay Island SPA is an island located approximately 4 km off the north coast of County Dublin and approximately 969.28 km from the Array Area (NPWS, ND).
- 5.7.662 The conservation objectives have been determined by NPWS, as presented in Paragraphs 5.3.11 to 5.3.12.
- 5.7.663 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.177.

Table 5.177: The Relevant Features and Impacts Included Within the Assessment for Lambay Island SPA

Impact	Fulmar¹
Collision Risk Mortality due to Collision with Rotor Blades	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓
Disturbance and Displacement to Birds from Vessel Movements	x
Disturbance to Prey Species and Their Habitat	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓
Direct Impacts from UXO Clearance	x
Indirect Impacts from Construction/Decommissioning Noise	✓

¹Qualifying feature and named component of breeding seabird assemblage

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.664 Of the impacts screened in for assessment (Table 3.7), only distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Distributional Responses due to Offshore Infrastructure

- 5.7.665 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure'.
- 5.7.666 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.667 The number of apportioned mortalities is presented in Table 5.178, with the change in survival rate presented in Table 5.179. As the decrease in survival rate

does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g), it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the fulmar and breeding seabird assemblage (due to impacts to fulmar) features of Lambay Island SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

5.7.668 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the fulmar and breeding seabird assemblage (due to impacts to fulmar) features. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the features, so the conservation objectives of the SPA will not be undermined.

5.7.669 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Lambay Island SPA due to the following impacts:

- distributional responses due to offshore infrastructure.

Qualitative Impacts

5.7.670 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:

- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
- temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance'); and
- indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').

5.7.671 No site-specific qualitative assessments were required in order to address the impacts for fulmar at Lambay Island SPA.

Conclusion for Qualitative Assessment

5.7.672 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to fulmar and breeding seabird assemblage (due to impacts to fulmar) features. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the features, so the conservation objectives of the SPA will not be undermined.

5.7.673 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Lambay Island SPA due to the following impacts:

- disturbance to prey species and their habitats;
- temporary habitat loss and/or habitat disturbance; and
- indirect impacts from construction/decommissioning noise.

5.7.674 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

Table 5.178: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Lambay Island SPA
(Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.000	0.00 to 0.00	Migration	0.87 to 1.73	0.599	0.000	0.00 to 0.00	0.00 to 0.00
					Winter	0.13 to 0.27	0.719	0.000	0.00 to 0.00	

Table 5.179: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Lambay Island SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	750	0.00 to 0.00	0.000 to 0.000	No AEOSI

In-combination Assessment

- 5.7.675 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar, no in-combination assessment was required for Lambay Island SPA.

Marwick Head SPA

- 5.7.676 Marwick Head SPA is a 2 km stretch of sea cliffs along the west coast of Orkney and is located approximately 254.87 km from the Array Area. The SPA boundary overlaps with Marwick Head SSSI and extends approximately 1 km into the marine environment. The SPA was classified in 1994, with the marine extension classified in 2009 (NatureScot, ND).
- 5.7.677 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.
- 5.7.678 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.180.

Table 5.180: The Relevant Components of the Breeding Seabird Assemblage and Impacts Included Within the Assessment for Marwick Head SPA

Impact	Kittiwake
Collision Risk Mortality due to Collision with Rotor Blades	✓
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓
Disturbance and Displacement to Birds from Vessel Movements	x
Disturbance to Prey Species and Their Habitat	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓
Direct Impacts from UXO Clearance	x
Indirect Impacts from Construction/Decommissioning Noise	✓

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.679 Of the impacts screened in for assessment (Table 3.7), both collision risk and distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Collision Risk Mortality due to Collision with Rotor Blades

- 5.7.680 A quantitative assessment was carried out for collision mortality due to the Array Area following the methodology described in Section 5.4, 'Impact 1: Collision Risk Mortality due to Collision with Rotor Blades' for kittiwake.
- 5.7.681 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values and methodology presented in Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).

5.7.682 The number of apportioned mortalities is presented in Table 5.181, with the change in survival rate presented in Table 5.182. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage of Marwick Head SPA as a result of collision risk with respect to the O&M phase of the Proposed Development.

Table 5.181: Apportioned Mortalities due to Collision Risk During the O&M phase of the Proposed Development at Marwick Head SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Kittiwake (Option 1)	4.69	0.970 (0.100)	0.001	0.00	SM	0.90	0.599	0.001	0.00	0.00
					AM	0.34	0.579	0.001	0.00	
Kittiwake (Option 2)	37.59			0.02	SM	7.22	0.599	0.001	0.01	0.03
					AM	2.76	0.579	0.001	0.00	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.182: Change in Survival Rate due to Collision Risk During the O&M Phase of the Proposed Development at Marwick Head SPA

Species	Model Option	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Kittiwake	1	1,812	0.00	0.000	No AEOSI
	2		0.03	0.002	No AEOSI

Distributional Responses due to Offshore Infrastructure

- 5.7.683 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure' for kittiwake.
- 5.7.684 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.685 The number of apportioning mortalities is presented in Table 5.183, with the change in survival rate presented in Table 5.184. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage feature of Marwick Head SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Table 5.183: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Marwick Head SPA
(Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Kittiwake	5 to 16	0.970 (0.100)	0.001	0.00 to 0.01	SM	0.53 to 2.13	0.599	0.001	0.00 to 0.00	0.00 to 0.01
					AM	0.47 to 1.87	0.579	0.001	0.00 to 0.00	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.184: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development Marwick Head SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Kittiwake	1,812	0.00 to 0.01	0.000 to 0.001	No AEOSI

Combined Impacts of Collision Risk and Distributional Responses

- 5.7.686 As kittiwake were assessed for both collision risk and distributional responses, the combined impact has been used to determine whether a PVA is required. It was found that 0.03 mortalities are expected to occur due to collision risk (Table 5.181) and 0.00 to 0.01 mortalities due to distributional responses (Table 5.183). Therefore, it is expected that a total of 0.03 to 0.04 kittiwake mortalities will occur due to the Proposed Development alone, equivalent to a decrease in survival rate of 0.002 to 0.002 percentage points.
- 5.7.687 When using Option 1 of the sCRM, the number of mortalities due to collision risk was reduced to 0.00 (Table 5.181) and the expected mortalities from collision risk and distributional responses is reduced to 0.01 to 0.02, equivalent to a decrease in survival rate of 0.000 to 0.001 percentage points.
- 5.7.688 As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage feature of Marwick Head SPA as a result of the combined impact of collision risk and distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

- 5.7.689 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to kittiwake). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.690 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Marwick Head SPA due to the following impacts:
- collision risk mortality due to collision with rotor blades;
 - distributional responses due to offshore infrastructure; and
 - combined impacts of collision risk and distributional responses.

Qualitative Impacts

- 5.7.691 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:
- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
 - temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance'); and
 - indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').
- 5.7.692 No site-specific qualitative assessments were required in order to address the impacts for kittiwake at Marwick Head SPA.

Conclusion for Qualitative Assessment

- 5.7.693 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to kittiwake). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.694 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Marwick Head SPA due to the following impacts:
- disturbance to prey species and their habitats;
 - temporary habitat loss and/or habitat disturbance; and
 - indirect impacts from construction/decommissioning noise.
- 5.7.695 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

- 5.7.696 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for kittiwake, no in-combination assessment was required for Marwick Head SPA.

Mingulay and Berneray SPA

- 5.7.697 Mingulay and Berneray SPA consists of two islands at the southern end of the Outer Hebrides and is located approximately 575.60 km from the Array Area. The SPA boundary overlaps with Mingulay and Berneray SSSI and extends approximately 2 km into the marine environment. The site was classified in 1994, with the marine extension classified in 2009 (NatureScot, ND).
- 5.7.698 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.
- 5.7.699 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.185.

Table 5.185: The Relevant Features and Impacts Included Within the Assessment for Mingulay and Berneray SPA

Impact	Fulmar ¹	Razorbill ²
Collision Risk Mortality due to Collision with Rotor Blades	x	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓	✓
Disturbance and Displacement to Birds from Vessel Movements	x	✓
Disturbance to Prey Species and Their Habitat	✓	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓	✓
Direct Impacts from UXO Clearance	x	✓
Indirect Impacts from Construction/Decommissioning Noise	✓	✓

¹ Named component of the seabird assemblage only.

² Qualifying feature and named component of the seabird assemblage.

Proposed Development Alone Assessment

Quantitative Impacts

5.7.700 Of the impacts screened in for assessment (Table 3.7), distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Distributional Responses due to Offshore Infrastructure

5.7.701 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure' for fulmar and razorbill.

5.7.702 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).

5.7.703 The number of apportioning mortalities is presented in Table 5.186, with the change in survival rate presented in Table 5.187. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for fulmar or razorbill, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the razorbill or breeding seabird assemblage features of Mingulay and Berneray SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Table 5.186: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Mingulay and Berneray SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.004	0.00 to 0.01	Migration	0.87 to 1.73	0.599	0.001	0.00 to 0.00	0.00 to 0.01
					Winter	0.13 to 0.27	0.719	0.001	0.00 to 0.00	
Razorbill ¹	-	-	-	-	Migration	2.93 to 9.53	0.511	0.002	0.00 to 0.01	0.01 to 0.03
					Winter	1.07 to 3.47	0.486	0.013	0.01 to 0.02	

¹ Species assessed in the non-breeding season only.

Table 5.187: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Mingulay and Berneray SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	14,096	0.00 to 0.01	0.000 to 0.000	No AEOSI
Razorbill ¹	26,787	0.01 to 0.03	0.000 to 0.000	No AEOSI

¹ Species assessed in the non-breeding season only.

Conclusion for Quantitative Assessment

- 5.7.704 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the razorbill and breeding seabird assemblage (due to impacts to fulmar) features. Therefore, it is expected that the features will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.705 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Mingulay and Berneray SPA due to the following impacts:
- distributional responses due to offshore infrastructure.

Qualitative Impacts

- 5.7.706 Of the impacts screened in for assessment, five impacts have been assessed qualitatively:
- disturbance and displacement to birds from vessel movements (Section 5.5, 'Impact 3: Disturbance to Birds from Vessel Movements');
 - disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
 - temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance');
 - direct impacts from UXO clearance (Section 5.5, 'Impact 6: Direct Impacts from UXO Clearance'); and
 - indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').
- 5.7.707 No site-specific qualitative assessments were required in order to address the impacts for fulmar or razorbill at Mingulay and Berneray SPA.

Conclusion for Qualitative Assessment

- 5.7.708 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to razorbill and breeding seabird assemblage (due to impacts to fulmar) features. Therefore, it is expected that the features will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.709 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Mingulay and Berneray SPA due to the following impacts:
- disturbance and displacement to birds due to vessel movements;
 - disturbance to prey species and their habitats;
 - temporary habitat loss and/or habitat disturbance;
 - direct impacts due to UXO clearance; and

- indirect impacts from construction/decommissioning noise.

5.7.710 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

5.7.711 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar and razorbill, no in-combination assessment was required for Mingulay and Berneray SPA.

Moray Firth SPA

5.7.712 Moray Firth SPA is a funnel-shaped body of sea on the north-east mainland coast of Scotland made up mostly of shallow water (less than 20 m) with a deep channel running east to west (50 m deep). It is an important spawning and nursery area for a number of fish species, which together with abundant bivalve molluscs, are important prey species for marine waterbirds. The SPA was classified in 2020 (NatureScot, ND) and is approximately 129.45 km from the Array Area.

5.7.713 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.

5.7.714 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.188.

Table 5.188: The Relevant Features and Impacts Included Within the Assessment for Moray Firth SPA

Impact	Common eider	Common scoter	Shag	Common goldeneye	Great northern diver	Long-tailed duck	Red-breasted merganser	Red-throated diver	Scaup	Slavonian grebe	Velvet scoter
Collision Risk Mortality due to Collision with Rotor Blades	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	x	x	x	x	x	x	x	x	x	x	x
Disturbance and Displacement to Birds from Vessel Movements	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Disturbance to Prey Species and Their Habitat	x	x	x	x	x	x	x	x	x	x	x
Temporary Habitat Loss and/or Habitat Disturbance	x	x	x	x	x	x	x	x	x	x	x
Direct Impacts from UXO Clearance	x	x	x	x	x	x	x	x	x	x	x

Impact	Common eider	Common scoter	Shag	Common goldeneye	Great northern diver	Long-tailed duck	Red-breasted merganser	Red-throated diver	Scaup	Slavonian grebe	Velvet scoter
Indirect Impacts from Construction/Decommissioning Noise	x	x	x	x	x	x	x	x	x	x	x

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.715 Of the impacts screened in for assessment (Table 3.7), collision risk was assessed quantitatively using mCRM. As mCRM does not provide results for each SPA, the results and conclusions from mCRM are summarised in Section 5.4.
- 5.7.716 It was found that of the 11 species assessed, the number of mortalities due to mCRM only exceed one for common eider (1.10). Therefore, it can be determined that there is no AEOSI due to impacts to any feature of the Moray Firth SPA due to migratory collision risk.
- 5.7.717 A summary of the conclusions of all quantitative assessments are presented in Table 6.1.

Qualitative Impacts

- 5.7.718 Of the impacts screened in for assessment, one impact has been assessed qualitatively:
- Disturbance and Displacement to Birds from Vessel Movements.
- 5.7.719 Vessel movements associated with the Proposed Development have the potential to cross the Moray Firth SPA, therefore a SPA-specific assessment is required. In order to determine the impacts of increased vessel movements, an assessment for each qualifying feature has been undertaken.
- 5.7.720 The Applicant is still in the process of determining the construction methodology and port strategy for the Proposed Development. Ports under consideration to potentially be used during the construction of the Proposed Development, includes the Inverness and Cromarty Firth Green Freeport in particular the Ardersier, Port of Cromarty and Port of Nigg. The use of any of these sites would lead to increased vessel movements within Moray Firth SPA.
- 5.7.721 Ardersier (Figure 5.2) is located near to Inverness and is currently under development. Once fully operational it is expected to be the largest facility dedicated to the offshore wind industry. The port has been designed to optimise

and support offshore wind deployment, meaning the port is expected to be functioning in time for construction of the Proposed Development¹.

- 5.7.722 The Port of Cromarty (Invergordon, Figure 5.2) is located within the Cromarty Firth, north-east Scotland. Currently the port is used for various industries such as tourism, oil and gas and renewables. Previously the port has been used as an intermediary port for Beatrice, Moray East, Moray West and Kincardine OWFs². The port has expansion plans to become a hub for floating offshore wind manufacturing and integration.
- 5.7.723 The Port of Nigg (Figure 5.2) already supports major offshore wind construction work, including marshalling, pre-assembly and installation of turbines and components for projects such as Beatrice, Moray East, Seagreen, and Moray West OWFs. It has deep water, heavy load capacity and a strong track record in fixed-bottom wind farm support, and significant ongoing investment to expand its capabilities further. The port is promoted as the UK's current leading hub for fixed and floating offshore wind logistics, fabrication, and assembly³.

¹ [Ardersier Energy Transition Facility - Haventus](#)

² [Renewables - Port of Cromarty Firth](#)

³ [Nigg - Port Of Nigg](#)

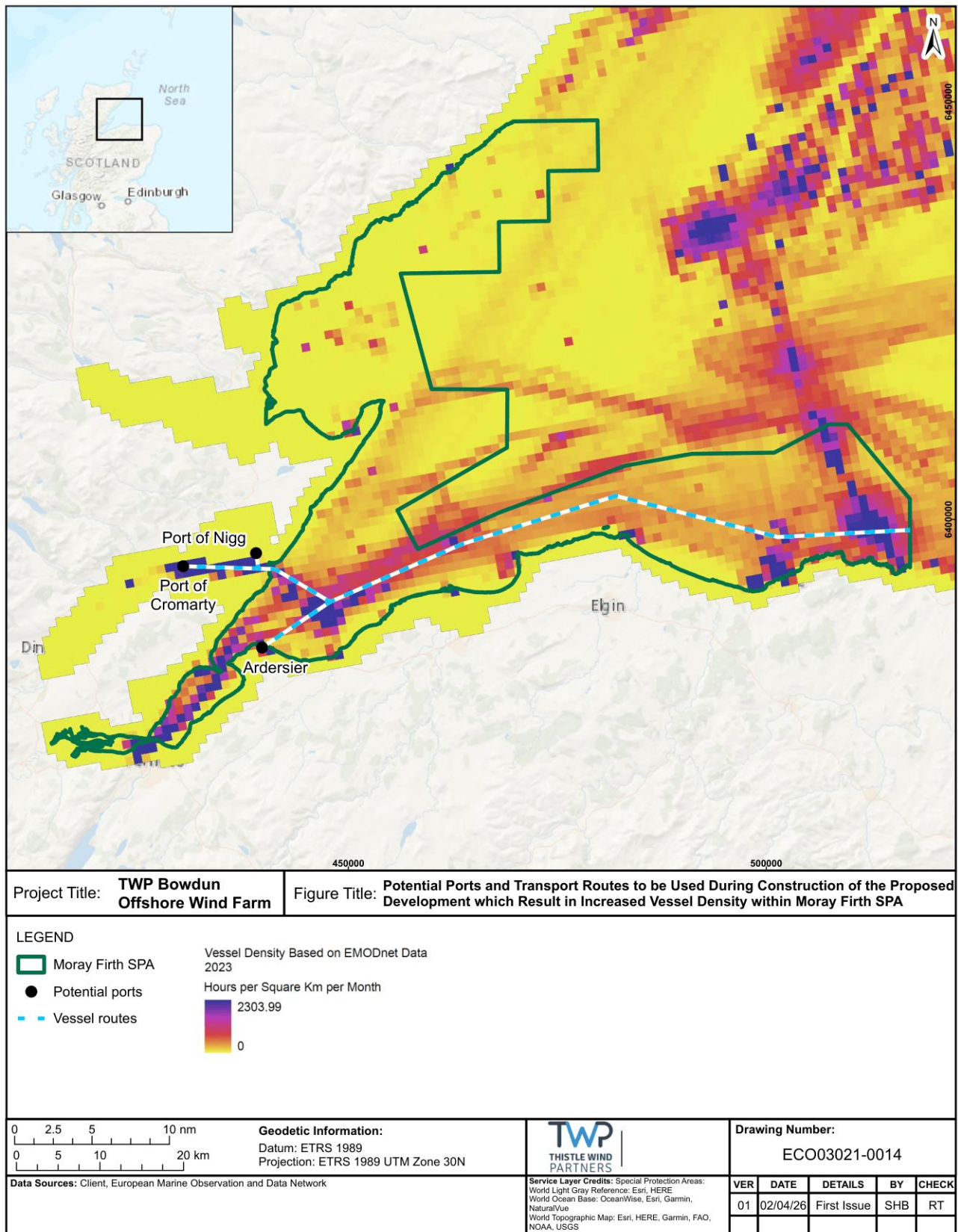


Figure 5.2: Potential Ports and Transport Routes to be Used During Construction of the Proposed Development Which Result in Increased Vessel Density Within Moray Firth SPA

- 5.7.724 The estimated baseline number of vessel transits are presented in Table 5.189. As part of the MDS it is estimated that 2,120 return trips will occur over the five years of construction, equivalent to 424 return trips per year, in order to install the Offshore Infrastructure. It is expected that 1,671 of these return trips, equivalent to 334 return trips per year, are required in order to install the Wind Turbines and OSP within the Array Area alone (Table 5.9).
- 5.7.725 Ardersier, the Port of Nigg, and the Port of Cromarty have the capacity to support the construction of the Offshore Infrastructure within the Proposed Development.

Table 5.189: Estimated Number of Transits (Single Journeys) Arriving or Departing from the Potential Ports within the Moray Firth SPA

Port	Vessel tracks crossing into harbour area				
	2019 AIS vessel track total count ¹	Estimated maximum transits per year for West of Orkney ¹	Total baseline	Estimated maximum transits per year for the Proposed Development ²	Total transits (percentage increase in transits)
Ardersier	148	718	866	848	1,714 (97.9%)
Cromarty	63	382	445	668	1,113 (150.1%)
Nigg	895	718	1,613	848	2,461 (52.6%)

¹Values taken from Offshore Wind Power Limited (2024)

²Each scenario assumes all transits for the Proposed Development leave and return to the same port, except from Port of Cromarty which can only support Wind Turbine installation.

- 5.7.726 Although the largest increase in vessel movements is likely to occur for Port of Ardersier (Table 5.189), it is important to note that as this port is yet to be operational the baseline values presented are likely to underestimate true baseline levels as they only represent vessels used during construction of the port itself.
- 5.7.727 The baseline number of transits presented in Table 5.189 include the West of Orkney OWF, which is expected to be constructed from 2028 to 2031. Thus, it is expected that the number of transits included within this assessment is an overestimation for the majority of the construction period (Table 11.54 of the Offshore EIA Report, Volume 2, Chapter 11: Offshore Ornithology (TWP-BOW-RPS-OFE-RPT-00026)). Other projects which are predicted to overlap in construction periods are not expected to use the same ports, or if using the same ports information regarding project-specific vessel movements is not available.

- 5.7.728 As the final ports have not been selected at this stage of the development, the designated vessel routes to be used to travel from the port to the Proposed Development have not been determined. Example transit routes have been presented in Figure 5.2. It is expected that vessels associated with the Proposed Development will follow pre-established routes and therefore only the magnitude of vessel movements with the Moray Firth SPA will increase. It is expected that the length of the route for Port of Ardersier, Port of Cromarty, and Port of Nigg will be approximately 37 km, 40 km and 33 km respectively.
- 5.7.729 Thus, assuming seabirds within a 2 km buffer of either side of the vessel will be impacted at a given time, the maximum area of Moray Firth SPA expected to be impacted by increased vessel movement is approximately 160 km², equivalent to 9% of the total SPA area.
- 5.7.730 In order to determine potential impacts to the relevant qualifying features, distributions of each population were taken from the Marine Directorate's National Marine Plan Interactive (NMPI) Mapping Tool (NMPI, 2024). These distributions were then compared to vessel densities presented in Figure 5.2. It should be noted that for any individuals impacted, the effects are expected to be temporary and reversible (further detail of expected impacts due vessel movements are given in Section 5.5).

Common Eider

- 5.7.731 Common eider are expected to have medium to high sensitivity to vessel movements (Goodship and Furness, 2022), with individuals showing a low flushing distance and low levels temporary habitat loss when compared to other seaducks (Schwemmer *et al.*, 2011). Data from the NMPI Mapping Tool (Marine Scotland, 2026) shows that common eider are observed consistently along the Moray Firth coastline, with areas of high density along the southern edge of the SPA boundary peaking off the coast of Elgin (Figure 5.3).
- 5.7.732 It is expected that any of the potential ports could lead to the potential disturbance of the high-density area of common eider along the southern edge of the boundary (Figure 5.2). However, as common eider are typically found in shallow waters during the non-breeding season, suggesting that individuals are unlikely to come within a close enough proximity of vessels in order to be impacted, based on the 500 m buffer zone during the non-breeding season is recommended by Goodship and Furness (2022).
- 5.7.733 Despite the moderate to high sensitivity of common eider, due to the low flushing distances, it can be determined there is no AEOSI due to impacts to the common eider feature of Moray Forth SPA.

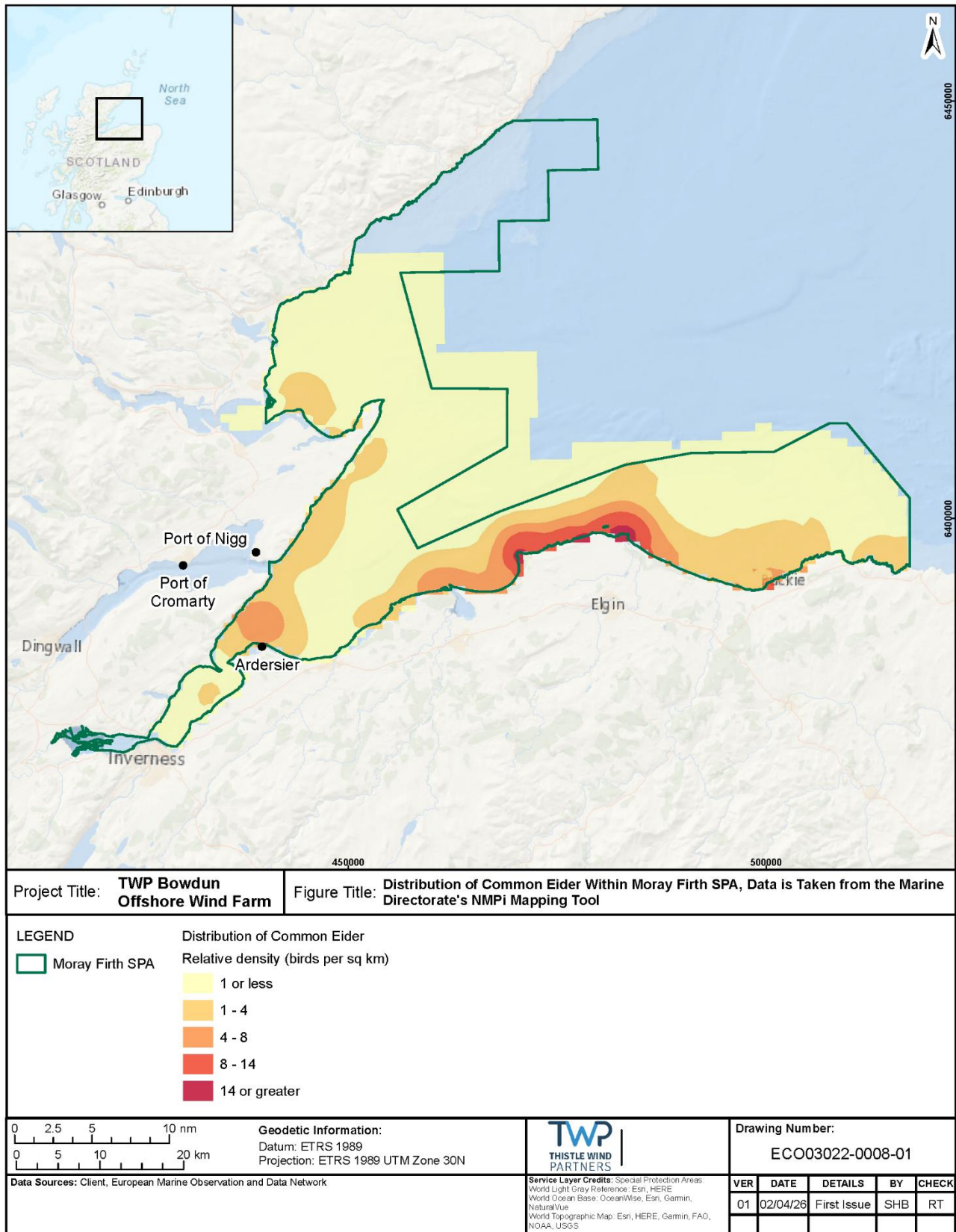


Figure 5.3: Distribution of Common Eider within Moray Firth SPA, Data is Taken from the Marine Directorate's NMPI Mapping Tool

Common Scoter

- 5.7.734 Common scoter are expected to have a high sensitivity to vessel movements, with flushing occurring due to vessels greater than 3 km away (Schweemer *et al.*, 2011). Data from the NMPi Mapping Tool (Marine Scotland, 2026) shows high numbers of common scoter are present along the southern edge of Moray Firth SPA, with smaller numbers of individuals recorded along the northern edge of the boundary (Figure 5.4).
- 5.7.735 As highlighted in Figure 5.2, vessels are expected to follow a similar route for all potential ports, heading east, which is most likely to impact common scoter to the north-east of the Port of Nigg. However, only small numbers of common scoter have been recorded within this area.
- 5.7.736 Due to the relatively small number of common scoter expected to be within the vicinity of vessels associated with the construction phase of the Proposed Development, it can be determined there is no AEOSI due to impacts to the common scoter feature of Moray Forth SPA.

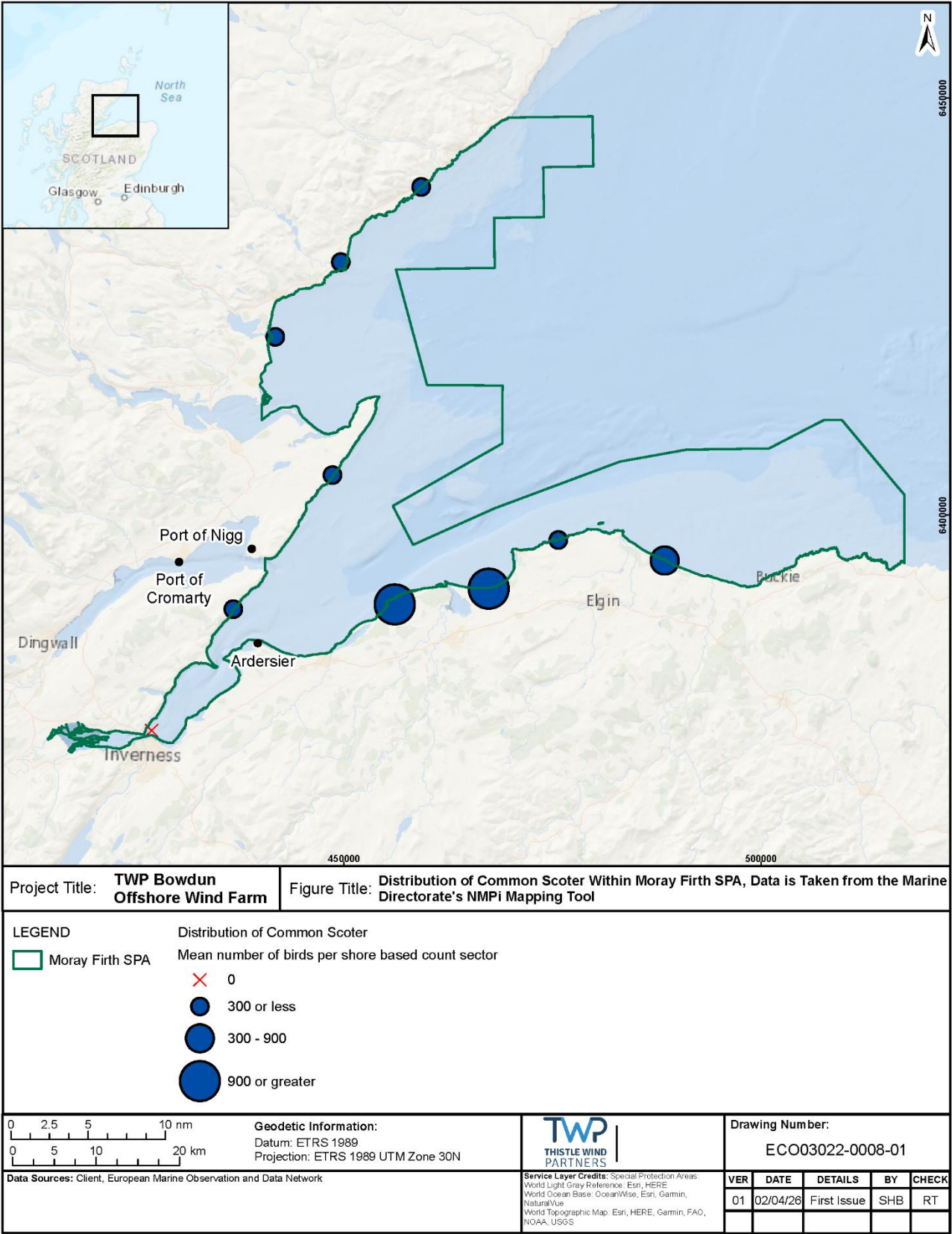


Figure 5.4: Distribution of Common Scoter Within Moray Firth SPA, Data is Taken from the Marine Directorate's NMPI Mapping Tool

Shag

- 5.7.737 Shag have been recorded to have a high sensitivity to vessel movements (Wade *et al.*, 2016). Data from the NMPi Mapping Tool (Marine Scotland, 2026) shows high densities of shag are expected to occur in the north-west of the SPA and the south of the site near Buckie during the non-breeding season. Whereas only one concentration in the north-west of the site is observed during the breeding season (Figure 5.5).
- 5.7.738 As highlighted in Figure 5.2, it is expected that vessel routes are most likely to come into contact with winter concentrations of shag to the east of the SPA. Shag have recorded flushing occurring due to vessels greater than 3 km away (Schweemer *et al.*, 2011). Moreover, it should also be noted that any impact to shag will be temporary and reversible. Therefore, it can be determined there is no AEOSI due to impacts to the shag feature of Moray Forth SPA.

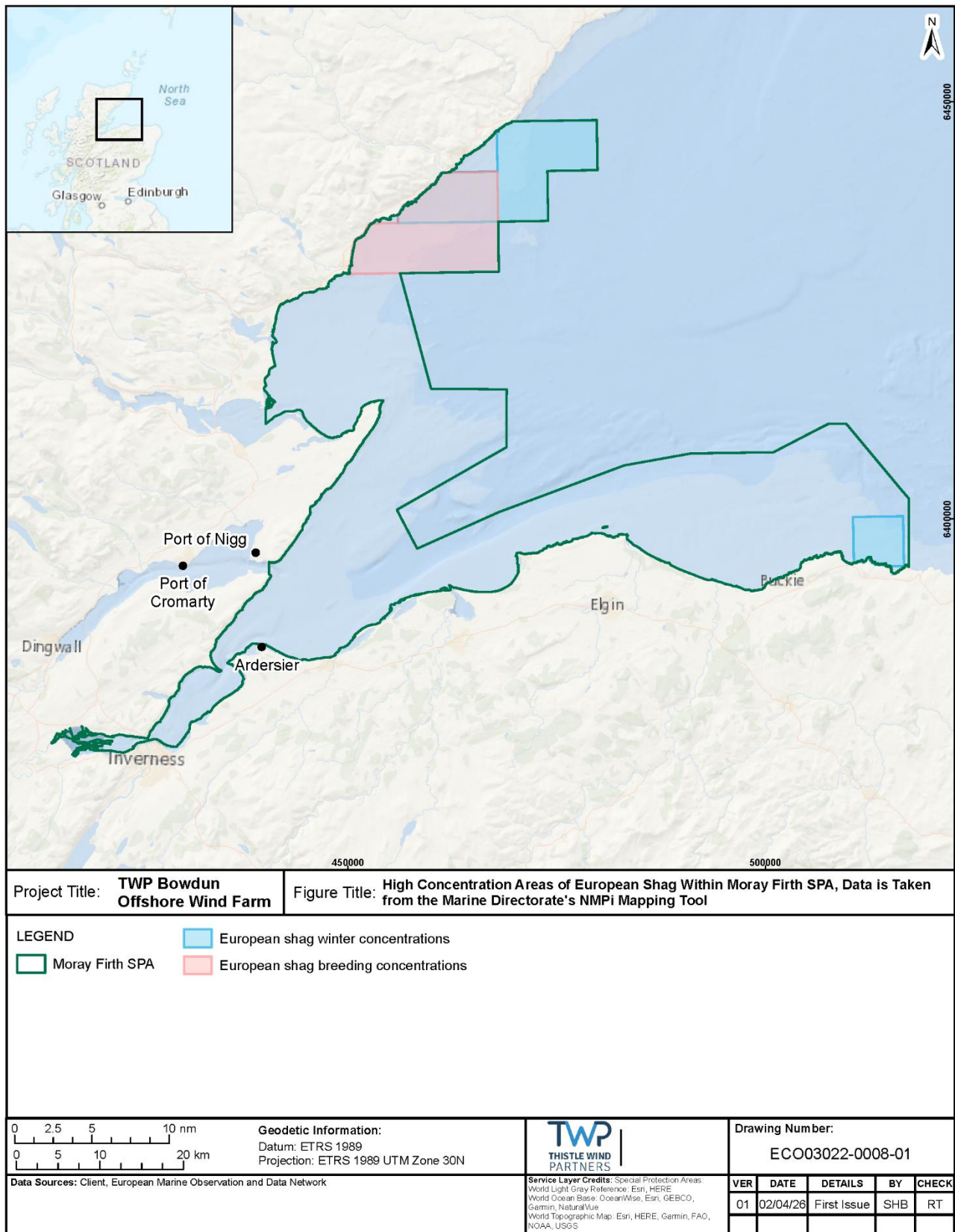


Figure 5.5: High Concentration Areas of European Shag within Moray Firth SPA, Data is Taken from the Marine Directorate's NMPI Mapping Tool

Common Goldeneye

- 5.7.739 Common goldeneye has a high sensitivity to vessel movements, with a recommended buffer zone of 800 m in the non-breeding season (Goodship and Furness, 2022). Data from the NMPi Mapping Tool (Marine Scotland, 2026) shows high densities of common goldeneye are mostly found along the southern edges of Moray Firth SPA, with the largest number of common goldeneye recorded off the coast of Inverness (Figure 5.6).
- 5.7.740 As highlighted in Figure 5.2, vessels are expected to follow a similar route for all potential ports, heading east, which is most likely to impact common goldeneye off the coast of Elgin. However, only small numbers of common goldeneye have been recorded within this area and it is expected that vessels will not come close enough to individuals within the area based on the recommended buffer zone of 800 m in the non-breeding season (Goodship and Furness, 2022).
- 5.7.741 Due to the relatively small number of common goldeneye expected to be within the vicinity of vessels associated with the construction phase of the Proposed Development, it can be determined there is no AEOSI due to impacts to the common goldeneye feature of Moray Firth SPA.

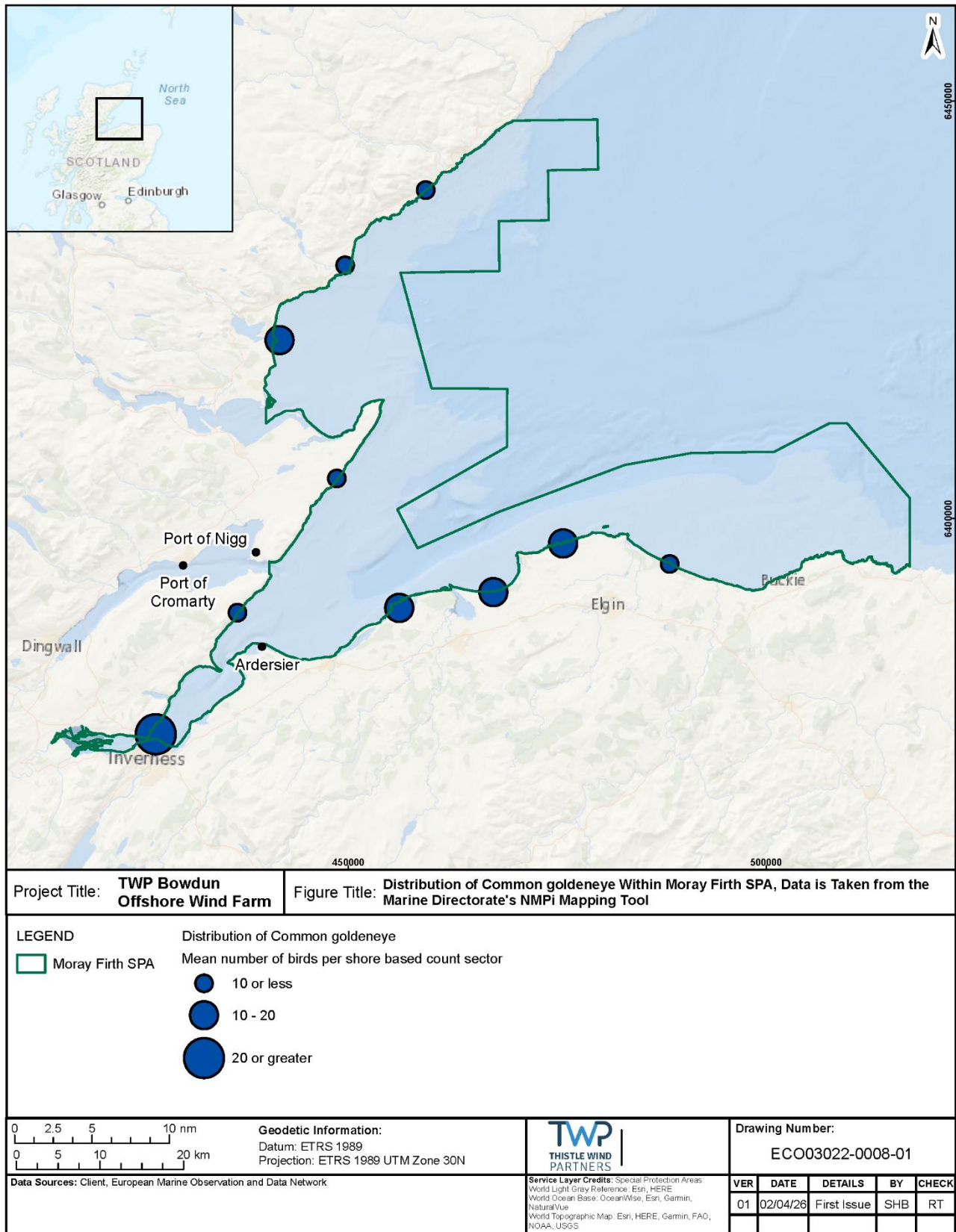


Figure 5.6: Distribution of Common Goldeneye Within Moray Firth SPA, Data is Taken from the Marine Directorate's NMPI Mapping Tool

Long-tailed Duck

- 5.7.742 Long-tailed duck are expected to have moderate sensitivity to vessel movements (Wade *et al.*, 2016). Data from the NMPi Mapping Tool (Marine Scotland, 2026) shows high numbers of long-tailed duck are present along the southern edge of Moray Firth SPA, with peak densities occurring off the coast of Inverness and to the north-west of Elgin (Figure 5.7).
- 5.7.743 As highlighted in Figure 5.2, vessels from the Port of Ardersier are likely to pass through another area of moderate long-tailed duck density.
- 5.7.744 Despite passing through areas of moderate density, potential disturbance or displacement due to vessel movements is expected to be temporary and only impact a small vicinity of the entire area at any given time. Therefore, long-tailed duck densities in impacted areas are expected to return to pre-impacted levels relatively quickly. Thus, it can be determined that there will be no AEOSI due to impacts to the long-tailed duck features of Moray Firth SPA.

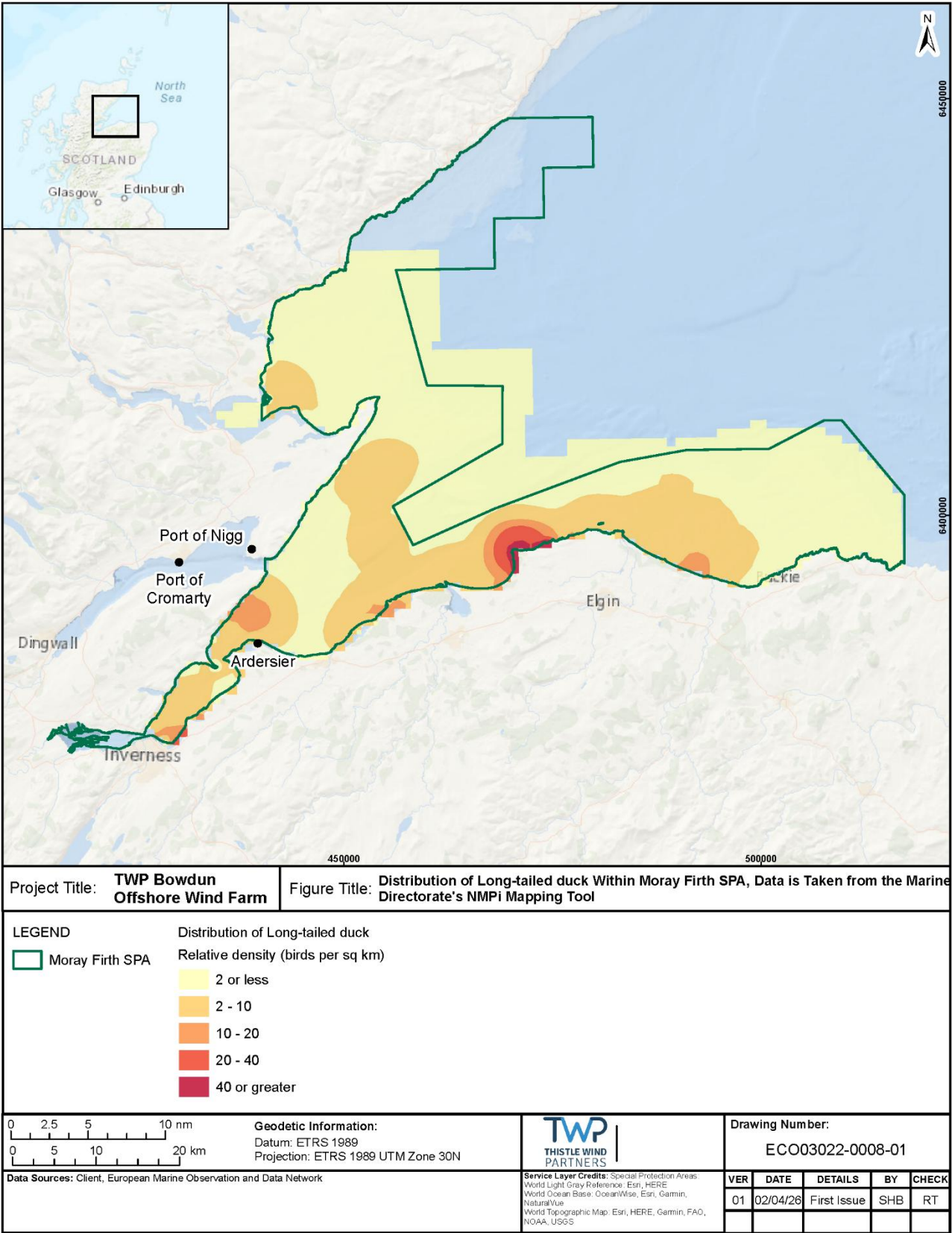


Figure 5.7: Distribution of Long-tailed Duck Within Moray Firth SPA, Data is Taken from the Marine Directorate's NMPI Mapping Tool

Red-breasted Merganser

- 5.7.745 Red-breasted merganser exhibits a moderate sensitivity to disturbance (Bradbury *et al.*, 2014). Data from the NMPi Mapping Tool (Marine Scotland, 2026) shows high densities of red-breasted merganser are mostly found along the southern edges of Moray Firth SPA, with the largest number of red-breasted merganser recorded off the coast of Inverness and north-west of the site (Figure 5.8).
- 5.7.746 As highlighted in Figure 5.2, vessels are expected to follow a similar route for all potential ports, heading east, which is most likely to impact red-breasted merganser off the coast of Elgin, however only small numbers of red-breasted merganser have been recorded within this area.
- 5.7.747 Due to the relatively small number of red-breasted merganser expected to be within the vicinity of vessels associated with the construction phase of the Proposed Development, it can be determined there is no AEOSI due to impacts to the red-breasted merganser feature of Moray Firth SPA.

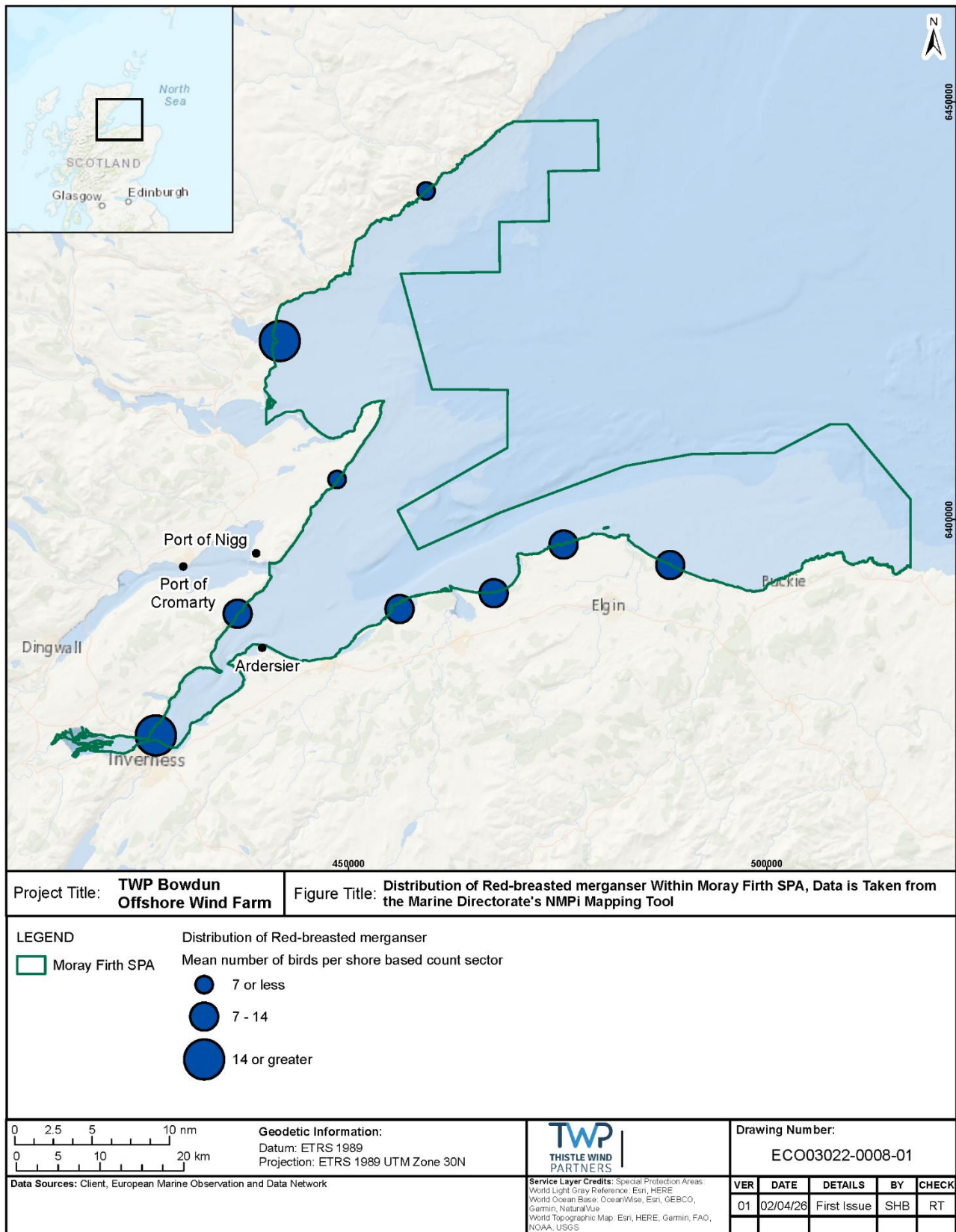


Figure 5.8: Distribution of Red-breasted Merganser Within Moray Firth SPA, Data is Taken from the Marine Directorate's NMPI Mapping Tool

Great Northern Diver and Red-throated Diver

- 5.7.748 Great northern diver are recorded to have a high sensitivity to vessels (Wade *et al.*, 2016) and have been found to swim within 200 to 300 m of a passing ferry and are likely to swim (rarely flying) from vessels up to 4 km in distance (Jarrett *et al.*, 2018). Whereas red-throated diver are recorded to have a very high sensitivity to vessels (Wade *et al.*, 2016), with individuals recorded to take flight when within 200 to 300 m of a passing ferry (Jarrett *et al.*, 2018). Red-throated diver have also been recorded to fly away from vessels within 1 km away (Schwemmer *et al.*, 2011).
- 5.7.749 The highest densities of divers within the Moray Firth SPA are recorded in the north-west of the SPA and south-east of Elgin which vessels are not expected to pass through (Marine Scotland, 2026). However, moderate densities of divers were also recorded throughout the Moray Firth (Figure 5.9).
- 5.7.750 Although it is expected that all potential ports would result in vessels moving through areas with moderate densities of diver species, it has been noted in other studies that red-throated diver are typically only present in low numbers within shipping lanes (Schwemmer *et al.*, 2011). Thus, as vessels associated with the Proposed Development will only use pre-existing vessel routes, it is expected the impact to red-throated diver will be minimised.
- 5.7.751 In addition, potential disturbance or displacement due to vessel movements is expected to be temporary and only impact a small vicinity of the SPA at any given time. Therefore, diver densities in impacted areas are expected to return to pre-impacted levels relatively quickly. Thus, it can be determined that there will be no AEOSI due to impacts to the great northern diver or red-throated diver features of Moray Firth SPA.

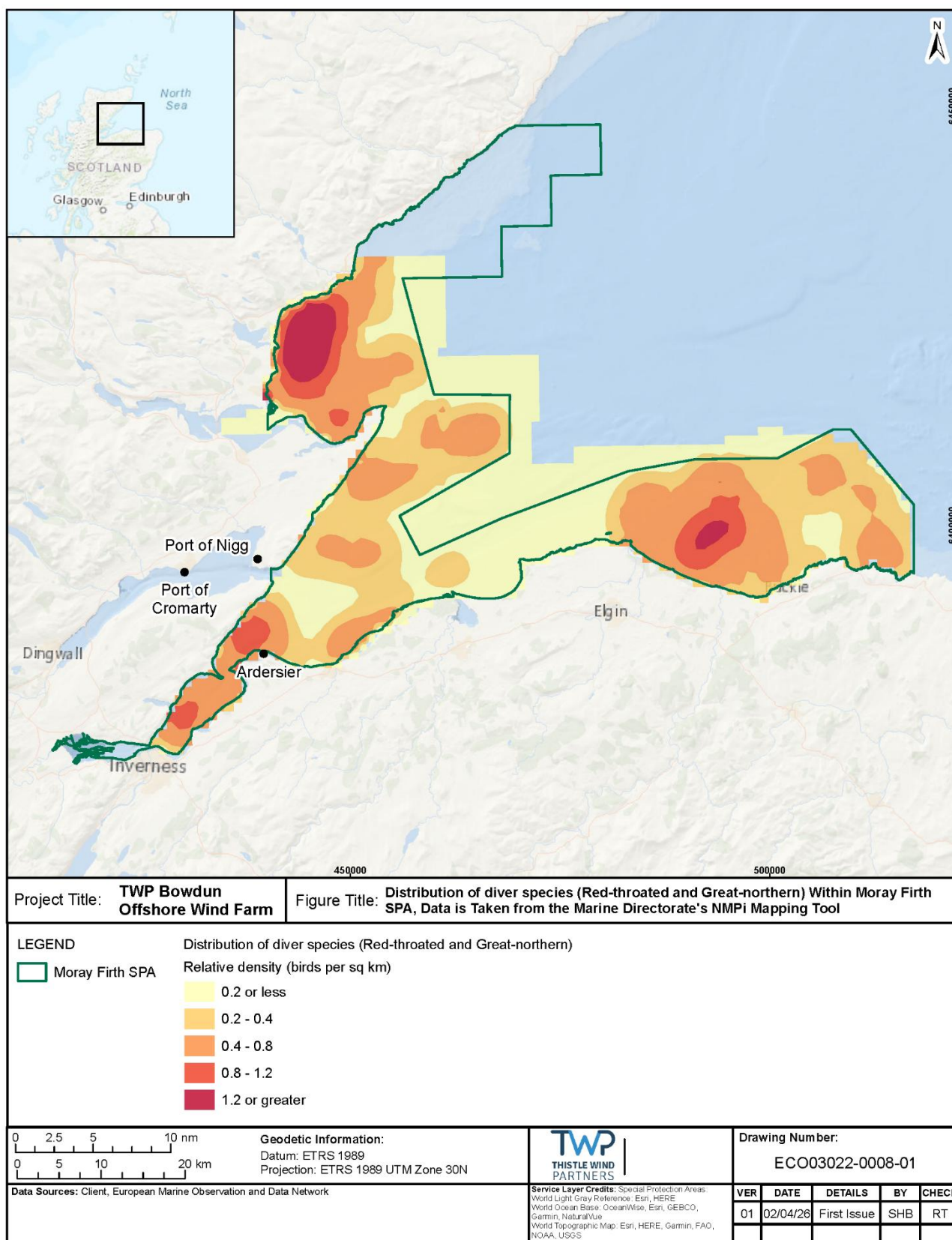


Figure 5.9: Distribution of Diver Species (Red-throated and Great Northern) Within Moray Firth SPA, Data is Taken from the Marine Directorate's NMPI Mapping Tool

Greater Scaup

- 5.7.752 Although greater scaup have not been assessed for disturbance due to vessels, they are recorded as having a moderate sensitivity to displacement (Bradbury *et al.*, 2016). Data from the NMPi Mapping Tool (Marine Scotland, 2026) shows high densities of greater scaup are mostly found along the southern edges of Moray Firth SPA, with the largest number of greater scaup recorded off the coast of between Ardersier and Elgin (Figure 5.10).
- 5.7.753 As highlighted in Figure 5.2, expected vessel movements will not enter the vicinity of any areas with high densities of greater scaup. Therefore, it can be determined there is no AEOSI due to impacts to the greater scaup feature of Moray Firth SPA.

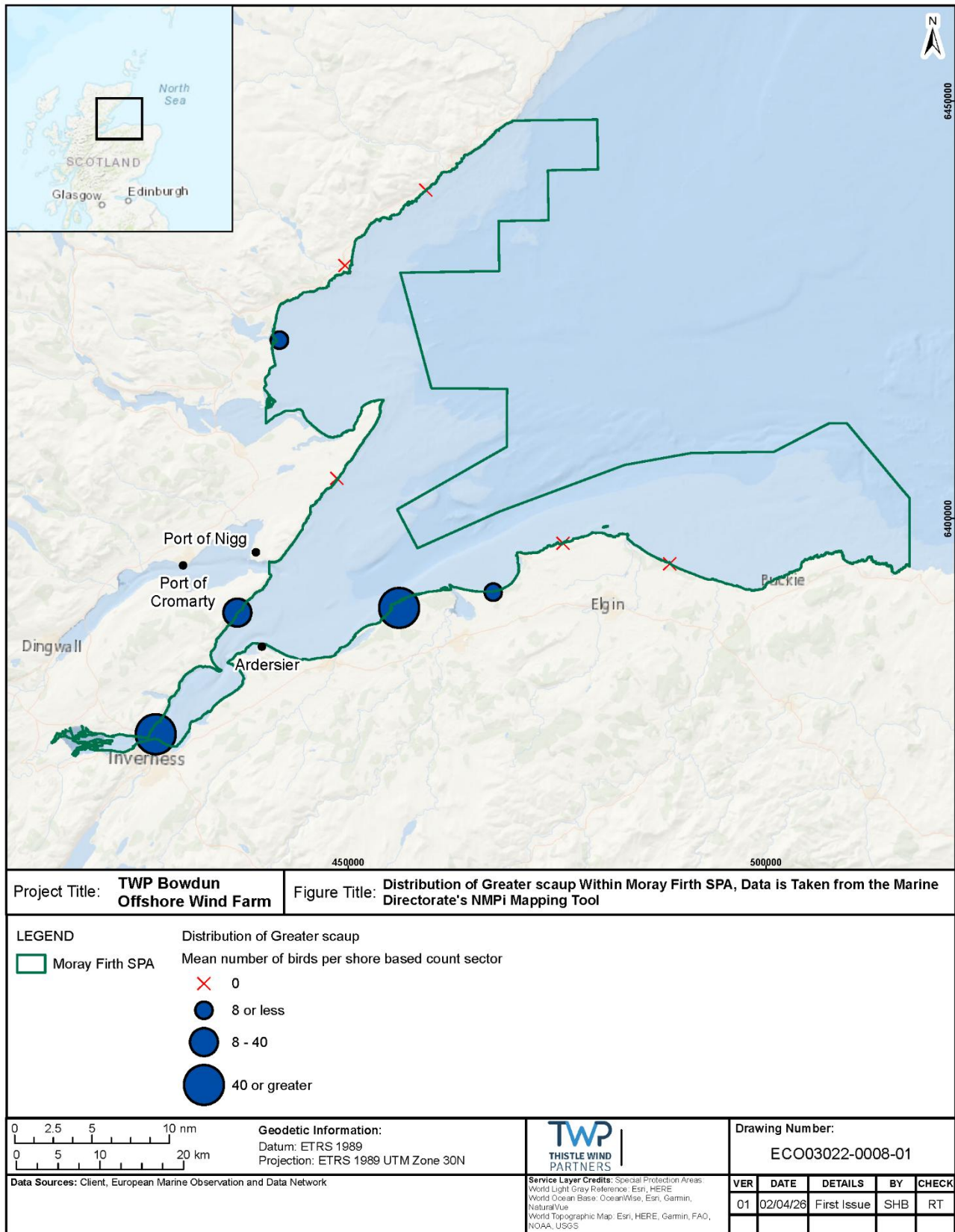


Figure 5.10: Distribution of Greater Scaup Within Moray Firth SPA, Data is Taken from the Marine Directorate's NMPI Mapping Tool

Slavonian Grebe

- 5.7.754 Although Slavonian grebe have not been assessed for disturbance due to vessels within Wade *et al.* (2016), they are recorded as having a moderate sensitivity to displacement (Bradbury *et al.*, 2016). Data from the NMPi Mapping Tool (Marine Scotland, 2026) shows high densities of Slavonian grebe are mostly found along the southern edges, with one high density area in the north-west, of Moray Firth SPA, with the largest number of Slavonian grebe recorded off the coast of Inverness, the north-west of Elgin and north-west of the site boundary (Figure 5.11).
- 5.7.755 As highlighted in Figure 5.2, vessels are expected to follow a similar route for all potential ports, heading east, which is most likely to impact areas with small numbers Slavonian grebe off the coast of Elgin, avoiding higher density areas.
- 5.7.756 Due to the relatively small number of Slavonian grebe expected to be within the vicinity of vessels associated with the construction phase of the Proposed Development, it can be determined there is no AEOSI due to impacts to the Slavonian grebe feature of Moray Firth SPA.

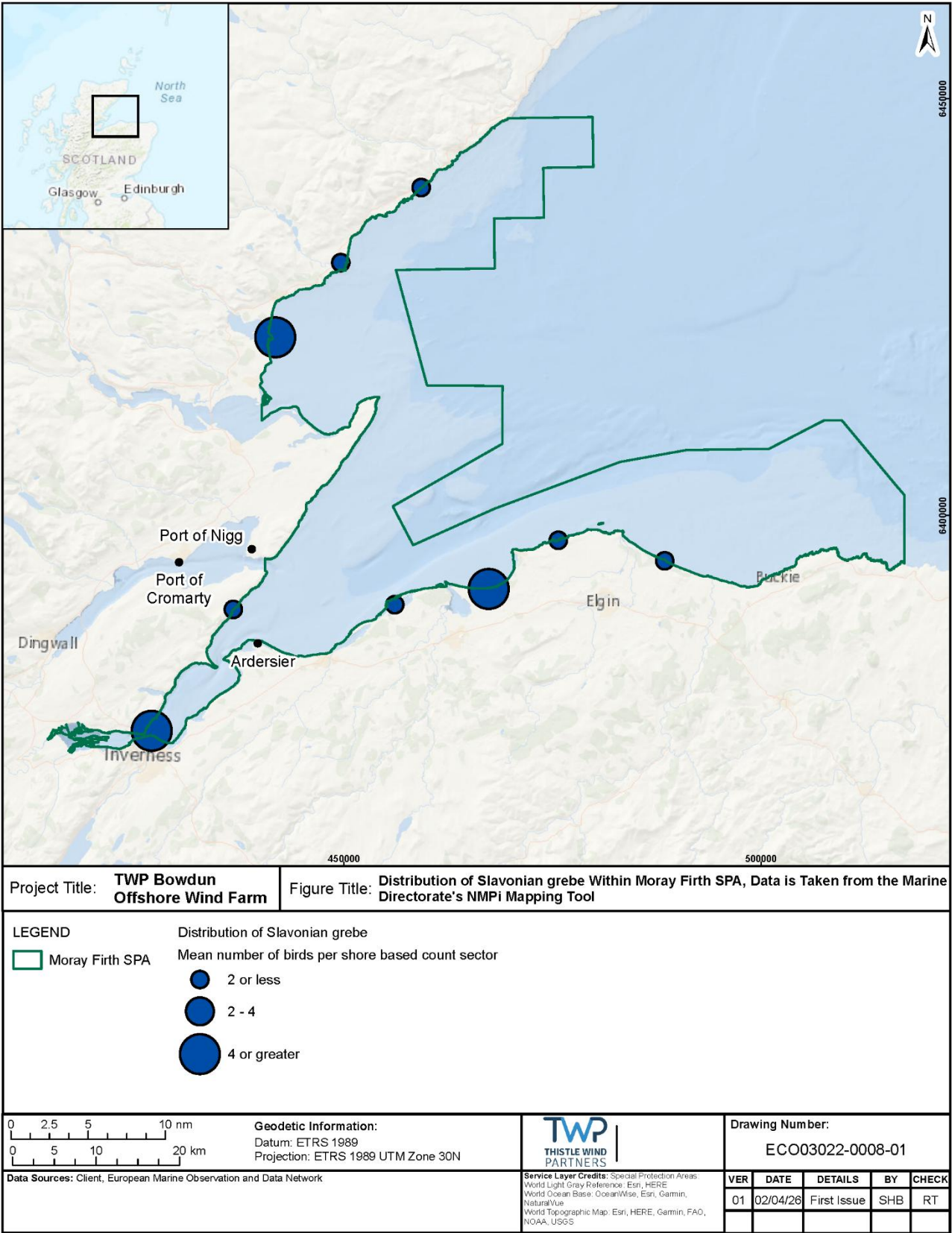


Figure 5.11: Distribution of Slavonian Grebe Within Moray Firth SPA, Data is Taken from the Marine Directorate's NMPI Mapping Tool

Velvet Scoter

- 5.7.757 Although velvet scoter have not been assessed for disturbance due to vessels within Wade *et al.* (2016), they are recorded as having a moderate sensitivity to displacement (Bradbury *et al.*, 2016). Data from the NMPi Mapping Tool (Marine Scotland, 2026) shows high densities of velvet scoter are mostly found along the southern edges of Moray Firth SPA (Figure 5.12).
- 5.7.758 As highlighted in Figure 5.2, expected vessel movements may come into contact with velvet scoter on the southern edge of the SPA. However, it is expected that vessels are most likely to disturb individuals from the smallest aggregation of velvet scoter along this edge, avoiding larger numbers to the east and west of Elgin. Therefore, it can be determined there is no AEOSI due to impacts to the velvet scoter feature of Moray Forth SPA.

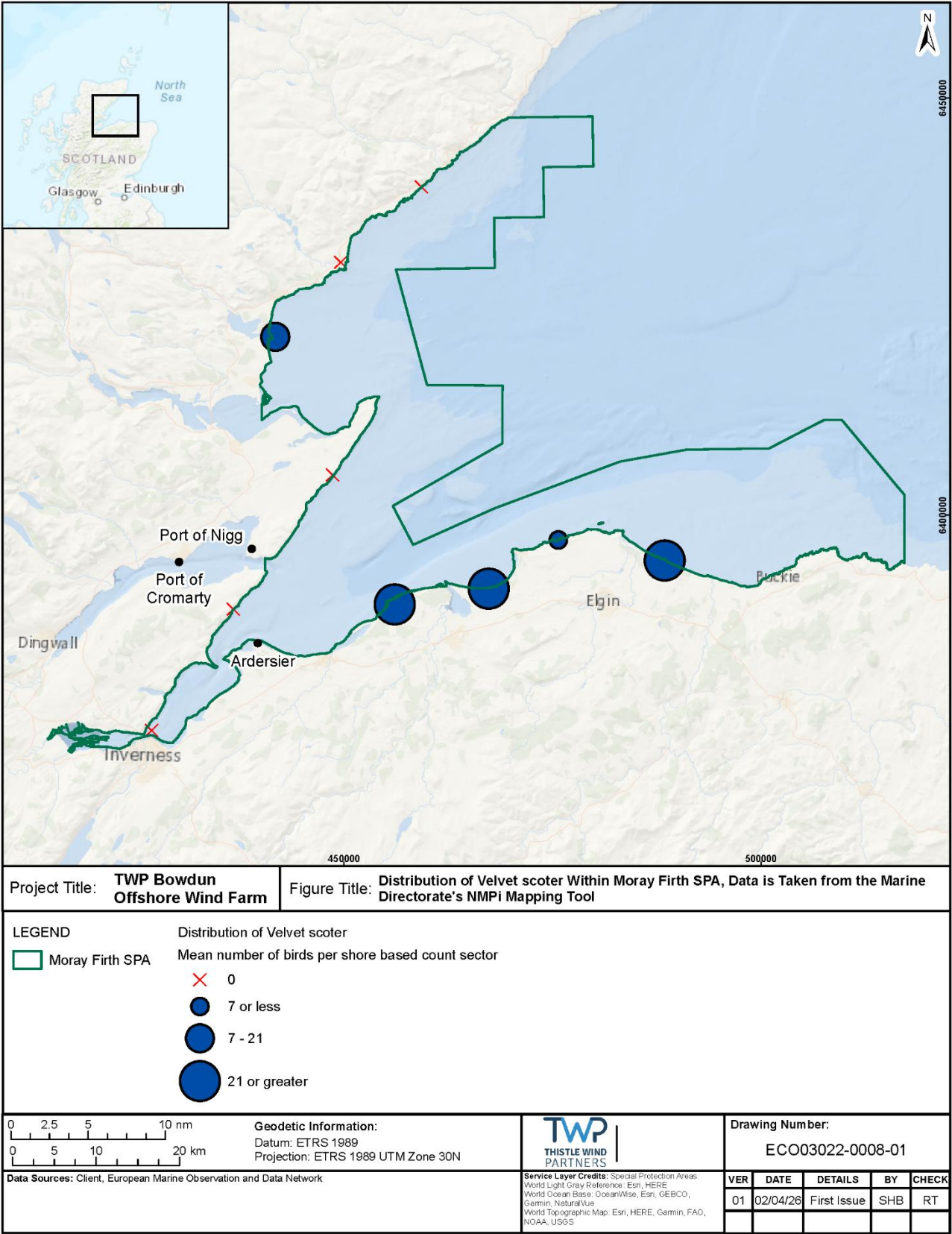


Figure 5.12: Distribution of Velvet Scoter Within Moray Firth SPA, Data is Taken from the Marine Directorate's NMPI Mapping Tool

Conclusion for Qualitative Assessment

- 5.7.759 After reviewing the potential ports and vessel routes, as well as the recorded vessel and species densities and distributions, it is concluded that there will be no AEOSI to the Moray Firth SPA for the qualifying ornithological features as a result of disturbance and displacement to birds from vessel movements during construction activities.

In-combination

- 5.7.760 It is expected that there will be little overlap with the construction of other projects based on the information available. Therefore, as the qualitative approach includes West of Orkney OWF within the baseline environment, the approach taken can be considered precautionary and that the in-combination impacts will not exceed those presented within this section.

North Caithness Cliffs SPA

- 5.7.761 North Caithness Cliffs SPA includes sea-cliff areas where its boundary either partly or wholly overlaps with Duncansby Head SSSI, Stroma SSSI, Dunnet Head SSSI, Red Point Coast SSSI and extends approximately 2 km into the marine environment. The SPA is approximately 211.12 km from the Array Area and was classified in 1996, with the extension classified in 2009 (NatureScot, ND).
- 5.7.762 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.
- 5.7.763 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.190.

Table 5.190: The Relevant Named Components of the Breeding Seabird Assemblage and Impacts Included Within the Assessment for North Caithness Cliffs SPA

Impact	Fulmar	Kittiwake	Razorbill	Puffin
Collision Risk Mortality due to Collision with Rotor Blades	x	✓	x	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓	✓	✓	✓
Disturbance and Displacement to Birds from Vessel Movements	x	x	✓	x
Disturbance to Prey Species and Their Habitat	✓	✓	✓	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓	✓	✓	✓
Direct Impacts from UXO Clearance	x	x	✓	✓
Indirect Impacts from Construction/Decommissioning Noise	✓	✓	✓	✓

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.764 Of the impacts screened in for assessment (Table 3.7), both collision risk and distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Collision Risk Mortality due to Collision with Rotor Blades

- 5.7.765 A quantitative assessment was carried out for collision mortality due to the Array Area following the methodology described in Section 5.4, 'Impact 1: Collision Risk Mortality due to Collision with Rotor Blades' for kittiwake.
- 5.7.766 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values and methodology presented in Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.767 The number of apportioned mortalities is presented in Table 5.191, with the change in survival rate presented in Table 5.192. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage feature of North Caithness Cliffs SPA as a result of collision risk with respect to the O&M phase of the Proposed Development.

Table 5.191: Apportioned Mortalities due to Collision Risk During the O&M phase of the Proposed Development at North Caithness Cliffs SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Kittiwake (Option 1)	4.69	0.970 (0.100)	0.006	0.02	SM	0.90	0.599	0.028	0.01	0.04
					AM	0.34	0.579	0.023	0.00	
Kittiwake (Option 2)	37.59			0.20	SM	7.22	0.599	0.028	0.12	0.36
					AM	2.76	0.579	0.023	0.04	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.192: Change in Survival Rate due to Collision Risk During the O&M Phase of the Proposed Development at North Caithness Cliffs SPA

Species	Model Option	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Kittiwake	1	11,142	0.04	0.000	No AEOSI
	2		0.36	0.003	No AEOSI

Distributional Responses due to Offshore Infrastructure

- 5.7.768 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure' for fulmar, kittiwake, razorbill and puffin.
- 5.7.769 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.770 The number of apportioning mortalities is presented in Table 5.193, with the change in survival rate presented in Table 5.194. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for fulmar, kittiwake, razorbill and puffin, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage feature of North Caithness Cliffs SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Table 5.193: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at North Caithness Cliffs SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.067	0.06 to 0.16	Migration	0.87 to 1.73	0.599	0.042	0.02 to 0.04	0.09 to 0.21
					Winter	0.13 to 0.27	0.719	0.044	0.00 to 0.01	
Kittiwake	5 to 16	0.970 (0.100)	0.006	0.03 to 0.08	SM	0.53 to 2.13	0.599	0.028	0.01 to 0.04	0.04 to 0.14
					AM	0.47 to 1.87	0.579	0.023	0.01 to 0.03	
Razorbill	-	-	-	-	Migration	2.93 to 9.53	0.511	0.009	0.01 to 0.05	0.02 to 0.06
					Winter	1.07 to 3.47	0.486	0.006	0.00 to 0.01	
Puffin	7 to 11	0.463 (0.070)	0.007	0.02 to 0.03	-	-	-	-	-	0.02 to 0.03

¹ Species assessed in the non-breeding season only.

² Species assessed in the breeding season only.

³ SM = Spring Migration; AM = Autumn Migration

Table 5.194: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at North Caithness Cliffs SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	30,740	0.09 to 0.21	0.000 to 0.001	No AEOSI
Kittiwake	11,142	0.04 to 0.14	0.000 to 0.001	No AEOSI
Razorbill ¹	4,796	0.02 to 0.06	0.000 to 0.001	No AEOSI
Puffin ²	6,078	0.02 to 0.03	0.000 to 0.001	No AEOSI

¹ Species assessed in the non-breeding season only.

² Species assessed in the breeding season only.

Combined Impacts of Collision Risk and Distributional Responses

- 5.7.771 As kittiwake were assessed for both collision risk and distributional responses, the combined impact has been used to determine whether a PVA is required. It was found that 0.36 mortalities are expected to occur due to collision risk (Table 5.191) and 0.04 to 0.14 mortalities due to distributional responses (Table 5.193). Therefore, it is expected that a total of 0.40 to 0.50 kittiwake mortalities will occur due to the Proposed Development alone, equivalent to a decrease in survival rate of 0.004 to 0.004 percentage points.
- 5.7.772 When using Option 1 of the sCRM, the number of mortalities due to collision risk was reduced to 0.04 (Table 5.191) and the expected mortalities from collision risk and distributional responses is reduced to 0.09 to 0.19, equivalent to a decrease in survival rate of 0.001 to 0.002 percentage points.
- 5.7.773 As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake, it can be concluded, beyond reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage feature of North Caithness Cliffs SPA as a result of the combined impact of collision risk and distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

- 5.7.774 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to fulmar, kittiwake, puffin and razorbill) . Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.775 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the North Caithness Cliffs SPA due to the following impacts:
- collision risk mortality due to collision with rotor blades;
 - distributional responses due to offshore infrastructure; and
 - combined impacts of collision risk and distributional responses.

Qualitative Impacts

- 5.7.776 Of the impacts screened in for assessment, five impacts have been assessed qualitatively:
- disturbance and displacement to birds from vessel movements (Section 5.5, 'Impact 3: Disturbance and Displacement to Birds From Vessel Movements');
 - disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
 - temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance');

- direct impacts from UXO clearance (Section 5.5, ‘Impact 6: Direct Impacts from UXO Clearance’); and
- indirect impacts from construction/decommissioning noise (Section 5.5, ‘Impact 7: Indirect Impacts from Construction/Decommissioning Noise’).

5.7.777 No site-specific qualitative assessments were required in order to address the impacts for fulmar, kittiwake, razorbill and puffin at North Caithness Cliffs SPA.

Conclusion for Qualitative Assessment

5.7.778 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to fulmar, kittiwake, puffin and razorbill) . Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.

5.7.779 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the North Caithness Cliffs SPA due to the following impacts:

- disturbance and displacement to birds due to vessel movements;
- disturbance to prey species and their habitats;
- temporary habitat loss and/or habitat disturbance;
- direct impacts due to UXO clearance; and
- indirect impacts from construction/decommissioning noise.

5.7.780 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

5.7.781 As highlighted in Table 5.19, in-combination assessment was required for kittiwake.

Kittiwake

5.7.782 It was found that the Proposed Development alone resulted in 0.09 to 0.19 and 0.40 to 0.50 annual mortalities for kittiwake using Option 1 and Option 2 of the sCRM respectively, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.195.

5.7.783 Although the RIAA for MarramWind was not available at the time of data analysis, it should be noted that MarramWind was found to contribute 0.81 to 0.94 mortalities (MarramWind, 2026), which is equivalent to a 1.1% increase in mortalities for the high mortality displacement scenario. The inclusion of MarramWind is not expected to change the conclusions drawn.

Table 5.195: Number of Mortalities Due to Collision Risk and Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Kittiwake at North Caithness Cliffs SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Bowdun (Option 1)	0.02	0.02	0.04	0.03 to 0.08	0.02 to 0.06	0.04 to 0.14	0.09 to 0.19	0.09 to 0.19
Bowdun (Option 2)	0.20	0.16	0.36	0.03 to 0.08	0.02 to 0.06	0.04 to 0.14	0.40 to 0.50	0.40 to 0.50
Aberdeen	-	0.07 (0.05)	0.07 (0.05)	-	0.00 to 0.01	0.00 to 0.01	0.07 to 0.07	0.05 to 0.06
Aspen	0.08	0.06	0.14	0.02 to 0.06	0.01 to 0.02	0.03 to 0.08	0.17 to 0.22	0.17 to 0.22
Ayre	0.43	0.21	0.64	0.08 to 0.31	0.04 to 0.12	0.12 to 0.43	0.76 to 1.07	0.76 to 1.07
Beatrice	1.29	0.53 (0.29)	1.82 (1.58)	-	0.11 to 0.34	0.11 to 0.34	1.94 to 2.16	1.7 to 1.92
Berwick Bank	-	4.54 (4.55)	4.54 (4.55)	-	1.26 to 3.77	1.26 to 3.77	5.8 to 8.31	5.81 to 8.33
Blyth Demo	-	0.04	0.04	-	0.07 to 0.22	0.07 to 0.22	0.11 to 0.26	0.11 to 0.26
Buchan	0.15	0.1 (0.05)	0.25 (0.2)	3.2 to 3.2	0.02 to 0.07	3.22 to 3.27	3.47 to 3.52	3.42 to 3.46
Caledonia (North & South)	1.52	0.20	1.72	0.17 to 0.51	0.03 to 0.09	0.2 to 0.6	1.92 to 2.32	1.92 to 2.32
Cenos	0.29	0.09	0.38	0.02 to 0.06	0 to 0.01	0.02 to 0.07	0.4 to 0.45	0.4 to 0.45
Dogger Bank A and B	-	4.5 (4.52)	4.5 (4.52)	-	0.95 to 2.86	0.95 to 2.86	5.46 to 7.36	5.47 to 7.38
Dogger Bank C and Sofia	-	3.22 (3.23)	3.22 (3.23)	-	0.7 to 2.11	0.7 to 2.11	3.93 to 5.34	3.94 to 5.35
Dogger Bank South	-	3.03 (3.04)	3.03 (3.04)	-	0.94 to 2.82	0.94 to 2.82	3.97 to 5.85	3.98 to 5.86
East Anglia One	-	2.08 (1.41)	2.08 (1.41)	-	0.1 to 0.29	0.1 to 0.29	2.17 to 2.37	1.5 to 1.69
East Anglia One North	-	0.14	0.14	-	0.03 to 0.09	0.03 to 0.09	0.17 to 0.23	0.17 to 0.23
East Anglia Three	-	0.89	0.89	-	0.24 to 0.71	0.24 to 0.71	1.12 to 1.6	1.13 to 1.6
East Anglia Two	-	0.16	0.16	-	0.02 to 0.06	0.02 to 0.06	0.18 to 0.22	0.18 to 0.22

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Five Estuaries	-	0.34	0.34	-	0.04 to 0.12	0.04 to 0.12	0.38 to 0.46	0.38 to 0.46
Galloper	-	0.61 (0.26)	0.61 (0.26)	-	-	-	0.61	0.26
Greater Gabbard	-	0.27	0.27	-	-	-	0.27	0.27
Green Volt	0.10	0.16	0.26	-	0.01 to 0.04	0.01 to 0.04	0.27 to 0.3	0.27 to 0.3
Hornsea One	-	0.19 (0.08)	0.19 (0.08)	-	1.62 to 4.87	1.62 to 4.87	1.82 to 5.07	1.7 to 4.95
Hornsea Project Four	-	0.23	0.23	-	0.31 to 0.94	0.31 to 0.94	0.54 to 1.17	0.54 to 1.17
Hornsea Project Three	-	0.85	0.85	-	0.32 to 0.96	0.32 to 0.96	1.17 to 1.81	1.17 to 1.81
Hornsea Project Two	-	0.12	0.12	-	0.17 to 0.52	0.17 to 0.52	0.29 to 0.64	0.29 to 0.64
Humber Gateway	-	0.05 (0.02)	0.05 (0.02)	-	-	-	0.05	0.02
Hywind	-	0.02	0.02	-	-	-	0.02	0.02
Inch Cape	-	0.39	0.39	-	0.11 to 0.32	0.11 to 0.32	0.5 to 0.72	0.5 to 0.72
Kentish Flats	-	0.02	0.02	-	-	-	0.02	0.02
Kentish Flats Extension	-	0.04 (0.02)	0.04 (0.02)	-	-	-	0.04	0.02
Kincardine	-	0.10	0.10	-	-	-	0.1	0.1
Lincs	-	0.02	0.02	-	-	-	0.02	0.02
London Array	-	0.04 (0.02)	0.04 (0.02)	-	-	-	0.04	0.02
Moray East	-	0.09	0.09	0.5 to 1.5	-	0.5 to 1.5	0.59 to 1.59	0.59 to 1.59
Moray West	1.43	0.37	1.80	0.5 to 1.5	0.13 to 0.38	0.63 to 1.88	2.43 to 3.68	2.43 to 3.68
Muir Mhor	0.37	0.16	0.53	0.06 to 0.18	0.04 to 0.12	0.1 to 0.3	0.63 to 0.82	0.63 to 0.82

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Neart na Gaoithe	-	0.23	0.23	-	0.11 to 0.33	0.11 to 0.33	0.34 to 0.56	0.34 to 0.56
Norfolk Boreas	-	0.54	0.54	-	0.18 to 0.53	0.18 to 0.53	0.72 to 1.08	0.72 to 1.08
Norfolk Vanguard	-	0.44	0.44	-	0.11 to 0.33	0.11 to 0.33	0.55 to 0.77	0.55 to 0.77
North Falls	-	0.25	0.25	-	0.07 to 0.2	0.07 to 0.2	0.32 to 0.45	0.32 to 0.45
Ossian	-	0.20	0.20	0.01 to 0.04	0.06 to 0.17	0.07 to 0.22	0.27 to 0.41	0.27 to 0.41
Outer Dowsing	-	0.28 (0.29)	0.28 (0.29)	-	0.35 to 1.05	0.35 to 1.05	0.64 to 1.34	0.64 to 1.34
Pentland	3.50	0.01	3.51	2.6 to 2.6	0.01 to 0.02	2.61 to 2.62	6.12 to 6.14	6.12 to 6.14
Race Bank	-	0.29 (0.17)	0.29 (0.17)	-	-	-	0.29	0.17
Salamander	0.11	0.00	0.11	0.08 to 0.25	0.01 to 0.03	0.09 to 0.28	0.2 to 0.39	0.2 to 0.39
Seagreen	-	2.7 (2.71)	2.7 (2.71)	-	0.23 to 0.69	0.23 to 0.69	2.93 to 3.4	2.94 to 3.4
Sheringham Shoal Extension and Dudgeon Extension	-	0.09	0.09	-	0.14 to 0.41	0.14 to 0.41	0.22 to 0.5	0.22 to 0.5
Teesside	-	0.26 (0.22)	0.26 (0.22)	-	-	-	0.26	0.22
Thanet	-	0.01 (0)	0.01 (0)	-	-	-	0.01	0
Triton Knoll	-	1.85 (0.67)	1.85 (0.67)	-	0.03 to 0.08	0.03 to 0.08	1.88 to 1.94	0.7 to 0.76
West of Orkney	2.86	0.65	3.51	0.48 to 1.44	0.1 to 0.3	0.58 to 1.74	4.09 to 5.25	4.09 to 5.25
Option 1								
Total	12.15	31.75 (28.97)	43.91 (41.13)	7.76 to 11.76	8.70 to 26.11	16.46 to 37.87	60.37 to 81.78	57.59 to 79.00
Total excluding Berwick Bank	12.15	27.20 (24.42)	39.35 (36.57)	7.76 to 11.76	7.41 to 22.23	15.17 to 33.99	54.52 to 73.34	51.74 to 70.56

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Total excluding Bowdun	12.13	31.73 (28.95)	43.86 (41.08)	7.73 to 11.67	8.68 to 26.05	16.42 to 37.73	60.28 to 81.59	57.50 to 78.81
Option 2								
Total	12.33	31.89 (29.11)	44.22 (41.44)	7.76 to 11.76	8.70 to 26.11	16.46 to 37.87	60.68 to 82.09	57.90 to 79.31
Total excluding Berwick Bank	12.33	27.34 (24.56)	39.67 (36.88)	7.76 to 11.76	7.41 to 22.23	15.17 to 33.99	54.83 to 73.65	52.05 to 70.87
Total excluding Bowdun	12.13	31.73 (28.95)	43.86 (41.08)	7.73 to 11.67	8.68 to 26.05	16.42 to 37.73	60.28 to 81.59	57.50 to 78.81

¹ The number of mortalities due to ‘consented’ collisions are presented, with the number of ‘as-built’ collisions presented in parentheses where relevant.

² Low and high displacement scenarios are presented in Table 5.3

5.7.784 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank and using consented and as-built collisions (Table 5.196).

Table 5.196: In-combination PVA Results for Kittiwake, Impacted by Collision Risk and Distributional Responses, at North Caithness Cliffs SPA (initial population size: 11,142 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Berwick Bank Offshore Wind Farm included or excluded	Displacement Scenario	Baseline Median Population Size (Breeding Adults)	Impacted Median Population Size (Breeding Adults)	Counterfactual Growth Rate (CGR)	Counterfactual Population Size (CPS)
‘Consented’ mortalities					
Including Berwick Bank	Low	20,838	17,056	0.994 (0.992 to 0.995)	0.819 (0.774 to 0.865)
	High		15,952	0.991 (0.990 to 0.993)	0.763 (0.720 to 0.807)
Excluding Berwick Bank	Low		17,448	0.994 (0.993 to 0.996)	0.835 (0.790 to 0.881)
	High		16,405	0.992 (0.991 to 0.994)	0.784 (0.739 to 0.829)
‘As-built’ mortalities					
Including Berwick Bank	Low	20,838	17,266	0.994 (0.992 to 0.995)	0.826 (0.780 to 0.873)
	High		16,061	0.992 (0.990 to 0.993)	0.769 (0.727 to 0.812)
Excluding Berwick Bank	Low		17,606	0.994 (0.993 to 0.996)	0.842 (0.796 to 0.890)
	High		16,525	0.992 (0.991 to 0.994)	0.791 (0.748 to 0.836)

5.7.785 Using consented mortalities (Table 5.196), it was found that under all scenarios the CGR was greater or equal to 0.991, indicating that the growth rate of the kittiwake is unlikely to decrease by more than 0.9%. The population size was found to increase under all scenarios and the CPS, after 30 years, ranged from 0.763 to 0.835.

5.7.786 When accounting for as-built corrections, it was found the median CGR was unchanged for all scenarios except the high displacement scenario including Berwick Bank which decreased by 0.001, or 0.1%. Moreover, the median CPS was found to be higher, indicating the impact to population sizes is likely to be reduced by no more than 0.7% across all four scenarios modelled.

5.7.787 A comparison of the Seabird 2000 and Seabirds Count censuses found that the kittiwake population at North Caithness Cliffs SPA has decreased by 45% (Burnell *et al.*, 2023), with most recent census count of 5,571 AON less than half of the citation population (13,100 AON). Surveys carried out by Tremblett *et al.* (2024) found that population sizes increased by 41%, suggesting that HPAI has

not negatively impacted the kittiwake population at North Caithness Cliffs SPA and the population is beginning to increase.

- 5.7.788 In 2023, 8,197 AON were recorded in North Caithness Cliffs SPA during NEEOG-funded surveys (Zisman and Swann, 2023). This is equivalent to a 19% decrease in population size when compared to the Seabird 2000 census. However, when compared to the Seabirds Count (*Burnell et al.*, 2023) census, these counts show a 47% increase in the kittiwake population suggesting that the population is beginning to recover with the potential to return to Seabird 2000 levels under favourable conditions.
- 5.7.789 Despite the kittiwake population at North Caithness Cliffs SPA showing increasing population trends following the recent HPAI outbreak, long-term decreasing trends in population size and the estimated impact on growth rate (up to 0.9%) and population size (up to 23.7%) of the Proposed Development in combination with other projects has the potential to jeopardise short-term trends. However, it should be noted that the Proposed Development alone contributes just 0.61% and 0.66% of the total mortalities for the consented collision and high displacement scenario including and excluding Berwick Bank respectively.
- 5.7.790 Additionally, PVA run using site-specific flight height data found the impacts to growth rate % and population size are expected to decrease by no more than 0.1% (presented in Table 3.5 of Appendix 3B: Offshore Ornithology Special Protection Area Population Viability Analysis Technical Report (TWP-BOW-RPS-ENV-RPT-00027)). Therefore, using site-specific sCRM (Option 1) is unlikely to impact the conclusions for AEOSI.
- 5.7.791 Therefore, an adverse effect on the seabird assemblage due to impacts to kittiwake of North Caithness Cliffs SPA **could not be ruled out** including or excluding Berwick Bank.

North Rona and Sula Sgeir SPA

- 5.7.792 North Rona and Sula Sgeir SPA consists of the uninhabited islands of North Rona and Sula Sgeir, 65 km north of Lewis, and is located approximately 372.79 km from the Array Area. The SPA boundary overlaps with the boundary of North Rona and Sula Sgeir SSSI and extends approximately 2 km into the marine environment. The site was classified in 2001, with the marine extension classified in 2009 (NatureScot, ND).
- 5.7.793 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.
- 5.7.794 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.197.

Table 5.197: The Relevant Features and Impacts Included Within the Assessment for North Rona and Sula Sgeir SPA

Impact	Fulmar ¹	Gannet
Collision Risk Mortality due to Collision with Rotor Blades	x	✓
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓	✓
Disturbance and Displacement to Birds from Vessel Movements	x	x
Disturbance to Prey Species and Their Habitat	✓	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓	✓
Direct Impacts from UXO Clearance	x	✓
Indirect Impacts from Construction/Decommissioning Noise	✓	✓

¹ Named component of the seabird assemblage only.

Proposed Development Alone Assessment

Quantitative Impacts

5.7.795 Of the impacts screened in for assessment (Table 3.7), both collision risk and distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Collision Risk Mortality due to Collision with Rotor Blades

5.7.796 A quantitative assessment was carried out for collision mortality due to the Array Area following the methodology described in Section 5.4, 'Impact 1: Collision Risk Mortality due to Collision with Rotor Blades' for gannet.

5.7.797 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values and methodology presented in Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).

5.7.798 The number of apportioned mortalities is presented in Table 5.198, with the change in survival rate presented in Table 5.199. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for gannet, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the gannet feature of North Rona and Sula Sgeir SPA as a result of collision risk with respect to the O&M phase of the Proposed Development.

Table 5.198: Apportioned Mortalities due to Collision Risk During the O&M phase of the Proposed Development at North Rona and Sula Sgeir SPA
(Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Gannet	23.64	0.972 (0.100)	0.012	0.25	SM	0.37	0.659	0.000	0.00	0.26
					AM	1.04	0.531	0.011	0.01	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.199: Change in Survival Rate due to Collision Risk During the O&M Phase of the Proposed Development at North Rona and Sula Sgeir SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Gannet	24,542	0.26	0.001	No AEOSI

Distributional Responses due to Offshore Infrastructure

- 5.7.799 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure' for fulmar and gannet.
- 5.7.800 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.801 The number of apportioning mortalities is presented in Table 5.200, with the change in survival rate presented in Table 5.201. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for fulmar or gannet, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the gannet and breeding seabird assemblage (due to impacts to fulmar) features of North Rona and Sula Sgeir SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Table 5.200: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at North Rona and Sula Sgeir SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.003	0.00 to 0.01	Migration	0.87 to 1.73	0.599	0.000	0.00 to 0.00	0.00 to 0.01
					Winter	0.13 to 0.27	0.719	0.001	0.00 to 0.00	
Gannet	4 to 13	0.972 (0.100)	0.012	0.04 to 0.14	SM	0.64 to 1.27	0.659	0.000	0.00 to 0.00	0.04 to 0.14
					AM	0.36 to 0.73	0.531	0.011	0.00 to 0.00	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.201: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at North Rona and Sula Sgeir SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	4,420	0.00 to 0.01	0.000 to 0.000	No AEOSI
Gannet	24,542	0.04 to 0.14	0.000 to 0.001	No AEOSI

Combined Impacts of Collision Risk and Distributional Responses

- 5.7.802 As gannet were assessed for both collision risk and distributional responses, the combined impact has been used to determine whether a PVA is required. It was found that 0.26 mortalities are expected to occur due to collision risk (Table 5.198) and 0.04 to 0.14 mortalities due to distributional responses (Table 5.200). Therefore, it is expected that a total of 0.30 to 0.40 gannet mortalities will occur due to the Proposed Development alone, equivalent to a decrease in survival rate of 0.001 to 0.002 percentage points.
- 5.7.803 As the decrease in survival rate, due to collision risk and distributional responses, does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for gannet it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the gannet feature of North Rona and Sula Sgeir SPA as a result of the combined impact of collision risk and distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

- 5.7.804 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to gannet and the breeding seabird assemblage (due to impacts to fulmar) features. Therefore, it is expected that the features will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.805 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the North Rona and Sula Sgeir SPA due to the following impacts:
- collision risk mortality due to collision with rotor blades;
 - distributional responses due to offshore infrastructure; and
 - combined impacts of collision risk and distributional responses.

Qualitative Impacts

- 5.7.806 Of the impacts screened in for assessment, four impacts have been assessed qualitatively:
- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
 - temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance');
 - direct impacts from UXO clearance (Section 5.5, 'Impact 6: Direct Impacts from UXO Clearance'); and
 - indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').
- 5.7.807 No site-specific qualitative assessments were required in order to address the impacts for fulmar and gannet at North Rona and Sula Sgeir SPA.

Conclusion for Qualitative Assessment

5.7.808 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to gannet and the breeding seabird assemblage (due to impacts to fulmar) features. Therefore, it is expected that the features will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.

5.7.809 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the North Rona and Sula Sgeir SPA due to the following impacts:

- disturbance to prey species and their habitats;
- temporary habitat loss and/or habitat disturbance;
- direct impacts due to UXO clearance; and
- indirect impacts from construction/decommissioning noise.

5.7.810 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

5.7.811 As highlighted in Table 5.19, in-combination assessment was required for gannet.

Gannet

5.7.812 It was found that the Proposed Development alone resulted in 0.30 to 0.40 annual mortalities for gannet, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.202.

5.7.813 Although the RIAA for MarramWind was not available at the time of data analysis, it should be noted that MarramWind was found to contribute 0.80 to 0.83 mortalities (MarramWind, 2026), which is equivalent to a 10.0% increase in mortalities for the high mortality displacement scenario.

Table 5.202: Number of Mortalities Due to Collision Risk and Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Gannet at North Rona and Sula Sgeir SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Collisions ¹			Displacement ²			Annual Consented Collisions + Displacement	Annual As-built Collisions + Displacement
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual		
Bowdun	0.25	0.01	0.26	0.04 to 0.14	-	0.04 to 0.14	0.30 to 0.40	0.30 to 0.40
Aberdeen	-	0.01 (0.00)	0.01 (0.00)	-	-	-	0.01	0.00
Aspen	0.04	-	0.04	0.03 to 0.08	-	0.03 to 0.08	0.07 to 0.12	0.07 to 0.12
Ayre	0.19	-	0.19	0.04 to 0.16	-	0.04 to 0.16	0.23 to 0.35	0.23 to 0.35
Beatrice	-	0.05 (0.03)	0.05 (0.03)	-	-	-	0.05	0.03
Berwick Bank	-	0.02	0.02	0.1 to 0.3	0.06 to 0.19	0.16 to 0.49	0.19 to 0.51	0.19 to 0.51
Blyth Demo	0.30	-	0.30	-	-	-	0.30	0.30
Buchan	0.07	-	0.07	0.04 to 0.13	-	0.04 to 0.13	0.11 to 0.20	0.11 to 0.20
Caledonia (North & South)	-	-	-	0.14 to 0.42	0.02 to 0.05	0.16 to 0.47	0.16 to 0.47	0.16 to 0.47
Cenos	-	0.01	0.01	-	0.01 to 0.04	0.01 to 0.04	0.02 to 0.05	0.02 to 0.05
Dogger Bank A and B	-	0.07	0.07	-	0.09 to 0.26	0.09 to 0.26	0.16 to 0.33	0.16 to 0.33
Dogger Bank C and Sofia	-	0.01	0.01	-	0.04 to 0.11	0.04 to 0.11	0.05 to 0.12	0.05 to 0.12
Dogger Bank South	-	0.02	0.02	-	0.07 to 0.20	0.07 to 0.20	0.09 to 0.22	0.09 to 0.22
Dudgeon	-	0.03 (0.01)	0.03 (0.01)	-	-	-	0.03	0.01
East Anglia One	-	0.11 (0.07)	0.11 (0.07)	-	0.14 to 0.43	0.14 to 0.43	0.25 to 0.54	0.22 to 0.5
East Anglia One North	-	0.01	0.01	-	0.02 to 0.06	0.02 to 0.06	0.03 to 0.07	0.03 to 0.07
East Anglia Three	-	0.02	0.02	-	0.05 to 0.15	0.05 to 0.15	0.07 to 0.17	0.07 to 0.17
East Anglia Two	-	0.03	0.03	-	0.04 to 0.11	0.04 to 0.11	0.06 to 0.13	0.06 to 0.13

Project	Collisions ¹			Displacement ²			Annual Consented Collisions + Displacement	Annual As-built Collisions + Displacement
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual		
Five Estuaries	-	0.01	0.01	-	0.03 to 0.08	0.03 to 0.08	0.04 to 0.09	0.04 to 0.09
Galloper	-	0.03 (0.01)	0.03 (0.01)	-	0.04 to 0.11	0.04 to 0.11	0.06 to 0.13	0.05 to 0.12
Greater Gabbard	-	0.01	0.01	-	0.00 to 0.01	0.00 to 0.01	0.01 to 0.02	0.01 to 0.02
Green Volt	0.20	-	0.20	0.02 to 0.06	-	0.02 to 0.06	0.22 to 0.26	0.22 to 0.26
Hornsea Four	-	0.01	0.01	-	0.03 to 0.09	0.03 to 0.09	0.04 to 0.10	0.04 to 0.10
Hornsea Project One	-	0.01	0.01	-	0.03 to 0.08	0.03 to 0.08	0.03 to 0.09	0.03 to 0.09
Hornsea Project Three	-	0.01	0.01	-	0.04 to 0.12	0.04 to 0.12	0.04 to 0.12	0.04 to 0.12
Hornsea Project Two	-	0.01	0.01	-	0.05 to 0.14	0.05 to 0.14	0.06 to 0.15	0.06 to 0.15
Inch Cape	-	0.01	0.01	-	0.04 to 0.11	0.04 to 0.11	0.04 to 0.12	0.04 to 0.12
Moray East	-	0.04	0.04	-	0.02 to 0.05	0.02 to 0.05	0.05 to 0.09	0.05 to 0.09
Moray West	-	-	-	-	0.02 to 0.07	0.02 to 0.07	0.02 to 0.07	0.02 to 0.07
Muir Mhor	0.10	0.01	0.11	0.04 to 0.11	0.03 to 0.09	0.07 to 0.20	0.17 to 0.31	0.17 to 0.31
Neart na Gaoithe	-	0.01	0.01	-	0.03 to 0.09	0.03 to 0.09	0.04 to 0.10	0.04 to 0.10
Norfolk Boreas	-	0.02	0.02	-	0.07 to 0.20	0.07 to 0.20	0.08 to 0.22	0.08 to 0.22
Norfolk Vanguard	-	0.02	0.02	-	0.10 to 0.29	0.10 to 0.29	0.12 to 0.31	0.12 to 0.31
North Falls	-	0.01	0.01	-	0.01 to 0.03	0.01 to 0.03	0.02 to 0.04	0.02 to 0.04
Ossian	0.30	0.01	0.31	0.10 to 0.30	0.04 to 0.12	0.14 to 0.42	0.45 to 0.73	0.45 to 0.73
Outer Dowsing	-	-	-	-	0.02 to 0.06	0.02 to 0.06	0.02 to 0.06	0.02 to 0.06
Pentland	0.10	-	0.10	0.10 to 0.30	-	0.10 to 0.30	0.20 to 0.40	0.20 to 0.40
Race Bank	-	0.01	0.01	-	-	-	0.01 to 0.01	0.01 to 0.01
Rampion	-	0.05 (0.04)	0.05 (0.04)	-	0.02 to 0.07	0.02 to 0.07	0.08 to 0.12	0.06 to 0.11
Rampion 2	-	0.01	0.01	-	0.00 to 0.01	0.00 to 0.01	0.01 to 0.02	0.01 to 0.02

Project	Collisions ¹			Displacement ²			Annual Consented Collisions + Displacement	Annual As-built Collisions + Displacement
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual		
Salamander	-	-	-	0.00 to 0.01	0.02 to 0.06	0.02 to 0.07	0.03 to 0.07	0.03 to 0.07
Seagreen (1 & 1A)	-	0.02	0.02	-	0.03 to 0.10	0.03 to 0.10	0.06 to 0.13	0.06 to 0.13
Sheringham Shoal Extension & Dudgeon Extension	-	-	-	-	0.03 to 0.08	0.03 to 0.08	0.03 to 0.08	0.03 to 0.08
Sheringham Shoal	-	0.01	0.01	-	-	-	0.01	0.01
Triton Knoll	-	0.05 (0.02)	0.05 (0.02)	-	-	-	0.05	0.02
West of Orkney	-	0.02	0.02	-	0.06 to 0.19	0.06 to 0.19	0.08 to 0.20	0.08 to 0.20
Total	1.55	0.81 (0.66)	2.36 (2.21)	0.66 to 2.01	1.30 to 3.89	1.96 to 5.90	4.32 to 8.26	4.17 to 8.11
Total excluding Berwick Bank	1.55	0.79 (0.64)	2.33 (2.18)	0.56 to 1.71	1.24 to 3.70	1.80 to 5.42	4.13 to 7.75	3.98 to 7.60
Total excluding Bowdun	1.30	0.80 (0.66)	2.10 (1.95)	0.62 to 1.88	1.30 to 3.89	1.91 to 5.76	4.02 to 7.86	3.87 to 7.71

¹ The number of mortalities due to ‘consented’ collisions are presented, with the number of ‘as-built’ collisions presented in parentheses where relevant.

² Low and high displacement scenarios are presented in Table 5.3

5.7.814 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank and using consented and as-built collisions (Table 5.203).

Table 5.203: In-combination PVA Results for Gannet, Impacted by Collision Risk and Distributional Responses, at North Rona and Sula Sgeir SPA (initial population size: 22,590 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Berwick Bank Offshore Wind Farm included or excluded	Displacement Scenario	Baseline Median Population Size (Breeding Adults)	Impacted Median Population Size (Breeding Adults)	Counterfactual Growth Rate (CGR)	Counterfactual Population Size (CPS)
‘Consented’ mortalities					
Including Berwick Bank	Low	32,831	32,599	1.000 (0.999 to 1.001)	0.993 (0.962 to 1.026)
	High		32,430	1.000 (0.999 to 1.000)	0.988 (0.957 to 1.020)
Excluding Berwick Bank	Low		32,673	1.000 (0.999 to 1.001)	0.994 (0.962 to 1.027)
	High		32,474	1.000 (0.999 to 1.000)	0.988 (0.957 to 1.021)
‘As-built’ mortalities					
Including Berwick Bank	Low	32,831	32,694	1.000 (0.999 to 1.001)	0.994 (0.963 to 1.026)
	High		32,360	1.000 (0.999 to 1.000)	0.988 (0.957 to 1.020)
Excluding Berwick Bank	Low		32,645	1.000 (0.999 to 1.001)	0.994 (0.963 to 1.027)
	High		32,453	1.000 (0.999 to 1.000)	0.989 (0.958 to 1.021)

5.7.815 Using consented mortalities (Table 5.203), it was found that under all scenarios that the growth rate is not expected to be impacted. The population size was found to increase under all scenarios and the CPS, after 30 years, ranged from 0.988 to 0.994 indicating a decrease in population size of up to 1.2%.

5.7.816 When accounting for as-built corrections, it was found the impact on the growth rate was unchanged when compared to the corresponding consented scenarios. Moreover, the impact to population sizes is likely to be reduced by 0.0% to 0.1% across the modelled scenarios.

5.7.817 A comparison of the Seabird 2000 and Seabirds Count censuses found that the gannet population at North Rona and Sula Sgeir SPA has increased by 3% (Burnell *et al.*, 2023), with most recent census count of 12,271 AON approximately 75% of the citation population (16,400 AON). Surveys carried out by Tremblett *et al.* (2024) found that population sizes decreased by 23%, suggesting that HPAI has had a negative impact on the gannet population.

5.7.818 The gannet population has been found to show a trend of increasing populations between censuses, but it is expected to be negatively impacted by HPAI. The results of the PVA indicate that the population will increase under all scenarios and that there will be no impact to the growth rate, indicating that the gannet population is likely to continue to increase following the HPAI outbreak, even in the presence of the Proposed Development in-combination with other projects.

5.7.819 Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined. It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the North Rona and Sula Sgeir SPA on gannet including or excluding Berwick Bank.

Noss SPA

5.7.820 Noss SPA is an island 5 km east of Lerwick, Shetland and approximately 340.43 km from the Array Area. The SPA boundary overlaps with Noss SSSI, with a seaward extension of approximately 2 km into the marine environment. The site was classified in 1996, with the marine extension classified in 2009 (NatureScot, ND).

5.7.821 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.

5.7.822 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.204.

Table 5.204: The Relevant Features and Impacts Included Within the Assessment for Noss SPA

Impact	Fulmar¹	Gannet²
Collision Risk Mortality due to Collision with Rotor Blades	x	✓
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓	✓
Disturbance and Displacement to Birds from Vessel Movements	x	x
Disturbance to Prey Species and Their Habitat	✓	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓	✓
Direct Impacts from UXO Clearance	x	✓
Indirect Impacts from Construction/Decommissioning Noise	✓	✓

¹ Named component of the seabird assemblage only.

² Qualifying Features and named component of the seabird assemblage.

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.823 Of the impacts screened in for assessment (Table 3.7), both collision risk and distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 61.

Collision Risk Mortality due to Collision with Rotor Blades

- 5.7.824 A quantitative assessment was carried out for collision mortality due to the Array Area following the methodology described in Section 5.4, ‘Impact 1: Collision Risk Mortality due to Collision with Rotor Blades’ for gannet.
- 5.7.825 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values and methodology presented in Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.826 The number of apportioned mortalities is presented in Table 5.205, with the change in survival rate presented in Table 5.206. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for gannet, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the gannet and breeding seabird assemblage (due to impacts to gannet) features of Noss SPA as a result of collision risk with respect to the O&M phase of the Proposed Development.

Table 5.205: Apportioned Mortalities due to Collision Risk During the O&M phase of the Proposed Development at Noss SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Gannet	23.64	0.972 (0.100)	0.016	0.34	SM	0.37	0.659	0.081	0.02	0.39
					AM	1.04	0.531	0.062	0.03	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.206: Change in Survival Rate due to Collision Risk During the O&M Phase of the Proposed Development at Noss SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Gannet	27,530	0.39	0.001	No AEOSI

Distributional Responses due to Offshore Infrastructure

- 5.7.827 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure' for fulmar and gannet
- 5.7.828 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.829 The number of apportioning mortalities is presented in Table 5.207, with the change in survival rate presented in Table 5.208. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for fulmar or gannet, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the gannet or breeding seabird assemblage (due to impacts to fulmar or gannet) features of Noss SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Table 5.207: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Noss SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.009	0.01 to 0.02	Migration	0.87 to 1.73	0.599	0.015	0.01 to 0.02	0.02 to 0.04
					Winter	0.13 to 0.27	0.719	0.016	0.00 to 0.00	
Gannet	4 to 13	0.972 (0.100)	0.016	0.06 to 0.19	SM	0.64 to 1.27	0.659	0.081	0.03 to 0.07	0.10 to 0.28
					AM	0.36 to 0.73	0.531	0.062	0.01 to 0.02	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.208: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Noss SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	10,184	0.02 to 0.04	0.000 to 0.000	No AEOSI
Gannet	27,530	0.10 to 0.28	0.000 to 0.001	No AEOSI

Combined Impacts of Collision Risk and Distributional Responses

5.7.830 As gannet were assessed for both collision risk and distributional responses, the combined impact has been used to determine whether a PVA is required. It was found that 0.39 mortalities are expected to occur due to collision risk (Table 5.205) and 0.10 to 0.28 mortalities due to distributional responses (Table 5.207). Therefore, it is expected that a total of 0.50 to 0.67 gannet mortalities will occur due to the Proposed Development alone, equivalent to a decrease in survival rate of 0.002 to 0.002 percentage points.

5.7.831 As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for gannet, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the gannet and breeding seabird assemblage (due to impacts to gannet) features of Noss SPA as a result of the combined impact of collision risk and distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

5.7.832 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the gannet and breeding seabird assemblage (due to impacts to fulmar) features. Therefore, it is expected that the features will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.

5.7.833 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Noss SPA due to the following impacts:

- collision risk mortality due to collision with rotor blades;
- distributional responses due to offshore infrastructure; and
- combined impacts of collision risk and distributional responses.

Qualitative Impacts

5.7.834 Of the impacts screened in for assessment, four impacts have been assessed qualitatively:

- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
- temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance');
- direct impacts from UXO clearance (Section 5.5, 'Impact 6: Direct Impacts from UXO Clearance'); and
- indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').

5.7.835 No site-specific qualitative assessments were required in order to address the impacts for fulmar and gannet at Noss SPA.

Conclusion for Qualitative Assessment

- 5.7.836 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the gannet and breeding seabird assemblage (due to impacts to fulmar or gannet) features. Therefore, it is expected that the features will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.837 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Noss SPA due to the following impacts:
- disturbance to prey species and their habitats;
 - temporary habitat loss and/or habitat disturbance;
 - direct impacts due to UXO clearance; and
 - indirect impacts from construction/decommissioning noise.
- 5.7.838 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

- 5.7.839 As highlighted in Table 5.19, in-combination assessment was required for gannet.

Gannet

- 5.7.840 It was found that the Proposed Development alone resulted in 0.50 to 0.67 annual mortalities for gannet, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.209.
- 5.7.841 Although the RIAA for MarramWind was not available at the time of data analysis, it should be noted that MarramWind was found to contribute 2.30 to 2.38 mortalities (MarramWind, 2026), which is equivalent to a 5.4% increase in mortalities for the high mortality displacement scenario.

Table 5.209: Number of Mortalities Due to Collision Risk and Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Gannet at Noss SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Collisions ¹			Displacement ²			Annual Consented Collisions + Displacement	Annual As-built Collisions + Displacement
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual		
Bowdun	0.34	0.05	0.39	0.06 to 0.19	0.05 to 0.09	0.11 to 0.28	0.50 to 0.67	0.50 to 0.67
Aberdeen	-	0.03 (0.02)	0.03 (0.02)	-	-	-	0.03	0.02
Aspen	0.10	-	0.10	0.07 to 0.20	-	0.07 to 0.20	0.17 to 0.30	0.17 to 0.30
Ayre	0.43	-	0.43	0.09 to 0.36	-	0.09 to 0.36	0.52 to 0.79	0.52 to 0.79
Beatrice	-	0.35 (0.21)	0.35 (0.21)	-	-	-	0.35	0.21
Berwick Bank	0.40	0.15	0.55	0.10 to 0.30	0.40 to 1.19	0.50 to 1.49	1.05 to 2.04	1.05 to 2.04
Blyth Demo	-	0.04	0.04	-	-	-	0.04	0.04
Buchan	0.21	-	0.21	0.14 to 0.41	-	0.14 to 0.41	0.35 to 0.62	0.35 to 0.62
Caledonia (North & South)	0.30	0.03	0.33	0.13 to 0.39	0.09 to 0.28	0.22 to 0.67	0.55 to 1.00	0.55 to 1.00
Cenos	0.80	0.05	0.85	0.07 to 0.21	0.08 to 0.23	0.15 to 0.44	1.00 to 1.29	1.00 to 1.29
Dogger Bank A and B	-	1.00	1.00	-	0.61 to 1.84	0.61 to 1.84	1.61 to 2.84	1.61 to 2.84
Dogger Bank C and Sofia	-	0.17	0.17	-	0.39 to 1.16	0.39 to 1.16	0.56 to 1.33	0.56 to 1.33
Dogger Bank South	-	0.15	0.15	-	0.72 to 2.16	0.72 to 2.16	0.87 to 2.31	0.87 to 2.31
Dudgeon	-	0.39 (0.18)	0.39 (0.18)	-	0.01 to 0.03	0.01 to 0.03	0.40 to 0.41	0.19 to 0.21
East Anglia One	-	0.64 (0.43)	0.64 (0.43)	-	0.79 to 2.36	0.79 to 2.36	1.42 to 3.00	1.22 to 2.79
East Anglia One North	-	0.09	0.09	-	0.12 to 0.35	0.12 to 0.35	0.20 to 0.43	0.20 to 0.43
East Anglia Three	-	0.22	0.22	-	0.48 to 1.44	0.48 to 1.44	0.70 to 1.65	0.70 to 1.65
East Anglia Two	-	0.20	0.20	-	0.26 to 0.79	0.26 to 0.79	0.46 to 0.99	0.46 to 0.99
Five Estuaries	-	0.09	0.09	-	0.18 to 0.54	0.18 to 0.54	0.26 to 0.62	0.26 to 0.62
Galloper	-	0.27 (0.12)	0.27 (0.12)	-	0.30 to 0.91	0.30 to 0.91	0.58 to 1.18	0.42 to 1.02

Project	Collisions ¹			Displacement ²			Annual Consented Collisions + Displacement	Annual As-built Collisions + Displacement
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual		
Greater Gabbard	-	0.09	0.09	-	0.06 to 0.17	0.06 to 0.17	0.15 to 0.26	0.15 to 0.26
Green Volt	0.50	0.03	0.53	0.04 to 0.12	0.03 to 0.10	0.07 to 0.22	0.60 to 0.75	0.60 to 0.75
Gunfleet Sands	-	-	-	-	0.01 to 0.02	0.01 to 0.02	0.01 to 0.02	0.01 to 0.02
Hornsea Four	-	0.05	0.05	-	0.33 to 1.00	0.33 to 1.00	0.38 to 1.05	0.38 to 1.05
Hornsea Project One	-	0.09	0.09	-	0.25 to 0.75	0.25 to 0.75	0.34 to 0.84	0.34 to 0.84
Hornsea Project Three	-	0.09	0.09	-	0.42 to 1.27	0.42 to 1.27	0.52 to 1.36	0.52 to 1.36
Hornsea Project Two	-	0.13	0.13	-	0.29 to 0.87	0.29 to 0.87	0.42 to 1.00	0.42 to 1.00
Humber Gateway	-	0.02 (0.01)	0.02 (0.01)	-	-	-	0.02	0.01
Hywind	-	0.01	0.01	-	-	-	0.01	0.01
Inch Cape	-	0.07	0.07	-	0.24 to 0.73	0.24 to 0.73	0.32 to 0.81	0.32 to 0.81
Kentish Flats	-	0.07 (0.06)	0.07 (0.06)	-	-	-	0.07	0.06
Kentish Flats Extension	-	-	-	-	0.00 to 0.01	0.00 to 0.01	0.00 to 0.01	0.00 to 0.01
Lincs	-	0.11	0.11	-	-	-	0.11	0.11
London Array	-	0.11 (0.04)	0.11 (0.04)	-	-	-	0.11	0.04
Lynn and Inner Dowsing	-	0.01	0.01	-	-	-	0.01	0.01
Moray East	-	0.26	0.26	-	0.09 to 0.26	0.09 to 0.26	0.35 to 0.53	0.35 to 0.53
Moray West	-	0.02	0.02	-	0.16 to 0.47	0.16 to 0.47	0.18 to 0.49	0.18 to 0.49
Muir Mhor	0.20	0.03	0.23	0.07 to 0.21	0.18 to 0.55	0.25 to 0.76	0.49 to 1.00	0.49 to 1.00
Neart na Gaoithe	-	0.11	0.11	-	0.22 to 0.66	0.22 to 0.66	0.34 to 0.78	0.34 to 0.78
Norfolk Boreas	-	0.13	0.13	-	0.57 to 1.72	0.57 to 1.72	0.71 to 1.85	0.71 to 1.85
Norfolk Vanguard	-	0.19	0.19	-	0.69 to 2.07	0.69 to 2.07	0.88 to 2.25	0.88 to 2.25
North Falls	-	0.07	0.07	-	0.14 to 0.42	0.14 to 0.42	0.21 to 0.49	0.21 to 0.49

Project	Collisions ¹			Displacement ²			Annual Consented Collisions + Displacement	Annual As-built Collisions + Displacement
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual		
Ossian	0.50	0.05	0.55	0.20 to 0.60	0.22 to 0.66	0.42 to 1.26	0.97 to 1.81	0.97 to 1.81
Outer Dowsing	-	0.02	0.02	-	0.22 to 0.66	0.22 to 0.66	0.24 to 0.68	0.24 to 0.68
Pentland	-	-	-	0.04 to 0.12	0.01 to 0.03	0.05 to 0.15	0.05 to 0.15	0.05 to 0.15
Race Bank	-	0.10 (0.05)	0.10 (0.05)	-	0.02 to 0.06	0.02 to 0.06	0.12 to 0.15	0.07 to 0.11
Rampion	-	0.30 (0.21)	0.30 (0.21)	-	0.12 to 0.37	0.12 to 0.37	0.42 to 0.67	0.33 to 0.57
Rampion 2	-	0.08	0.08	-	0.07 to 0.22	0.07 to 0.22	0.15 to 0.29	0.15 to 0.29
Salamander	-	0.03	0.03	0.01 to 0.02	0.1 to 0.3	0.11 to 0.32	0.14 to 0.35	0.14 to 0.35
Seagreen (1 & 1A)	-	0.25	0.25	-	0.26 to 0.79	0.26 to 0.79	0.51 to 1.04	0.51 to 1.04
Sheringham Shoal Extension & Dudgeon Extension	-	0.02	0.02	-	0.16 to 0.47	0.16 to 0.47	0.17 to 0.49	0.17 to 0.49
Sheringham Shoal	-	0.07	0.07	-	0.01 to 0.02	0.01 to 0.02	0.08 to 0.09	0.07 to 0.09
Teeside	-	0.01	0.01	-	-	-	0.01	0.01
Triton Knoll	-	0.62 (0.22)	0.62 (0.22)	-	0.01 to 0.04	0.01 to 0.04	0.63 to 0.66	0.23 to 0.26
West of Orkney	-	0.11	0.11	-	0.36 to 1.08	0.36 to 1.08	0.47 to 1.19	0.47 to 1.19
Total	3.78	7.41 (6.06)	11.11 (9.84)	1.01 to 3.13	9.95 to 29.77	10.97 to 32.90	22.16 to 44.09	20.81 to 42.74
Total excluding Berwick Bank	3.38	7.27 (5.92)	10.65 (9.30)	0.91 to 2.83	9.56 to 28.58	10.47 to 31.41	21.12 to 42.05	19.77 to 40.70
Total excluding Bowdun	3.44	7.36 (6.01)	10.80 (9.45)	0.96 to 2.95	9.91 to 29.68	10.86 to 32.63	21.66 to 43.42	20.31 to 42.07

¹ The number of mortalities due to ‘consented’ collisions are presented, with the number of ‘as-built’ collisions presented in parentheses where relevant.

² Low and high displacement scenarios are presented in Table 5.3

5.7.842 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank and using consented and as-built collisions (Table 5.210).

Table 5.210: In-combination PVA Results for Gannet, Impacted by Collision Risk and Distributional Responses, at Noss SPA (initial population size: 27,530 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Berwick Bank Offshore Wind Farm included or excluded	Displacement Scenario	Baseline Median Population Size (Breeding Adults)	Impacted Median Population Size (Breeding Adults)	Counterfactual Growth Rate (CGR)	Counterfactual Population Size (CPS)
‘Consented’ mortalities					
Including Berwick Bank	Low	36,231	35,209	0.999 (0.998 to 1.000)	0.971 (0.943 to 1.000)
	High		34,219	0.998 (0.997 to 0.999)	0.944 (0.915 to 0.972)
Excluding Berwick Bank	Low		35,276	0.999 (0.998 to 1.000)	0.973 (0.944 to 1.001)
	High		34,291	0.998 (0.997 to 0.999)	0.946 (0.917 to 0.974)
‘As-built’ mortalities					
Including Berwick Bank	Low	36,231	35,323	0.999 (0.998 to 1.000)	0.973 (0.944 to 1.003)
	High		34,301	0.998 (0.997 to 0.999)	0.945 (0.918 to 0.974)
Excluding Berwick Bank	Low		35,308	0.999 (0.998 to 1.000)	0.975 (0.946 to 1.003)
	High		34,320	0.998 (0.997 to 0.999)	0.948 (0.919 to 0.975)

5.7.843 Using consented mortalities (Table 5.210), it was found that under all scenarios the CGR was equal to or greater than 0.998, indicating that the growth rate of the gannet is unlikely to decrease by more than 0.2%. The population size was found to increase under all scenarios and the CPS, after 30 years, ranged from 0.944 to 0.973 indicating a decrease in population size of up to 5.6%.

5.7.844 When accounting for as-built corrections, it was found the median CGR was unchanged when compared to the corresponding consented scenarios. Moreover, the median CPS was found to be higher, indicating the impact to population sizes is likely to be reduced by no more than 0.2% under all modelled scenarios.

5.7.845 A comparison of the Seabird 2000 and Seabirds Count censuses found that the gannet population at Noss SPA has increased by 59% (Burnell *et al.*, 2023), with most recent census count of 13,765 AON, more than double than the citation population (6,860 AON). Surveys carried out by Tremblett *et al.* (2024) found

that population sizes decreased by 10%, suggesting that HPAI has had a negative impact on the gannet population.

- 5.7.846 The gannet population has been found to show a trend of increasing populations between censuses. However, the population has shown decreases following the most recent HPAI outbreak. The results of the PVA indicate that the population will increase under all scenarios and that impact on the growth rate will be relatively small, indicating that the gannet population is expected to be able to recover following the HPAI outbreak, even in the presence of the Proposed Development in-combination with other projects.
- 5.7.847 Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined. It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Noss SPA on the gannet or breeding seabird assemblage (due to impacts to gannet) features including or excluding Berwick Bank.

Papa Stour SPA

- 5.7.848 Papa Stour SPA is a small island located off the western tip of Shetland, Scotland. The majority of the island is covered by lichen-rich heath, which has formed on areas that were once peat and turf. Several small lochs are scattered throughout the heathland. The coastline is predominantly made up of cliffs. The SPA boundary lies entirely within the Papa Stour SSSI. The site lies approximately 401.31 km from the Array Area.
- 5.7.849 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.
- 5.7.850 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.211.

Table 5.211: The Relevant Components of the Seabird Assemblage and Impacts Included Within the Assessment for Papa Stour SPA

Impact	Arctic tern
Collision Risk Mortality due to Collision with Rotor Blades	✓
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	x
Disturbance and Displacement to Birds from Vessel Movements	x
Disturbance to Prey Species and Their Habitat	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓
Direct Impacts from UXO Clearance	x
Indirect Impacts from Construction/Decommissioning Noise	✓

Proposed Development Alone Assessment

Quantitative Impacts

5.7.851 Of the impacts screened in for assessment (Table 3.7), collision risk only was assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Collision Risk Mortality due to Collision with Rotor Blades

5.7.852 A quantitative assessment was carried out for collision mortality due to the Array Area following the methodology described in Section 5.4, 'Impact 1: Collision Risk Mortality due to Collision with Rotor Blades' for Arctic tern.

5.7.853 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values and methodology presented in Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).

5.7.854 The number of apportioned mortalities is presented in Table 5.212, with the change in survival rate presented in Table 5.213. As the decrease in survival rate did not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for Arctic tern, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the Arctic tern feature of Papa Stour SPA as a result of collision risk with respect to the O&M phase of the Proposed Development.

Table 5.212: Apportioned Mortalities due to Collision Risk During the O&M phase of the Proposed Development at Papa Stour SPA (Prop = Proportion; AV = Apportioning Value)

Species	Non-breeding Season				Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Arctic tern¹	0.19	0.707	0.018	0.00	0.00

¹ Species assessed during the non-breeding season only

Table 5.213: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Papa Stour SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Arctic tern¹	124	0.00	0.002	No AEOSI

¹ Species assessed during the non-breeding season only

Conclusion for Quantitative Assessment

- 5.7.855 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the Arctic tern feature. Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.856 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Papa Stour SPA due to the following impacts:
- collision risk mortality due to collision with rotor blades.

Qualitative Impacts

- 5.7.857 Of the impacts screened in for assessment, four impacts have been assessed qualitatively:
- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
 - temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance'); and
 - indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').
- 5.7.858 No site-specific qualitative assessments were required in order to address the impacts for Arctic tern at Papa Stour SPA.

Conclusion for Qualitative Assessment

- 5.7.859 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the Arctic tern feature. Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.860 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Papa Stour SPA due to the following impacts:
- disturbance to prey species and their habitats;
 - temporary habitat loss and/or habitat disturbance; and
 - indirect impacts from construction/decommissioning noise.

- 5.7.861 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

- 5.7.862 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for Arctic tern, no in-combination assessment was required for Papa Stour SPA.

Puffin Island SPA

- 5.7.863 Puffin Island SPA is located approximately 0.5 km off the northern side of St Finan's bay, County Kerry, and is approximately 1,182.79 km from the Array Area (NPWS, ND).
- 5.7.864 The conservation objectives have been determined by NPWS, as presented in Paragraphs 5.3.11 to 5.3.12.
- 5.7.865 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.214.

Table 5.214: The Relevant Features and Impacts Included Within the Assessment for Puffin Island SPA

Impact	Fulmar¹
Collision Risk Mortality due to Collision with Rotor Blades	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓
Disturbance and Displacement to Birds from Vessel Movements	x
Disturbance to Prey Species and Their Habitat	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓
Direct Impacts from UXO Clearance	x
Indirect Impacts from Construction/Decommissioning Noise	✓

¹Qualifying feature and named component of breeding seabird assemblage

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.866 Of the impacts screened in for assessment (Table 3.7), only distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Distributional Responses due to Offshore Infrastructure

- 5.7.867 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure' for fulmar.
- 5.7.868 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.869 The number of apportioned mortalities is presented in Table 5.215, with the change in survival rate presented in Table 5.216. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g), it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the fulmar feature of Puffin Island SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

- 5.7.870 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the fulmar and breeding seabird assemblage (due to impacts to fulmar) features. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the feature, so the conservation objectives of the SPA will not be undermined.
- 5.7.871 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Puffin Island SPA due to the following impacts:
- distributional responses due to offshore infrastructure.

Qualitative Impacts

- 5.7.872 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:
- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
 - temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance'); and
 - indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').
- 5.7.873 No site-specific qualitative assessments were required in order to address the impacts for fulmar at Puffin Island SPA.

Conclusion for Qualitative Assessment

- 5.7.874 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the fulmar feature and breeding seabird assemblage (due to impacts to fulmar) features. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the feature, so the conservation objectives of the SPA will not be undermined.
- 5.7.875 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Puffin Island SPA due to the following impacts:
- disturbance to prey species and their habitats;
 - temporary habitat loss and/or habitat disturbance; and
 - indirect impacts from construction/decommissioning noise.
- 5.7.876 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

Table 5.215: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Puffin Island SPA
(Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.000	0.00 to 0.00	Migration	0.87 to 1.73	0.599	0.000	0.00 to 0.00	0.00 to 0.00
					Winter	0.13 to 0.27	0.719	0.000	0.00 to 0.00	

Table 5.216: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Puffin Island SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	1,340	0.00 to 0.00	0.000 to 0.000	No AEOSI

In-combination Assessment

- 5.7.877 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar, no in-combination assessment was required for Puffin Island SPA.

Rathlin Island SPA

- 5.7.878 Rathlin Island SPA is an island located approximately 4 km off the north Antrim coast of Northern Ireland and approximately 731.84 km from the Array Area. The SPA is classified as an extension to and renaming of Rathlin Island Cliffs SPA (DAERA, ND).
- 5.7.879 The conservation objectives have been determined by DAERA, as presented in Paragraphs 5.3.11 to 5.3.12.
- 5.7.880 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.217.

Table 5.217: The Relevant Features and Impacts Included Within the Assessment for Rathlin Island SPA

Impact	Fulmar¹	Razorbill²
Collision Risk Mortality due to Collision with Rotor Blades	x	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓	✓
Disturbance and Displacement to Birds from Vessel Movements	x	✓
Disturbance to Prey Species and Their Habitat	✓	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓	✓
Direct Impacts from UXO Clearance	x	✓
Indirect Impacts from Construction/Decommissioning Noise	✓	✓

¹ Named component of the seabird assemblage only.

² Qualifying feature and named component of the seabird assemblage.

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.881 Of the impacts screened in for assessment (Table 3.7), distributional responses only were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Distributional Responses due to Offshore Infrastructure

- 5.7.882 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure' for fulmar and razorbill.

- 5.7.883 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.884 The number of apportioning mortalities is presented in Table 5.218, with the change in survival rate presented in Table 5.219. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for fulmar or razorbill, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the razorbill or breeding seabird assemblage feature of Rathlin Island SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Table 5.218: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Rathlin Island SPA
(Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.000	0.00 to 0.00	Migration	0.87 to 1.73	0.599	0.000	0.00 to 0.00	0.00 to 0.00
					Winter	0.13 to 0.27	0.719	0.000	0.00 to 0.00	
Razorbill ¹	-	-	-	-	Migration	2.93 to 9.53	0.511	0.003	0.00 to 0.01	0.01 to 0.03
					Winter	1.07 to 3.47	0.486	0.007	0.00 to 0.01	

¹ Species assessed during non-breeding season only

Table 5.219: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Rathlin Island SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	2,076	0.00 to 0.00	0.000 to 0.000	No AEOSI
Razorbill	30,044	0.01 to 0.03	0.000 to 0.000	No AEOSI

Conclusion for Quantitative Assessment

- 5.7.885 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the razorbill and breeding seabird assemblage (due to impacts to razorbill and fulmar) features. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the features, so the conservation objectives of the SPA will not be undermined.
- 5.7.886 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Rathlin Island SPA due to the following impacts:
- distributional responses due to offshore infrastructure.

Qualitative Impacts

- 5.7.887 Of the impacts screened in for assessment, five impacts have been assessed qualitatively:
- disturbance and displacement to birds from vessel movements (Section 5.5, 'Impact 3: Disturbance and Displacement to Birds From Vessel Movements');
 - disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
 - temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance');
 - direct impacts from UXO clearance (Section 5.5, 'Impact 6: Direct Impacts from UXO Clearance'); and
 - indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').
- 5.7.888 No site-specific qualitative assessments were required in order to address the impacts for fulmar or razorbill at Rathlin Island SPA.

Conclusion for Qualitative Assessment

- 5.7.889 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the razorbill and breeding seabird assemblage (due to impacts to razorbill and fulmar) features. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the feature, so the conservation objectives of the SPA will not be undermined.
- 5.7.890 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Rathlin Island SPA due to the following impacts:
- disturbance and displacement to birds due to vessel movements;
 - disturbance to prey species and their habitats;
 - temporary habitat loss and/or habitat disturbance;
 - direct impacts due to UXO clearance; and

- indirect impacts from construction/decommissioning noise.

5.7.891 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

5.7.892 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar or razorbill, no in-combination assessment was required for Papa Stour SPA.

Rousay SPA

5.7.893 Rousay SPA is an island off the north-east coast of Mainland Orkney and is approximately 256.09 km from the Array Area. The SPA boundary overlaps with Rousay SSSI and extends approximately 2 km into the marine environment. The site was classified in 2000, with the marine extension classified in 2009 (NatureScot, ND).

5.7.894 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.

5.7.895 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.220.

Table 5.220: The Relevant Features and Impacts Included Within the Assessment for Rousay SPA

Impact	Fulmar ¹	Kittiwake ¹
Collision Risk Mortality due to Collision with Rotor Blades	x	✓
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓	✓
Disturbance and Displacement to Birds from Vessel Movements	x	x
Disturbance to Prey Species and Their Habitat	✓	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓	✓
Direct Impacts from UXO Clearance	x	x
Indirect Impacts from Construction/Decommissioning Noise	✓	✓

¹ Named component of the seabird assemblage only.

Proposed Development Alone Assessment

Quantitative Impacts

5.7.896 Of the impacts screened in for assessment (Table 3.7), distributional responses and collision risk were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Collision Risk Mortality due to Collision with Rotor Blades

5.7.897 A quantitative assessment was carried out for collision mortality due to the Array Area following the methodology described in Section 5.4, 'Impact 1: Collision Risk Mortality due to Collision with Rotor Blades' for kittiwake.

- 5.7.898 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values and methodology presented in Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.899 The number of apportioned mortalities is presented in Table 5.221, with the change in survival rate presented in Table 5.222. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage feature of Rousay SPA as a result of collision risk with respect to the O&M phase of the Proposed Development.

Table 5.221: Apportioned Mortalities due to Collision Risk During the O&M phase of the Proposed Development at Rousay SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Kittiwake (Option 1)	4.69	0.970 (0.100)	0.000	0.00	SM	0.90	0.599	0.005	0.00	0.00
					AM	0.34	0.579	0.004	0.00	
Kittiwake (Option 2)	37.59			0.01	SM	7.22	0.599	0.005	0.02	0.04
					AM	2.76	0.579	0.004	0.01	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.222: Change in Survival Rate due to Collision Risk During the O&M Phase of the Proposed Development at Rousay SPA

Species	Model Option	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Kittiwake	1	660	0.00	0.001	No AEOSI
	2		0.04	0.005	No AEOSI

Distributional Responses due to Offshore Infrastructure

- 5.7.900 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure' for fulmar and kittiwake.
- 5.7.901 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.902 The number of apportioning mortalities is presented in Table 5.223, with the change in survival rate presented in Table 5.224. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for fulmar or kittiwake, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird feature of Rousay SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Table 5.223: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Rousay SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.007	0.01 to 0.02	Migration	0.87 to 1.73	0.599	0.003	0.00 to 0.00	0.01 to 0.02
					Winter	0.13 to 0.27	0.719	0.003	0.00 to 0.00	
Kittiwake	5 to 16	0.970 (0.100)	0.000	0.00 to 0.00	SM	0.53 to 2.13	0.599	0.005	0.00 to 0.01	0.00 to 0.01
					AM	0.47 to 1.87	0.579	0.004	0.00 to 0.00	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.224: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Rousay SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	4,384	0.01 to 0.02	0.000 to 0.000	No AEOSI
Kittiwake	660	0.00 to 0.01	0.001 to 0.002	No AEOSI

Combined Impacts of Collision Risk and Distributional Responses

- 5.7.903 As kittiwake were assessed for both collision risk and distributional responses, the combined impact has been used to determine whether a PVA is required. It was found that 0.04 mortalities are expected to occur due to collision risk (Table 5.222) and 0.00 to 0.01 mortalities due to distributional responses (Table 5.224). Therefore, it is expected that a total of 0.04 to 0.05 kittiwake mortalities will occur due to the Proposed Development alone, equivalent to a decrease in survival rate of 0.006 to 0.007 percentage points.
- 5.7.904 When using Option 1 of the sCRM, the number of mortalities due to collision risk was reduced to 0.00 (Table 5.222) and the expected mortalities from collision risk and distributional responses is reduced to 0.01 to 0.02, equivalent to a decrease in survival rate of 0.001 to 0.003 percentage points.
- 5.7.905 As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage feature of Rousay SPA as a result of the combined impact of collision risk and distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

- 5.7.906 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to kittiwake and fulmar) . Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.907 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Rousay SPA due to the following impacts:
- collision risk mortality due to collision with rotor blades;
 - distributional responses due to offshore infrastructure; and
 - combined impacts of collision risk and distributional responses.

Qualitative Impacts

- 5.7.908 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:
- disturbance to prey species and their habitats (Section 5.5, ‘Impact 4: Disturbance to Prey Species and their Habitats’);
 - temporary habitat loss and/or habitat disturbance (Section 5.5, ‘Impact 5: Temporary Habitat Loss and/or Habitat Disturbance’); and
 - indirect impacts from construction/decommissioning noise (Section 5.5, ‘Impact 7: Indirect Impacts from Construction/Decommissioning Noise’).
- 5.7.909 No site-specific qualitative assessments were required in order to address the impacts for fulmar or kittiwake at Rousay SPA.

Conclusion for Qualitative Assessment

- 5.7.910 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to breeding seabird assemblage feature (due to impacts to kittiwake and fulmar). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.911 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Rousay SPA due to the following impacts:
- disturbance to prey species and their habitats;
 - temporary habitat loss and/or habitat disturbance; and
 - indirect impacts from construction/decommissioning noise.
- 5.7.912 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

- 5.7.913 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar or kittiwake, no in-combination assessment was required for Rousay SPA.

Saltee Islands SPA

- 5.7.914 Saltee Islands SPA consists of two islands, Great Saltee and Little Saltee, 4 km to 5 km off the coast of County Wexford and approximately 1,124.58 km from the Array Area. The SPA boundary extends 500 m into the marine environment (NPWS, ND).
- 5.7.915 The conservation objectives have been determined by NPWS, as presented in Paragraphs 5.3.11 to 5.3.12.
- 5.7.916 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.225.

Table 5.225: The Relevant Features and Impacts Included Within the Assessment for Saltee Islands SPA

Impact	Fulmar ¹
Collision Risk Mortality due to Collision with Rotor Blades	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓
Disturbance and Displacement to Birds from Vessel Movements	x
Disturbance to Prey Species and Their Habitat	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓
Direct Impacts from UXO Clearance	x
Indirect Impacts from Construction/Decommissioning Noise	✓

¹Qualifying feature and named component of breeding seabird assemblage

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.917 Of the impacts screened in for assessment (Table 3.7), only distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Distributional Responses due to Offshore Infrastructure

- 5.7.918 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure' for fulmar.
- 5.7.919 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.920 The number of apportioned mortalities is presented in Table 5.226, with the change in survival rate presented in Table 5.227. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g), it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the fulmar and breeding seabird assemblage features of Saltee Islands SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

- 5.7.921 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the fulmar and breeding seabird assemblage (due to impacts to fulmar) features. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the features, so the conservation objectives of the SPA will not be undermined.
- 5.7.922 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Saltee Islands SPA due to the following impacts:
- distributional responses due to offshore infrastructure.

Qualitative Impacts

- 5.7.923 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:
- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
 - temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance'); and
 - indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').

- 5.7.924 No site-specific qualitative assessments were required in order to address the impacts for fulmar at Saltee Islands SPA.

Conclusion for Qualitative Assessment

- 5.7.925 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the fulmar and breeding seabird assemblage (due to impacts to fulmar) features. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the features, so the conservation objectives of the SPA will not be undermined.
- 5.7.926 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Saltee Islands SPA due to the following impacts:
- disturbance to prey species and their habitats;
 - temporary habitat loss and/or habitat disturbance; and
 - indirect impacts from construction/decommissioning noise.
- 5.7.927 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

Table 5.226: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Saltee Islands SPA
(Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.000	0.00 to 0.00	Migration	0.87 to 1.73	0.599	0.000	0.00 to 0.00	0.00 to 0.00
					Winter	0.13 to 0.27	0.719	0.000	0.00 to 0.00	

Table 5.227: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Saltee Islands SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	714	0.00 to 0.00	0.000 to 0.000	No AEOSI

In-combination Assessment

- 5.7.928 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar, no in-combination assessment was required for Saltee Islands SPA.

Shiant Isles SPA

- 5.7.929 Shiant Isles SPA consisted of four islands, and their skerries, situated in The Minch, 6 km east of Harris, in the Western Isles of Scotland. The SPA boundary overlaps with Shiant Islands SSSI and the seaward extension extends approximate 2 km into the marine environment. The site is located approximately 433.58 km from the Array Area and was classified in 1992, with the marine extension classified in 2009 (NatureScot, ND).
- 5.7.930 The conservation objectives have been determined by NPWS, as presented in Paragraphs 5.3.11 to 5.3.12.
- 5.7.931 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.228.

Table 5.228: The Relevant Components of the Seabird Assemblage and Impacts Included Within the Assessment for Shiant Isles SPA

Impact	Fulmar
Collision Risk Mortality due to Collision with Rotor Blades	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓
Disturbance and Displacement to Birds from Vessel Movements	x
Disturbance to Prey Species and Their Habitat	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓
Direct Impacts from UXO Clearance	x
Indirect Impacts from Construction/Decommissioning Noise	✓

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.932 Of the impacts screened in for assessment (Table 3.7), only distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Distributional Responses due to Offshore Infrastructure

- 5.7.933 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure'.

5.7.934 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).

5.7.935 The number of apportioned mortalities is presented in Table 5.229, with the change in survival rate presented in Table 5.230. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g), it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage feature (due to impacts to fulmar) of Shiant Isles SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

5.7.936 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to fulmar). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.

5.7.937 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Shiant Isles SPA due to the following impacts:

- distributional responses due to offshore infrastructure.

Table 5.229: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Shiant Isles SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.002	0.00 to 0.00	Migration	0.87 to 1.73	0.599	0.000	0.00 to 0.00	0.00 to 0.00
					Winter	0.13 to 0.27	0.719	0.001	0.00 to 0.00	

Table 5.230: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Shiant Isles SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	3,012	0.00 to 0.00	0.000 to 0.000	No AEOSI

Qualitative Impacts

5.7.938 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:

- disturbance to prey species and their habitats (Section 5.5, ‘Impact 4: Disturbance to Prey Species and their Habitats’);
- temporary habitat loss and/or habitat disturbance (Section 5.5, ‘Impact 5: Temporary Habitat Loss and/or Habitat Disturbance’); and
- indirect impacts from construction/decommissioning noise (Section 5.5, ‘Impact 7: Indirect Impacts from Construction/Decommissioning Noise’).

5.7.939 No site-specific qualitative assessments were required in order to address the impacts for fulmar at Shiant Isles SPA.

Conclusion for Qualitative Assessment

5.7.940 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to fulmar). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.

5.7.941 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Shiant Isles SPA due to the following impacts:

- disturbance to prey species and their habitats;
- temporary habitat loss and/or habitat disturbance; and
- indirect impacts from construction/decommissioning noise.

5.7.942 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

5.7.943 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar, no in-combination assessment was required for Shiant Isles SPA.

Skelligs SPA

5.7.944 Skelligs SPA consists of two islands, Great Skellig and Little Skellig, separated by 3 km located 14 km and 11 km respectively off the County Kerry Mainland, and approximately 1,189.68 km from the Array Area (NPWS, ND).

5.7.945 The conservation objectives have been determined by NPWS, as presented in Paragraphs 5.3.11 to 5.3.12.

5.7.946 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.231.

Table 5.231: The Relevant Features and Impacts Included Within the Assessment for Skelligs SPA

Impact	Fulmar ¹
Collision Risk Mortality due to Collision with Rotor Blades	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓
Disturbance and Displacement to Birds from Vessel Movements	x
Disturbance to Prey Species and Their Habitat	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓
Direct Impacts from UXO Clearance	x
Indirect Impacts from Construction/Decommissioning Noise	✓

¹Qualifying feature and named component of breeding seabird assemblage

Proposed Development Alone Assessment

Quantitative Impacts

5.7.947 Of the impacts screened in for assessment (Table 3.7), only distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Distributional Responses due to Offshore Infrastructure

5.7.948 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure' for fulmar.

5.7.949 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).

5.7.950 The number of apportioned mortalities is presented in Table 5.232, with the change in survival rate presented in Table 5.233. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g), it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the fulmar and breeding seabird assemblage features of Skelligs SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Table 5.232: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Skelligs SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.000	0.00 to 0.00	Migration	0.87 to 1.73	0.599	0.000	0.00 to 0.00	0.00 to 0.00
					Winter	0.13 to 0.27	0.719	0.000	0.00 to 0.00	

Table 5.233: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Skelligs SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	1,834	0.00 to 0.00	0.000 to 0.000	No AEOSI

Conclusion for Quantitative Assessment

- 5.7.951 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the fulmar and breeding seabird assemblage (due to impacts to fulmar) features. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the feature, so the conservation objectives of the SPA will not be undermined.
- 5.7.952 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Skelligs SPA due to the following impacts:
- distributional responses due to offshore infrastructure.

Qualitative Impacts

- 5.7.953 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:
- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
 - temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance'); and
 - indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').
- 5.7.954 No site-specific qualitative assessments were required in order to address the impacts for fulmar at Skelligs SPA.

Conclusion for Qualitative Assessment

- 5.7.955 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the fulmar and breeding seabird assemblage (due to impacts to fulmar) features. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the feature, so the conservation objectives of the SPA will not be undermined.
- 5.7.956 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Skelligs SPA due to the following impacts:
- disturbance to prey species and their habitats;
 - temporary habitat loss and/or habitat disturbance; and
 - indirect impacts from construction/decommissioning noise.

- 5.7.957 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

- 5.7.958 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar, no in-combination assessment was required for Skelligs SPA.

St Abb's Head to Fast Castle SPA

- 5.7.959 St Abb's Head to Fast Castle SPA is a 10 km area of sea cliffs and coastal strip along the Berwickshire Coast, approximately 117.18 km from the Array Area. The SPA boundary overlaps with St Abb's Head to Fast Castle SSSI and the marine extension extends approximately 1 km into the marine environment. The site was classified in 1997, with the marine extension classified in 2009 (NatureScot, ND).
- 5.7.960 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.
- 5.7.961 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.234.

Table 5.234: The Relevant Components of the Breeding Seabird Assemblage and Impacts Included Within the Assessment for St Abb's Head to Fast Castle SPA

Impact	Kittiwake	Guillemot ¹	Razorbill
Collision Risk Mortality due to Collision with Rotor Blades	✓	x	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓	x	✓
Disturbance and Displacement to Birds from Vessel Movements	x	✓	✓
Disturbance to Prey Species and Their Habitat	✓	✓	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓	✓	✓
Direct Impacts from UXO Clearance	x	✓	✓
Indirect Impacts from Construction/Decommissioning Noise	✓	✓	✓

¹ Species has connectivity with the Export Cable Corridor only.

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.962 Of the impacts screened in for assessment (Table 3.7), both collision risk and distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Collision Risk Mortality due to Collision with Rotor Blades

- 5.7.963 A quantitative assessment was carried out for collision mortality due to the Array Area following the methodology described in Section 5.4, 'Impact 1: Collision Risk Mortality due to Collision with Rotor Blades' for kittiwake.
- 5.7.964 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values and methodology presented in Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).

- 5.7.965 The number of apportioned mortalities is presented in Table 5.235, with the change in survival rate presented in Table 5.236. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage of St Abb's Head to Fast Castle SPA as a result of collision risk with respect to the O&M phase of the Proposed Development.

Table 5.235: Apportioned Mortalities due to Collision Risk During the O&M phase of the Proposed Development at St Abb’s Head to Fast Castle SPA
(Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Kittiwake (Option 1)	4.69	0.970 (0.100)	0.022	0.09	SM	0.90	0.599	0.009	0.01	0.10
					AM	0.34	0.579	0.008	0.00	
Kittiwake (Option 2)	37.59			0.73	SM	7.22	0.599	0.009	0.04	0.78
					AM	2.76	0.579	0.008	0.01	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.236: Change in Survival Rate due to Collision Risk During the O&M Phase of the Proposed Development at St Abb’s Head to Fast Castle SPA

Species	Model Option	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Kittiwake	1	10,300	0.10	0.001	No AEOSI
	2		0.78	0.008	No AEOSI

Distributional Responses due to Offshore Infrastructure

- 5.7.966 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure' for kittiwake and razorbill.
- 5.7.967 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.968 The number of apportioning mortalities is presented in Table 5.237, with the change in survival rate presented in Table 5.238. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage feature (due to impacts to kittiwake) of St Abb's Head to Fast Castle SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Required PVAs for Distributional Responses

- 5.7.969 As the decrease in survival rate exceeded the 0.02 percentage point threshold advised by NatureScot (2023g) for razorbill, a PVA is required to determine whether the impacts of distributional responses will result in AEOSI.

Razorbill

- 5.7.970 From the PVA results (Table 5.239), it was found that the growth rate was unimpacted when rounded to one decimal place. The population size was found to increase under all scenarios and the CPS, after 30 years, ranged from 0.992 to 0.995 indicating a decrease in population size up to 0.8%.
- 5.7.971 A comparison of the Seabird 2000 and Seabirds Count censuses found that the razorbill population at St Abb's Head to Fast Castle SPA has decreased by 7% (Burnell *et al.*, 2023), with most recent census count of 2,931 individuals, greater than the citation population (2,180 individuals). These trends are further supported by the PVA results which show in all scenarios razorbill populations are expected to continue to increase.
- 5.7.972 Although the population size has been found to decrease between seabird censuses, the impact from the Proposed Development alone on the growth rate and population size is expected to be small. Therefore, an adverse effect on the razorbill feature of St Abb's Head to Fast Castle SPA will not occur due to the Proposed Development.

Table 5.237: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at St Abb’s Head to Fast Castle SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Kittiwake	5 to 16	0.970 (0.100)	0.022	0.10 to 0.31	SM	0.53 to 2.13	0.599	0.009	0.00 to 0.01	0.10 to 0.33
					AM	0.47 to 1.87	0.579	0.008	0.00 to 0.01	
Razorbill	48 to 80	0.508 (0.070)	0.022	0.50 to 0.83	Migration	2.93 to 9.53	0.511	0.007	0.01 to 0.03	0.51 to 0.87
					Winter	1.07 to 3.47	0.486	0.004	0.00 to 0.01	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.238: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at St Abb’s Head to Fast Castle SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Kittiwake	10,300	0.10 to 0.33	0.001 to 0.003	No AEOSI
Razorbill	3,928	0.51 to 0.87	0.013 to 0.022	PVA Required

Table 5.239: Results of the Proposed Development Alone PVAs for Distributional Responses Only at St Abb’s Head to Fast Castle SPA for the Operational Lifetime (30 years) of the Proposed Development (PS = Population Size)

Species	Initial PS	Baseline Simulated PS	Impact Scenario	Impacted Simulated PS	Median Counterfactual (CI)	
					Growth Rate	Population Size
Razorbill	3,928	7,257	Low	7,231	1.000 (0.998 to 1.002)	0.995 (0.924 to 1.072)
			High	7,212	1.000 (0.998 to 1.002)	0.992 (0.918 to 1.070)

Combined Impacts of Collision Risk and Distributional Responses

- 5.7.973 As kittiwake were assessed for both collision risk and distributional responses, the combined impact has been used to determine whether a PVA is required. It was found that 0.78 mortalities are expected to occur due to collision risk (Table 5.235) and 0.10 to 0.33 mortalities due to distributional responses (Table 5.237). Therefore, it is expected that a total of 0.89 to 1.11 kittiwake mortalities will occur due to the Proposed Development alone, equivalent to a decrease in survival rate of 0.009 to 0.011 percentage points.
- 5.7.974 When using Option 1 of the sCRM, the number of mortalities due to collision risk was reduced to 0.10 (Table 5.235) and the expected mortalities from collision risk and distributional responses is reduced to 0.20 to 0.43, equivalent to a decrease in survival rate of 0.002 to 0.004 percentage points.
- 5.7.975 As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage feature of St Abb’s Head to Fast Castle SPA as a result of the combined impact of collision risk and distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

- 5.7.976 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to guillemot, kittiwake and herring gull) . Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.977 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the St Abb’s Head to Fast Castle SPA due to the following impacts:
- collision risk mortality due to collision with rotor blades;
 - distributional responses due to offshore infrastructure; and
 - combined impacts of collision risk and distributional responses.

Qualitative Impacts

5.7.978 Of the impacts screened in for assessment, five impacts have been assessed qualitatively:

- disturbance and displacement to birds from vessel movements (Section 5.5, 'Impact 3: Disturbance and Displacement to Birds From Vessel Movements');
- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
- temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance');
- direct impacts from UXO clearance (Section 5.5, 'Impact 6: Direct Impacts from UXO Clearance'); and
- indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').

5.7.979 No site-specific qualitative assessments were required in order to address the impacts for kittiwake, guillemot or razorbill at St Abb's Head to Fast Castle SPA.

Conclusion for Qualitative Assessment

5.7.980 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to guillemot, kittiwake and herring gull). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.

5.7.981 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the St Abb's Head to Fast Castle SPA due to the following impacts:

- disturbance and displacement to birds due to vessel movements;
- disturbance to prey species and their habitats;
- temporary habitat loss and/or habitat disturbance;
- direct impacts due to UXO clearance; and
- indirect impacts from construction/decommissioning noise.

5.7.982 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

5.7.983 As highlighted in Table 5.19, in-combination assessment was required for kittiwake and razorbill.

Kittiwake

- 5.7.984 It was found that the Proposed Development alone resulted in 0.20 to 0.43 and 0.89 to 1.11 annual mortalities for kittiwake using Option 1 and 2 of the sCRM respectively, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.240.
- 5.7.985 Although the RIAA for MarramWind was not available at the time of data analysis, it should be noted that MarramWind was found to contribute 0.44 to 0.52 mortalities (MarramWind, 2026), which is equivalent to a 0.2% increase in mortalities for the high mortality displacement (using Option 2 sCRM) scenario. The inclusion of MarramWind is not expected to change the conclusions drawn.

Table 5.240: Number of Mortalities Due to Collision Risk and Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Kittiwake at St Abb's Head to Fast Castle SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Collisions			Displacement			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Bowdun (Option 1)	0.09	0.01	0.10	0.10 to 0.31	0.00 to 0.02	0.10 to 0.33	0.20 to 0.43	0.20 to 0.43
Bowdun (Option 2)	0.73	0.05	0.78	0.10 to 0.31	0.00 to 0.02	0.10 to 0.33	0.89 to 1.11	0.89 to 1.11
Aberdeen	-	0.02	0.02	-	0 to 0.01	0 to 0.01	0.07 to 0.07	0.05 to 0.06
Aspen	0.04	0.02	0.06	0.01 to 0.02	0.01 to 0.02	0.03 to 0.08	0.17 to 0.22	0.17 to 0.22
Ayre	-	0.07	0.07	-	0.04 to 0.12	0.12 to 0.43	0.76 to 1.07	0.76 to 1.07
Beatrice	-	0.18 (0.1)	0.18 (0.1)	-	0.11 to 0.34	0.11 to 0.34	1.94 to 2.16	1.7 to 1.92
Berwick Bank	204.29	1.52 (1.53)	205.81 (205.82)	28.9 to 86.7	1.26 to 3.77	1.26 to 3.77	5.8 to 8.31	5.81 to 8.33
Blyth Demo	-	0.01	0.01	-	0.07 to 0.22	0.07 to 0.22	0.11 to 0.26	0.11 to 0.26
Buchan	0.03	0.03 (0.02)	0.07 (0.05)	0.01 to 0.02	0.02 to 0.07	3.22 to 3.27	3.47 to 3.52	3.42 to 3.46
Caledonia (North & South)	0.13	0.07	0.20	0.01 to 0.03	0.03 to 0.09	0.2 to 0.6	1.92 to 2.32	1.92 to 2.32
Cenos	0.31	0.03	0.34	0.02 to 0.06	0 to 0.01	0.02 to 0.07	0.4 to 0.45	0.4 to 0.45
Dogger Bank A and B	-	1.51	1.51	-	0.95 to 2.86	0.95 to 2.86	5.46 to 7.36	5.47 to 7.38
Dogger Bank C and Sofia	-	1.08	1.08	-	0.7 to 2.11	0.7 to 2.11	3.93 to 5.34	3.94 to 5.35

Project	Collisions			Displacement			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Dogger Bank South	3.80	1.02	4.82	0.52 to 1.57	0.94 to 2.82	0.94 to 2.82	3.97 to 5.85	3.98 to 5.86
East Anglia One	-	0.7 (0.47)	0.7 (0.47)	-	0.1 to 0.29	0.1 to 0.29	2.17 to 2.37	1.5 to 1.69
East Anglia One North	-	0.05	0.05	-	0.03 to 0.09	0.03 to 0.09	0.17 to 0.23	0.17 to 0.23
East Anglia Three	-	0.30	0.30	-	0.24 to 0.71	0.24 to 0.71	1.12 to 1.6	1.13 to 1.6
East Anglia Two	-	0.05	0.05	-	0.02 to 0.06	0.02 to 0.06	0.18 to 0.22	0.18 to 0.22
Five Estuaries	-	0.11	0.11	-	0.04 to 0.12	0.04 to 0.12	0.38 to 0.46	0.38 to 0.46
Galloper	-	0.21 (0.09)	0.21 (0.09)	-	-	-	0.61	0.26
Greater Gabbard	-	0.09	0.09	-	-	-	0.27	0.27
Green Volt	0.10	0.05	0.15	0.01 to 0.02	0.01 to 0.04	0.01 to 0.04	0.27 to 0.3	0.27 to 0.3
Hornsea One	-	0.06 (0.03)	0.06 (0.03)	-	1.62 to 4.87	1.62 to 4.87	1.82 to 5.07	1.7 to 4.95
Hornsea Project Four	-	0.08	0.08	-	0.31 to 0.94	0.31 to 0.94	0.54 to 1.17	0.54 to 1.17
Hornsea Project Three	-	0.29	0.29	-	0.32 to 0.96	0.32 to 0.96	1.17 to 1.81	1.17 to 1.81
Hornsea Project Two	-	0.04	0.04	-	0.17 to 0.52	0.17 to 0.52	0.29 to 0.64	0.29 to 0.64
Humber Gateway	-	0.02 (0.01)	0.02 (0.01)	-	-	-	0.05	0.02
Hywind	-	0.01	0.01	-	-	-	0.02	0.02
Inch Cape	1.45	0.13	1.58	0.55 to 1.65	0.11 to 0.32	0.11 to 0.32	0.5 to 0.72	0.5 to 0.72
Kentish Flats	-	0.01	0.01	-	-	-	0.02	0.02
Kentish Flats Extension	-	0.01	0.01	-	-	-	0.04	0.02

Project	Collisions			Displacement			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Kincardine	-	0.03	0.03	-	-	-	0.1	0.1
Lincs	-	0.01	0.01	-	-	-	0.02	0.02
London Array	-	0.01	0.01	-	-	-	0.04	0.02
Moray East	-	0.03	0.03	-	-	0.5 to 1.5	0.59 to 1.59	0.59 to 1.59
Moray West	-	0.12	0.12	-	0.13 to 0.38	0.63 to 1.88	2.43 to 3.68	2.43 to 3.68
Muir Mhor	0.52	0.05	0.57	-	0.04 to 0.12	0.1 to 0.3	0.63 to 0.82	0.63 to 0.82
Neart na Gaoithe	1.61	0.08	1.69	1.87 to 5.61	0.11 to 0.33	0.11 to 0.33	0.34 to 0.56	0.34 to 0.56
Norfolk Boreas	-	0.18	0.18	-	0.18 to 0.53	0.18 to 0.53	0.72 to 1.08	0.72 to 1.08
Norfolk Vanguard	-	0.15	0.15	-	0.11 to 0.33	0.11 to 0.33	0.55 to 0.77	0.55 to 0.77
North Falls	-	0.08	0.08	-	0.07 to 0.2	0.07 to 0.2	0.32 to 0.45	0.32 to 0.45
Ossian	1.30	0.07	1.37	0.42 to 1.27	0.06 to 0.17	0.07 to 0.22	0.27 to 0.41	0.27 to 0.41
Outer Dowsing	-	0.10	0.10	-	0.35 to 1.05	0.35 to 1.05	0.64 to 1.34	0.64 to 1.34
Pentland	-	0.00	0.00	-	0.01 to 0.02	2.61 to 2.62	6.12 to 6.14	6.12 to 6.14
Race Bank	-	0.1 (0.06)	0.1 (0.06)	-	-	-	0.29	0.17
Salamander	0.11	0.00	0.11	0.08 to 0.24	0.01 to 0.03	0.09 to 0.28	0.2 to 0.39	0.2 to 0.39
Seagreen	3.35	0.91	4.26	0.65 to 1.95	0.23 to 0.69	0.23 to 0.69	2.93 to 3.4	2.94 to 3.4
Sheringham Shoal Extension and Dudgeon Extension	-	0.03	0.03	-	0.14 to 0.41	0.14 to 0.41	0.22 to 0.5	0.22 to 0.5
Teesside	-	0.09 (0.07)	0.09 (0.07)	-	-	-	0.26	0.22

Project	Collisions			Displacement			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Thanet	-	0.00	0.00	-	-	-	0.01	0
Triton Knoll	-	0.62 (0.23)	0.62 (0.23)	-	0.03 to 0.08	0.03 to 0.08	1.88 to 1.94	0.7 to 0.76
West of Orkney	-	0.22	0.22	-	0.1 to 0.3	0.58 to 1.74	4.09 to 5.25	4.09 to 5.25
Option 1								
Total	217.14	10.65 (9.71)	227.78 (226.85)	33.15 to 99.45	2.92 to 8.76	36.06 to 108.21	263.85 to 335.99	262.91 to 335.06
Total excluding Berwick Bank	12.85	9.12 (8.19)	21.96 (21.03)	4.25 to 12.75	2.48 to 7.45	6.73 to 20.21	28.69 to 42.17	27.76 to 41.24
Total excluding Bowdun	217.04	10.64 (9.71)	227.68 (226.75)	33.05 to 99.14	2.91 to 8.73	35.96 to 107.88	263.65 to 335.56	262.71 to 334.63
Option 2								
Total	217.77	10.69 (9.76)	228.47 (227.53)	33.15 to 99.45	2.92 to 8.76	36.06 to 108.21	264.54 to 336.67	263.60 to 335.74
Total excluding Berwick Bank	13.48	9.17 (8.23)	22.65 (21.72)	4.25 to 12.75	2.48 to 7.45	6.73 to 20.21	29.38 to 42.85	28.45 to 41.92
Total excluding Bowdun	217.04	10.64 (9.71)	227.68 (226.75)	33.05 to 99.14	2.91 to 8.73	35.96 to 107.88	263.65 to 335.56	262.71 to 334.63

¹ The number of mortalities due to ‘consented’ collisions are presented, with the number of ‘as-built’ collisions presented in parentheses where relevant.

² Low and high displacement scenarios are presented in Table 5.3

5.7.986 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank and using consented and as-built collisions (Table 5.241).

Table 5.241: In-combination PVA Results for Kittiwake, Impacted by Collision Risk and Distributional Responses, at St Abb's Head to Fast Castle SPA (initial population size: 10,300 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Berwick Bank Offshore Wind Farm included or excluded	Displacement Scenario	Baseline Median Population Size (Breeding Adults)	Impacted Median Population Size (Breeding Adults)	Counterfactual Growth Rate (CGR)	Counterfactual Population Size (CPS)
‘Consented’ mortalities					
Including Berwick Bank	Low	17,963	6,885	0.970 (0.968 to 0.971)	0.384 (0.358 to 0.410)
	High		5,270	0.961 (0.959 to 0.963)	0.294 (0.273 to 0.315)
Excluding Berwick Bank	Low		16,200	0.997 (0.995 to 0.998)	0.900 (0.852 to 0.952)
	High		15,387	0.995 (0.993 to 0.997)	0.859 (0.810 to 0.907)
‘As-built’ mortalities					
Including Berwick Bank	Low	17,963	6,920	0.970 (0.968 to 0.971)	0.385 (0.360 to 0.410)
	High		5,305	0.961 (0.959 to 0.963)	0.295 (0.274 to 0.316)
Excluding Berwick Bank	Low		16,255	0.997 (0.995 to 0.998)	0.903 (0.853 to 0.954)
	High		15,430	0.995 (0.994 to 0.997)	0.861 (0.813 to 0.911)

5.7.987 Using consented mortalities (Table 5.241), it was found that under all scenarios the CGR was greater or equal to 0.961, indicating that the growth rate of the kittiwake is unlikely to decrease by more than 3.9%. The population size was found to increase under all scenarios and the CPS, after 30 years, ranged from 0.294 to 0.900, indicating a decrease of up to 70.6% in population size.

5.7.988 When accounting for as-built corrections, it was found the median CGR was unchanged when compared to the corresponding consented scenarios. Moreover, the median CPS was found to be higher, indicating the impact to population sizes is likely to be reduced by no more than 0.3% under all modelled scenarios.

5.7.989 A comparison of the Seabird 2000 and Seabirds Count censuses found that the kittiwake population at St Abb's Head to Fast Castle SPA has decreased by 68% (Burnell *et al.*, 2023), with most recent census count of 5,150 AON, notably smaller than the citation population (21,170 pairs).

- 5.7.990 Although impacts excluding Berwick Bank are significantly smaller than those predicted including Berwick Bank, due to the large decrease in population sizes recorded in kittiwake at St Abb's Head to Fast Castle SPA it is expected that both scenarios may limit the kittiwake population's ability to recover to citation levels.
- 5.7.991 Additionally, PVA run using site-specific flight height data found the impact to the growth rate is expected to be unchanged and the impact to population size decreased by up to 0.3% for each scenario including and excluding Berwick Bank (presented in Table 3.5 of Appendix 3B: Offshore Ornithology Special Protection Area Population Viability Analysis Technical Report (TWP-BOW-RPS-ENV-RPT-00027)). Therefore, using site-specific sCRM (Option 1) is unlikely to impact the conclusions for AEOSI.
- 5.7.992 Therefore, an AEOSI on the breeding seabird assemblage feature (due to impacts to kittiwake) of St Abb's Head to Fast Castle SPA **could not be ruled out** including or excluding Berwick Bank.

Razorbill

- 5.7.993 It was found that the Proposed Development alone resulted in 0.51 to 0.87 annual mortalities for razorbill, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.242.
- 5.7.994 Although the RIAA for MarramWind was not available at the time of data analysis, it should be noted that MarramWind was found to contribute 0.02 to 0.07 mortalities (MarramWind, 2026), which is equivalent to a 0.2% increase in mortalities for the high mortality displacement scenario. The inclusion of MarramWind is not expected to change the conclusions drawn.

Table 5.242: Number of Mortalities Due to Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Razorbill at St Abb's Head to Fast Castle SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Breeding Season		Non-breeding Season		Annual	
	Low ¹	High	Low	High	Low	High
Bowdun	0.50	0.83	0.01	0.04	0.51	0.87
Aberdeen	-	-	0.00	0.01	0.00	0.01
Ayre	-	-	0.03	0.08	0.03	0.08
Beatrice	-	-	0.05	0.16	0.05	0.16
Berwick Bank	7.90	13.17	0.41	1.24	8.31	14.41
Blyth Demo	-	-	0.01	0.02	0.01	0.02
Buchan	-	-	0.01	0.02	0.01	0.02
Caledonia (North & South)	-	-	0.06	0.18	0.06	0.18
Dogger Bank A	-	-	0.17	0.52	0.17	0.52
Dogger Bank B	-	-	0.22	0.66	0.22	0.66
Dogger Bank C	-	-	0.07	0.22	0.07	0.22
Dogger Bank South	-	-	0.65	1.94	0.65	1.94

Project	Breeding Season		Non-breeding Season		Annual	
	Low ¹	High	Low	High	Low	High
Dudgeon Extension	-	-	0.04	0.11	0.04	0.11
Dudgeon	-	-	0.03	0.10	0.03	0.10
East Anglia One	-	-	0.01	0.04	0.01	0.04
East Anglia One North	-	-	0.01	0.02	0.01	0.02
East Anglia Three	-	-	0.10	0.29	0.10	0.29
East Anglia Two	-	-	0.01	0.03	0.01	0.03
Five Estuaries	-	-	0.05	0.15	0.05	0.15
Galloper	-	-	0.01	0.04	0.01	0.04
Greater Gabbard	-	-	0.01	0.03	0.01	0.03
Green Volt	-	-	0.00	0.01	0.00	0.01
Hornsea One	-	-	0.19	0.57	0.19	0.57
Hornsea Project Four	-	-	0.12	0.37	0.12	0.37
Hornsea Project Three	-	-	0.18	0.55	0.18	0.55
Hornsea Project Two	-	-	0.15	0.46	0.15	0.46
Hywind	-	-	0.02	0.05	0.02	0.05
Inch Cape	-	-	0.08	0.25	0.08	0.25
Lincs and Lynn and Inner Dowsing	-	-	0.00	0.01	0.00	0.01
Moray East	-	-	0.03	0.09	0.03	0.09
Moray West	-	-	0.17	0.51	0.17	0.51
Muir Mhor	-	-	0.04	0.11	0.04	0.11
Neart na Gaoithe	0.96	1.60	0.14	0.42	1.10	2.02
Norfolk Boreas	-	-	0.04	0.12	0.04	0.12
Norfolk Vanguard	-	-	0.06	0.18	0.06	0.18
North Falls	-	-	0.09	0.26	0.09	0.26
Ossian	-	-	0.04	0.13	0.04	0.13
Outer Dowsing	-	-	0.21	0.64	0.21	0.64
Race Bank	-	-	0.00	0.01	0.00	0.01
Rampion	-	-	0.11	0.33	0.11	0.33
Rampion 2	-	-	0.18	0.53	0.18	0.53
Salamander	-	-	0.01	0.03	0.01	0.03
Seagreen Alpha	-	-	0.03	0.08	0.03	0.08
Seagreen Bravo	-	-	0.03	0.09	0.03	0.09
Sheringham Shoal	-	-	0.04	0.11	0.04	0.11
Sheringham Shoal Extension	-	-	0.11	0.34	0.11	0.34
Sofia	-	-	0.12	0.35	0.12	0.35
Teesside	-	-	0.00	0.01	0.00	0.01
Triton Knoll	-	-	0.03	0.09	0.03	0.09

Project	Breeding Season		Non-breeding Season		Annual	
	Low ¹	High	Low	High	Low	High
Westermmost Rough	-	-	0.01	0.03	0.01	0.03
Total	9.36	15.59	4.21	12.63	13.56	28.22
Total excluding Berwick Bank	1.46	2.43	3.70	11.10	5.15	13.52
Total excluding Bowdun	8.86	14.77	4.19	12.58	13.05	27.35

¹ Low and high displacement scenarios are presented in Table 5.3

5.7.995 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank (Table 5.243).

Table 5.243: In-combination PVA Results for Razorbill Impacted by Distributional Responses at St Abb's Head to Fast Castle SPA (initial population size: 3,928 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Baseline Simulated Population Size	Impact Scenario	Impacted Simulated Population Size	Median Counterfactual (CI)	
			Growth Rate	Population Size
Including Berwick Bank				
7,257	Low	6,434	0.996 (0.994 to 0.998)	0.885 (0.819 to 0.954)
	High	5,615	0.992 (0.990 to 0.994)	0.774 (0.715 to 0.836)
Excluding Berwick Bank				
7,257	Low	6,921	0.998 (0.997 to 1.001)	0.954 (0.884 to 1.028)
	High	6,412	0.996 (0.994 to 0.998)	0.885 (0.817 to 0.957)

5.7.996 Using consented mortalities (Table 5.243), it was found that under all scenarios the CGR was greater or equal to 0.992, indicating that the growth rate of the kittiwake is unlikely to decrease by more than 0.8%. The population size was found to increase under all scenarios and the CPS, after 30 years, ranged from 0.774 to 0.954, indicating a decrease of up to 22.6% in population size.

5.7.997 As detailed in Paragraph 5.7.971, the razorbill population has been found to decrease between seabird censuses. The estimated impacts of the Proposed Development in-combination with other projects, both including and excluding Berwick Bank, are expected to be large enough to limit the recovery of razorbill when considering the high displacement scenario.

5.7.998 Therefore, adverse effects on the breeding seabird assemblage due to impacts to razorbill of St Abb's Head to Fast Castle SPA **could not be ruled out** including or excluding Berwick Bank.

St Kilda SPA

- 5.7.999 St Kilda SPA is a group of remote islands about 70 km west of North Uist, the Outer Hebrides, and is located approximately 542.90 km from the Array Area. The SPA boundary overlaps with St Kilda SSSI and the extends approximately 4 km into the marine environment. The site was classified in 1992, with the marine extension classified in 2009 (NatureScot, ND).
- 5.7.1000 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.
- 5.7.1001 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.244.

Table 5.244: The Relevant Features and Impacts Included Within the Assessment for St Kilda SPA

Impact	Fulmar ¹	Gannet ²
Collision Risk Mortality due to Collision with Rotor Blades	x	✓
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓	✓
Disturbance and Displacement to Birds from Vessel Movements	x	x
Disturbance to Prey Species and Their Habitat	✓	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓	✓
Direct Impacts from UXO Clearance	x	x
Indirect Impacts from Construction/Decommissioning Noise	✓	✓

¹ Named component of the seabird assemblage only.

² Qualifying feature and named component of the seabird assemblage.

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.1002 Of the impacts screened in for assessment (Table 3.7), both collision risk and distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Collision Risk Mortality due to Collision with Rotor Blades

- 5.7.1003 A quantitative assessment was carried out for collision mortality due to the Array Area following the methodology described in Section 5.4, 'Impact 1: Collision Risk Mortality due to Collision with Rotor Blades' for gannet.
- 5.7.1004 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values and methodology presented in Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).

- 5.7.1005 The number of apportioned mortalities is presented in Table 5.245, with the change in survival rate presented in Table 5.246. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for gannet, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the gannet and breeding seabird assemblage (due to impacts to gannet) features of St Kilda SPA as a result of collision risk with respect to the O&M phase of the Proposed Development.

Table 5.245: Apportioned Mortalities due to Collision Risk During the O&M phase of the Proposed Development at St Kilda SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Gannet	23.64	0.972 (0.100)	0.029	0.60	SM	0.37	0.659	0.000	0.00	0.64
					AM	1.04	0.531	0.068	0.04	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.246: Change in Survival Rate due to Collision Risk During the O&M Phase of the Proposed Development at St Kilda SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Gannet	120,580	0.64	0.001	No AEOSI

Distributional Responses due to Offshore Infrastructure

- 5.7.1006 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure' for fulmar and gannet
- 5.7.1007 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.1008 The number of apportioning mortalities is presented in Table 5.247, with the change in survival rate presented in Table 5.248. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for fulmar or gannet, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the gannet or breeding seabird assemblage (due to impacts to gannet or fulmar) features of St Kilda SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Table 5.247: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at St Kilda SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.018	0.02 to 0.04	Migration	0.87 to 1.73	0.599	0.005	0.00 to 0.01	0.02 to 0.05
					Winter	0.13 to 0.27	0.719	0.009	0.00 to 0.00	
Gannet	4 to 13	0.972 (0.100)	0.029	0.10 to 0.33	SM	0.64 to 1.27	0.659	0.000	0.00 to 0.00	0.12 to 0.36
					AM	0.36 to 0.73	0.531	0.068	0.01 to 0.03	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.248: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at St Kilda SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	58,372	0.02 to 0.05	0.000 to 0.000	No AEOSI
Gannet	120,580	0.12 to 0.36	0.000 to 0.000	No AEOSI

Combined Impacts of Collision Risk and Distributional Responses

- 5.7.1009 As gannet were assessed for both collision risk and distributional responses, the combined impact has been used to determine whether a PVA is required. It was found that 0.64 mortalities are expected to occur due to collision risk (Table 5.245) and 0.12 to 0.36 mortalities due to distributional responses (Table 5.247). Therefore, it is expected that a total of 0.76 to 1.00 gannet mortalities will occur due to the Proposed Development alone, equivalent to a decrease in survival rate of 0.001 to 0.001 percentage points.
- 5.7.1010 As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for gannet, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the gannet and breeding seabird assemblage features of St Kilda SPA as a result of the combined impact of collision risk and distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

- 5.7.1011 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the gannet and breeding seabird assemblage feature (due to impacts to gannet and fulmar) features. Therefore, it is expected that the features will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.1012 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the St Kilda SPA due to the following impacts:
- collision risk mortality due to collision with rotor blades;
 - distributional responses due to offshore infrastructure; and
 - combined impacts of collision risk and distributional responses.

Qualitative Impacts

- 5.7.1013 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:
- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
 - temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance'); and
 - indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').
- 5.7.1014 No site-specific qualitative assessments were required in order to address the impacts for fulmar or gannet at St Kilda SPA.

Conclusion for Qualitative Assessment

- 5.7.1015 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the gannet and breeding seabird assemblage (due to impacts to gannet and fulmar) features. Therefore, it is expected that the features will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.1016 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the St Kilda SPA due to the following impacts:
- disturbance to prey species and their habitats;
 - temporary habitat loss and/or habitat disturbance; and
 - indirect impacts from construction/decommissioning noise.
- 5.7.1017 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

- 5.7.1018 As highlighted in Section 5.6, although the number of mortalities reached the Proposed Development alone mortality threshold, the in-combination effect on the survival rate did not reach the 0.02 percentage point threshold required for assessment. Using a population of 120,580 breeding adults and totals presented in Table 5.249, the impact on survival rate ranged from 0.003 to 0.005.

Table 5.249: Number of Mortalities Due to Collision Risk and Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Gannet at St Kilda SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Collisions			Displacement ¹			Annual Mortalities
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	
Bowdun	0.60	0.04	0.64	0.10 to 0.33	0.01 to 0.03	0.12 to 0.36	0.76 to 1.00
Aspen	0.14	0.03	0.17	0.09 to 0.27	0.03 to 0.10	0.12 to 0.37	0.29 to 0.54
Ayre	0.30	0.03	0.33	0.06 to 0.25	0.01 to 0.03	0.07 to 0.28	0.40 to 0.61
Buchan	0.19	0.01	0.20	0.13 to 0.38	0.03 to 0.09	0.16 to 0.47	0.36 to 0.68
Green Volt	0.60	-	0.60	0.05 to 0.15	-	0.05 to 0.15	0.65 to 0.75
Muir Mhor	0.30	-	0.30	0.12 to 0.35	-	0.12 to 0.35	0.42 to 0.65
Ossian	0.80	-	0.80	0.30 to 0.90	-	0.30 to 0.90	1.10 to 1.70
Pentland	0.10	-	0.10	0.11 to 0.33	-	0.11 to 0.33	0.21 to 0.43

Project	Collisions			Displacement ¹			Annual Mortalities
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	
Total	3.03	0.11	3.15	0.95 to 2.96	0.08 to 0.25	1.04 to 3.21	4.19 to 6.35
Total excluding Bowdun	2.43	0.07	2.50	0.85 to 2.63	0.07 to 0.022	0.92 to 2.85	3.43 to 5.35

¹ Low and high displacement scenarios are presented in Table 5.3

Sule Skerry and Sule Stack SPA

- 5.7.1019 Sule Skerry and Sule Stack SPA are isolated islets 60 km west of Mainland Orkney and approximately 295.55 km from the Array Area. The SPA boundary overlaps with Sule Skerry SSSI and Sule Stack SSSI and the marine extension extends approximately 2 km into the marine environment. The SPA was classified in 1994, with the marine extension classified in 2009 (NatureScot, ND).
- 5.7.1020 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.
- 5.7.1021 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.250.

Table 5.250: The Relevant Features and Impacts Included Within the Assessment for Sule Skerry and Sule Stack SPA

Impact	Gannet ¹
Collision Risk Mortality due to Collision with Rotor Blades	✓
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓
Disturbance and Displacement to Birds from Vessel Movements	×
Disturbance to Prey Species and Their Habitat	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓
Direct Impacts from UXO Clearance	×
Indirect Impacts from Construction/Decommissioning Noise	✓

¹ Qualifying feature and named component of the seabird assemblage only.

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.1022 Of the impacts screened in for assessment (Table 3.7), both collision risk and distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Collision Risk Mortality due to Collision with Rotor Blades

- 5.7.1023 A quantitative assessment was carried out for collision mortality due to the Array Area following the methodology described in Section 5.4, 'Impact 1: Collision Risk Mortality due to Collision with Rotor Blades' for gannet.
- 5.7.1024 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values and methodology presented in Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.1025 The number of apportioned mortalities is presented in Table 5.251, with the change in survival rate presented in Table 5.252. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for gannet, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the gannet and breeding seabird assemblage (due to impacts to gannet) features of Sule Skerry and Sule Stack SPA as a result of collision risk with respect to the O&M phase of the Proposed Development.

Table 5.251: Apportioned Mortalities due to Collision Risk During the O&M phase of the Proposed Development at Sule Skerry and Sule Stack SPA
(Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Gannet	23.64	0.972 (0.100)	0.014	0.29	SM	0.37	0.659	0.000	0.00	0.29
					AM	1.04	0.531	0.005	0.00	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.252: Change in Survival Rate due to Collision Risk During the O&M Phase of the Proposed Development at Sule Skerry and Sule Stack SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Gannet	18,130	0.29	0.002	No AEOSI

Distributional Responses due to Offshore Infrastructure

- 5.7.1026 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure' for gannet.
- 5.7.1027 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.1028 The number of apportioning mortalities is presented in Table 5.253, with the change in survival rate presented in Table 5.254. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for gannet, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the gannet or breeding seabird assemblage (due to impacts to gannet) features of Sule Skerry and Sule Stack as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Table 5.253: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Sule Skerry and Sule Stack (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Gannet	4 to 13	0.972 (0.100)	0.014	0.05 to 0.16	SM	0.64 to 1.27	0.659	0.000	0.00 to 0.00	0.05 to 0.16
					AM	0.36 to 0.73	0.531	0.005	0.00 to 0.00	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.254: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Sule Skerry and Sule Stack SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Gannet	18,130	0.05 to 0.16	0.000 to 0.001	No AEOSI

Combined Impacts of Collision Risk and Distributional Responses

- 5.7.1029 As gannet were assessed for both collision risk and distributional responses, the combined impact has been used to determine whether a PVA is required. It was found that 0.29 mortalities are expected to occur due to collision risk (Table 5.251) and 0.05 to 0.16 mortalities due to distributional responses (Table 5.253). Therefore, it is expected that a total of 0.34 to 0.45 gannet mortalities will occur due to the Proposed Development alone, equivalent to a decrease in survival rate of 0.002 to 0.003 percentage points.
- 5.7.1030 As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for gannet, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the gannet and breeding seabird assemblage (due to impacts to gannet) features of Sule Skerry and Sule Stack SPA as a result of the combined impact of collision risk and distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

- 5.7.1031 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the gannet and breeding seabird assemblage (due to impacts to gannet) features. Therefore, it is expected that the features will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.1032 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Sule Skerry and Sule Stack SPA due to the following impacts:
- collision risk mortality due to collision with rotor blades;
 - distributional responses due to offshore infrastructure; and
 - combined impacts of collision risk and distributional responses.

Qualitative Impacts

- 5.7.1033 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:
- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
 - temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance'); and
 - indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').
- 5.7.1034 No site-specific qualitative assessments were required in order to address the impacts for gannet at Sule Skerry and Sule Stack SPA.

Conclusion for Qualitative Assessment

- 5.7.1035 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the gannet and breeding seabird assemblage (due to impacts to gannet) features. Therefore, it is expected that the features will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.1036 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Sule Skerry and Sule Stack SPA due to the following impacts:
- disturbance to prey species and their habitats;
 - temporary habitat loss and/or habitat disturbance; and
 - indirect impacts from construction/decommissioning noise.
- 5.7.1037 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

- 5.7.1038 As highlighted in Table 5.19, in-combination assessment was required for gannet.

Gannet

- 5.7.1039 It was found that the Proposed Development alone resulted in 0.34 to 0.45 annual mortalities for gannet, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.255.
- 5.7.1040 Although the RIAA for MarramWind was not available at the time of data analysis, it should be noted that MarramWind was found to contribute 1.08 to 1.11 mortalities (MarramWind, 2026), which is equivalent to a 3.0% increase in mortalities for the high mortality displacement scenario. The inclusion of MarramWind is not expected to change the conclusions drawn.

Table 5.255: Number of Mortalities Due to Collision Risk and Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Gannet at Sule Skerry and Sule Stack SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Collisions ¹			Displacement ²			Annual Consented Collisions + Displacement	Annual As-built Collisions + Displacement
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual		
Bowdun	0.29	0.00	0.29	0.05 to 0.16	-	0.05 to 0.16	0.34 to 0.45	0.34 to 0.45
Aspen	0.06	-	0.06	0.04 to 0.11	-	0.04 to 0.11	0.10 to 0.17	0.10 to 0.17
Ayre	0.40	-	0.40	0.08 to 0.33	-	0.08 to 0.33	0.48 to 0.73	0.48 to 0.73
Beatrice	-	0.03 (0.02)	0.03 (0.02)	-	-	-	0.03	0.02
Berwick Bank	0.40	0.01	0.41	0.10 to 0.30	0.04 to 0.11	0.14 to 0.41	0.55 to 0.82	0.55 to 0.82
Buchan	0.14	-	0.14	0.09 to 0.28	-	0.09 to 0.28	0.23 to 0.41	0.23 to 0.41
Caledonia (North & South)	0.50	-	0.50	0.24 to 0.72	0.01 to 0.03	0.25 to 0.75	0.75 to 1.25	0.75 to 1.25
Cenos	-	-	-	-	0.01 to 0.02	0.01 to 0.02	0.01 to 0.03	0.01 to 0.03
Dogger Bank A and B	-	0.04	0.04	-	0.05 to 0.15	0.05 to 0.15	0.09 to 0.19	0.09 to 0.19
Dogger Bank C and Sofia	-	0.01	0.01	-	0.02 to 0.06	0.02 to 0.06	0.03 to 0.07	0.03 to 0.07
Dogger Bank South	-	0.01	0.01	-	0.04 to 0.11	0.04 to 0.11	0.05 to 0.13	0.05 to 0.13
Dudgeon	-	0.02 (0.01)	0.02 (0.01)	-	-	-	0.02	0.01
East Anglia One	-	0.06 (0.04)	0.06 (0.04)	-	0.08 to 0.25	0.08 to 0.25	0.14 to 0.31	0.12 to 0.29
East Anglia One North	-	0.01	0.01	-	0.01 to 0.03	0.01 to 0.03	0.02 to 0.04	0.02 to 0.04
East Anglia Three	-	0.01	0.01	-	0.03 to 0.09	0.03 to 0.09	0.04 to 0.10	0.04 to 0.10

Project	Collisions ¹			Displacement ²			Annual Consented Collisions + Displacement	Annual As-built Collisions + Displacement
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual		
East Anglia Two	-	0.02	0.02	-	0.02 to 0.06	0.02 to 0.06	0.04 to 0.08	0.04 to 0.08
Five Estuaries	-	0.01	0.01	-	0.01 to 0.04	0.01 to 0.04	0.02 to 0.05	0.02 to 0.05
Galloper	-	0.01	0.01	-	0.02 to 0.06	0.02 to 0.06	0.04 to 0.08	0.03 to 0.07
Green Volt	0.30	-	0.30	0.03 to 0.09	-	0.03 to 0.09	0.33 to 0.39	0.33 to 0.39
Hornsea Four	-	-	-	-	0.02 to 0.05	0.02 to 0.05	0.02 to 0.06	0.02 to 0.06
Hornsea Project One	-	-	-	-	0.02 to 0.05	0.02 to 0.05	0.02 to 0.05	0.02 to 0.05
Hornsea Project Three	-	-	-	-	0.02 to 0.07	0.02 to 0.07	0.03 to 0.07	0.03 to 0.07
Hornsea Project Two	-	0.01	0.01	-	0.03 to 0.08	0.03 to 0.08	0.03 to 0.08	0.03 to 0.08
Inch Cape	-	-	-	-	0.02 to 0.06	0.02 to 0.06	0.03 to 0.07	0.03 to 0.07
Moray East	-	0.02	0.02	-	0.01 to 0.03	0.01 to 0.03	0.03 to 0.05	0.03 to 0.05
Moray West	-	-	-	-	0.01 to 0.04	0.01 to 0.04	0.01 to 0.04	0.01 to 0.04
Muir Mhor	0.10	-	0.10	0.06 to 0.18	0.02 to 0.05	0.08 to 0.23	0.18 to 0.33	0.18 to 0.33
Neart na Gaoithe	-	0.01	0.01	-	0.02 to 0.05	0.02 to 0.05	0.02 to 0.06	0.02 to 0.06
Norfolk Boreas	-	0.01	0.01	-	0.04 to 0.12	0.04 to 0.12	0.05 to 0.13	0.05 to 0.13
Norfolk Vanguard	-	0.01	0.01	-	0.06 to 0.17	0.06 to 0.17	0.07 to 0.18	0.07 to 0.18
North Falls	-	-	-	-	0.01 to 0.02	0.01 to 0.02	0.01 to 0.02	0.01 to 0.02

Project	Collisions ¹			Displacement ²			Annual Consented Collisions + Displacement	Annual As-built Collisions + Displacement
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual		
Ossian	0.30	-	0.30	0.1 to 0.3	0.02 to 0.07	0.12 to 0.37	0.43 to 0.67	0.43 to 0.67
Outer Dowsing	-	-	-	0.53 to 1.59	0.01 to 0.03	0.54 to 1.63	0.54 to 1.63	0.54 to 1.63
Pentland	0.60	-	0.60	0.01 to 0.02	-	0.01 to 0.02	0.61 to 0.62	0.61 to 0.62
Race Bank	-	0.01 (0.00)	0.01 (0.00)	-	-	-	0.01	0.00
Rampion	-	0.03 (0.02)	0.03 (0.02)	-	0.01 to 0.04	0.01 to 0.04	0.04 to 0.07	0.03 to 0.06
Rampion 2	-	-	-	-	0.00 to 0.01	0.00 to 0.01	0.00 to 0.01	0.00 to 0.01
Salamander	-	-	-	-	0.01 to 0.03	0.01 to 0.03	0.01 to 0.03	0.01 to 0.03
Seagreen (1 & 1A)	-	0.01	0.01	-	0.02 to 0.06	0.02 to 0.06	0.03 to 0.07	0.03 to 0.07
Sheringham Shoal Extension & Dudgeon Extension	-	-	-	-	0.01 to 0.04	0.01 to 0.04	0.02 to 0.05	0.02 to 0.05
Sheringham Shoal	-	0.01	0.01	-	-	-	0.01	0.01
Triton Knoll	-	0.03 (0.01)	0.03 (0.01)	-	-	-	0.03	0.01
West of Orkney	17.50	0.11	17.61	2.85 to 8.55	0.36 to 1.07	3.21 to 9.62	20.82 to 27.23	20.82 to 27.23
Total	20.59	0.57 (0.48)	21.15 (21.07)	4.17 to 12.62	1.06 to 3.17	5.23 to 15.79	26.38 to 36.94	26.31 to 36.86
Total excluding Berwick Bank	20.19	0.55 (0.47)	20.74 (20.66)	4.07 to 12.32	1.02 to 3.06	5.10 to 15.38	25.83 to 36.12	25.75 to 36.03
Total excluding Bowdun	20.30	0.56 (0.48)	20.45 (20.78)	4.13 to 12.46	1.06 to 3.17	5.18 to 15.63	26.04 to 36.49	25.96 to 36.40

¹ The number of mortalities due to ‘consented’ collisions are presented, with the number of ‘as-built’ collisions presented in parentheses where relevant.

² Low and high displacement scenarios are presented in Table 5.3

5.7.1041 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank and using consented and as-built collisions (Table 5.256).

Table 5.256: In-combination PVA Results for Gannet, Impacted by Collision Risk and Distributional Responses, at Sule Skerry and Suley Stack SPA (initial population size: 22,590 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Berwick Bank Offshore Wind Farm included or excluded	Displacement Scenario	Baseline Median Population Size (Breeding Adults)	Impacted Median Population Size (Breeding Adults)	Counterfactual Growth Rate (CGR)	Counterfactual Population Size (CPS)
‘Consented’ mortalities					
Including Berwick Bank	Low	24,104	22,855	0.998 (0.997 to 0.999)	0.948 (0.913 to 0.985)
	High		22,359	0.998 (0.997 to 0.999)	0.928 (0.894 to 0.963)
Excluding Berwick Bank	Low		22,872	0.998 (0.997 to 0.999)	0.949 (0.915 to 0.985)
	High		22,353	0.998 (0.997 to 0.999)	0.930 (0.895 to 0.966)
‘As-built’ mortalities					
Including Berwick Bank	Low	24,104	22,864	0.998 (0.997 to 0.999)	0.948 (0.913 to 0.984)
	High		22,399	0.998 (0.997 to 0.999)	0.929 (0.894 to 0.965)
Excluding Berwick Bank	Low		22,858	0.998 (0.997 to 0.999)	0.949 (0.914 to 0.985)
	High		22,413	0.998 (0.997 to 0.999)	0.930 (0.895 to 0.965)

5.7.1042 Using consented mortalities (Table 5.256), it was found that under all scenarios the CGR was equal to 0.998 for all scenarios, indicating that the growth rate of the gannet is unlikely to decrease by more than 0.2%. The population size was found to increase under all scenarios and the CPS, after 30 years, ranged from 0.928 to 0.949, indicating a decrease of up to 7.2% in population size.

5.7.1043 When accounting for as-built corrections, it was found the median CGR was unchanged when compared to the corresponding consented scenarios. Moreover, the median CPS was found to be higher for the high displacement scenario including Berwick Bank, indicating the impact to population sizes is likely to be reduced by 0.1%.

5.7.1044 A comparison of the Seabird 2000 and Seabirds Count censuses found that the gannet population at Sule Skerry and Sule Stack SPA has increased by 94% (Burnell *et al.*, 2023), with most recent census count of 9,065 AON, almost double the citation population (5,900 AON). Surveys carried out by Tremblett *et al.* (2024) did not cover Sule Skerry and Sule Stack SPA, however the majority

of SPAs covered during surveys were found to decrease, suggesting that although the magnitude of impact is unknown there is likely to be a negative impact on the population.

- 5.7.1045 The gannet population has been found to show a trend of increasing populations between censuses but is expected to be negatively impacted by HPAI. The results of the PVA indicate that the population will increase under all scenarios and that impact on the growth rate will be relatively small, indicating that the gannet population is likely to continue to increase following the HPAI outbreak, even in the presence of the Proposed Development in-combination with other projects.
- 5.7.1046 Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined. It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Sule Skerry and Sule Stack SPA on the gannet or breeding seabird assemblage (due to impacts to gannet) features including or excluding Berwick Bank.

Sumburgh Head SPA

- 5.7.1047 Sumburgh Head SPA is located at the southern tip of Mainland Shetland and is approximately 308.75 km from the Array Area. The SPA boundary is coincident with Sumburgh Head SSSI, and the marine extension extends approximately 2 km into the marine environment. The SPA was classified in 1996, with the marine extension classified in 2009 (NatureScot, ND).
- 5.7.1048 The conservation objectives have been determined by NPWS, as presented in Paragraphs 5.3.11 to 5.3.12.
- 5.7.1049 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.257.

Table 5.257: The Relevant Components of the Seabird Assemblage and Impacts Included Within the Assessment for Sumburgh Head SPA

Impact	Fulmar
Collision Risk Mortality due to Collision with Rotor Blades	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓
Disturbance and Displacement to Birds from Vessel Movements	x
Disturbance to Prey Species and Their Habitat	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓
Direct Impacts from UXO Clearance	x
Indirect Impacts from Construction/Decommissioning Noise	✓

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.1050 Of the impacts screened in for assessment (Table 3.7), only distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Distributional Responses due to Offshore Infrastructure

- 5.7.1051 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure'.
- 5.7.1052 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.1053 The number of apportioned mortalities is presented in Table 5.258, with the change in survival rate presented in Table 5.259. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g), it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage feature (due to impacts to fulmar) of Sumburgh Head SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Table 5.258: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Sumburgh Head SPA
(Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.012	0.01 to 0.03	Migration	0.87 to 1.73	0.599	0.001	0.00 to 0.00	0.01 to 0.03
					Winter	0.13 to 0.27	0.719	0.001	0.00 to 0.00	

Table 5.259: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Sumburgh Head SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	11,900	0.01 to 0.03	0.000 to 0.000	No AEOSI

Conclusion for Quantitative Assessment

- 5.7.1054 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to fulmar). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.1055 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Sumburgh Head SPA due to the following impacts:
- distributional responses due to offshore infrastructure.

Qualitative Impacts

- 5.7.1056 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:
- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
 - temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance'); and
 - indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').
- 5.7.1057 No site-specific qualitative assessments were required in order to address the impacts for fulmar at Sumburgh Head SPA.

Conclusion for Qualitative Assessment

- 5.7.1058 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to fulmar). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.1059 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Sumburgh Head SPA due to the following impacts:
- disturbance to prey species and their habitats;
 - temporary habitat loss and/or habitat disturbance; and
 - indirect impacts from construction/decommissioning noise.
- 5.7.1060 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

- 5.7.1061 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar, no in-combination assessment was required for Sumburgh Head SPA.

Tory Island SPA

- 5.7.1062 Tory Island SPA is 11 km north of Bloody Foreland in County Donegal and approximately 750.76 km from the Array Area. The marine extension of the SPA extends 500m from the base of the cliffs into the marine environment (NPWS, ND).
- 5.7.1063 The conservation objectives have been determined by NPWS, as presented in Paragraphs 5.3.11 to 5.3.12.
- 5.7.1064 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.260.

Table 5.260: The Relevant Features and Impacts Included Within the Assessment for Tory Island SPA

Impact	Fulmar
Collision Risk Mortality due to Collision with Rotor Blades	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓
Disturbance and Displacement to Birds from Vessel Movements	x
Disturbance to Prey Species and Their Habitat	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓
Direct Impacts from UXO Clearance	x
Indirect Impacts from Construction/Decommissioning Noise	✓

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.1065 Of the impacts screened in for assessment (Table 3.7), only distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Distributional Responses due to Offshore Infrastructure

- 5.7.1066 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure' for fulmar.
- 5.7.1067 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.1068 The number of apportioned mortalities is presented in Table 5.261, with the change in survival rate presented in Table 5.262. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g), it can be concluded, beyond a reasonable scientific doubt, that there

is no AEOSI to the fulmar feature of Tory Island SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

- 5.7.1069 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the fulmar feature. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the feature, so the conservation objectives of the SPA will not be undermined.
- 5.7.1070 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the St Tory Island SPA due to the following impacts:
- distributional responses due to offshore infrastructure.

Table 5.261: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Tory Island SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.000	0.00 to 0.00	Migration	0.87 to 1.73	0.599	0.000	0.00 to 0.00	0.00 to 0.00
					Winter	0.13 to 0.27	0.719	0.000	0.00 to 0.00	

Table 5.262: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Tory Island SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	1,014	0.00 to 0.00	0.000 to 0.000	No AEOSI

Qualitative Impacts

- 5.7.1071 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:
- disturbance to prey species and their habitats (Section 5.5, ‘Impact 4: Disturbance to Prey Species and their Habitats’);
 - temporary habitat loss and/or habitat disturbance (Section 5.5, ‘Impact 5: Temporary Habitat Loss and/or Habitat Disturbance’); and
 - indirect impacts from construction/decommissioning noise (Section 5.5, ‘Impact 7: Indirect Impacts from Construction/Decommissioning Noise’).

- 5.7.1072 No site-specific qualitative assessments were required in order to address the impacts for fulmar at Tory Island SPA.

Conclusion for Qualitative Assessment

- 5.7.1073 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the fulmar feature. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the feature, so the conservation objectives of the SPA will not be undermined.
- 5.7.1074 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Tory Island SPA due to the following impacts:
- disturbance to prey species and their habitats;
 - temporary habitat loss and/or habitat disturbance; and
 - indirect impacts from construction/decommissioning noise.

- 5.7.1075 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

- 5.7.1076 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar, no in-combination assessment was required for Tory Island SPA.

Troup, Pennan and Lion’s Heads SPA

- 5.7.1077 Troup, Pennan and Lion’s Head SPA is a 9 km stretch of sea cliffs along the Aberdeenshire coast and is located 96.95 km from the Array Area. The SPA boundary partially overlaps with the Gamrie and Pennan Coast SSSI and the marine extension extends approximately 2 km into the marine environment. The SPA was classified in 1997, with the marine extension classified in 2009 (NatureScot, ND).
- 5.7.1078 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.
- 5.7.1079 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.263.

Table 5.263: The Relevant Features and Impacts Included Within the Assessment for Troup, Pennan and Lion's Heads SPA

Impact	Fulmar ¹	Kittiwake	Razorbill ¹
Collision Risk Mortality due to Collision with Rotor Blades	x	✓	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓	✓	✓
Disturbance and Displacement to Birds from Vessel Movements	x	x	✓
Disturbance to Prey Species and Their Habitat	✓	✓	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓	✓	✓
Direct Impacts from UXO Clearance	x	x	✓
Indirect Impacts from Construction/Decommissioning Noise	✓	✓	✓

¹ Named component of the seabird assemblage only.

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.1080 Of the impacts screened in for assessment (Table 3.7), both collision risk and distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Collision Risk Mortality due to Collision with Rotor Blades

- 5.7.1081 A quantitative assessment was carried out for collision mortality due to the Array Area following the methodology described in Section 5.4, 'Impact 1: Collision Risk Mortality due to Collision with Rotor Blades' for kittiwake.
- 5.7.1082 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values and methodology presented in Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.1083 The number of apportioned mortalities is presented in Table 5.264, with the change in survival rate presented in Table 5.265. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake, it can be concluded, beyond reasonable scientific doubt, that there is no AEOSI to the kittiwake feature of Troup, Pennan and Lion's Heads SPA as a result of collision risk with respect to the O&M phase of the Proposed Development.

Table 5.264: Apportioned Mortalities due to Collision Risk During the O&M phase of the Proposed Development at Troup, Pennan and Lion's Heads SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Kittiwake (Option 1)	4.69	0.970 (0.100)	0.054	0.22	SM	0.90	0.599	0.041	0.02	0.25
					AM	0.34	0.579	0.034	0.01	
Kittiwake (Option 2)	37.59			1.76	SM	7.22	0.599	0.041	0.18	1.99
					AM	2.76	0.579	0.034	0.05	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.265: Change in Survival Rate due to Collision Risk During the O&M Phase of the Proposed Development at Troup, Pennan and Lion's Heads SPA

Species	Model Option	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Kittiwake	1	21,232	0.25	0.001	No AEOSI
	2		1.99	0.009	No AEOSI

Distributional Responses due to Offshore Infrastructure

- 5.7.1084 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure' for fulmar, kittiwake and razorbill.
- 5.7.1085 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.1086 The number of apportioning mortalities is presented in Table 5.266, with the change in survival rate presented in Table 5.267. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for fulmar or kittiwake, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the kittiwake or breeding seabird assemblage (due to impacts to fulmar) features of Troup, Pennan and Lion's Heads SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.
- 5.7.1087 As the decrease in survival rate exceeded the 0.02 percentage point threshold advised by NatureScot (2023g) for razorbill, a PVA is required to determine whether the impacts of distributional responses will result in AEOSI.

Required PVAs for Distributional Responses

Razorbill

- 5.7.1088 From the PVA results (Table 5.268), it was found that the growth rate of razorbill was expected to be unimpacted (i.e. 0.0%), when rounded to one decimal place. The population size was found to increase under all scenarios and the CPS, after 30 years, ranged from 0.992 to 0.995, indicating a decrease of up to 0.8% in population size.
- 5.7.1089 A comparison of the Seabird 2000 and Seabirds Count censuses found that the razorbill population at Troup, Pennan and Lion's Heads SPA has decreased by 9% (Burnell *et al.*, 2023). However, the most recent census count of 4,518 individuals just below the citation population (4,800 individuals). Although the population has been found to decrease slightly, the results of the PVA show that in all scenarios the razorbill population is expected to increase.
- 5.7.1090 Therefore, adverse effects on the seabird assemblage, due to impacts to razorbill, of Troup, Pennan and Lion's Head SPA will not occur including or excluding Berwick Bank.

Table 5.266: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at Troup, Pennan and Lion's Heads SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.037	0.04 to 0.09	Migration	0.87 to 1.73	0.599	0.006	0.00 to 0.01	0.04 to 0.10
					Winter	0.13 to 0.27	0.719	0.006	0.00 to 0.00	
Kittiwake	5 to 16	0.970 (0.100)	0.054	0.23 to 0.75	SM	0.53 to 2.13	0.599	0.041	0.01 to 0.05	0.26 to 0.84
					AM	0.47 to 1.87	0.579	0.034	0.01 to 0.04	
Razorbill	48 to 80	0.508 (0.070)	0.035	0.80 to 1.33	Migration	2.93 to 9.53	0.511	0.010	0.01 to 0.05	0.82 to 1.39
					Winter	1.07 to 3.47	0.486	0.006	0.00 to 0.01	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.267: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at Troup, Pennan and Lion's Heads SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	3,788	0.04 to 0.10	0.001 to 0.003	No AEOSI
Kittiwake	21,232	0.26 to 0.84	0.001 to 0.004	No AEOSI
Razorbill	6,054	0.82 to 1.39	0.014 to 0.023	PVA Required

Table 5.268: Results of the Proposed Development Alone PVAs for Distributional Responses Only at Troup, Pennan and Lion's Heads SPA for the Operational Lifetime (30 years) of the Proposed Development (PS = Population Size)

Species	Initial PS	Baseline Simulated PS	Impact Scenario	Impacted Simulated PS	Median Counterfactual (CI)	
					Growth Rate	Population Size
Razorbill	6,054	11,415	Low	11,375	1.000 (0.998 to 1.001)	0.995 (0.937 to 1.059)
			High	11,321	1.000 (0.998 to 1.001)	0.992 (0.935 to 1.053)

Combined Impacts of Collision Risk and Distributional Responses

- 5.7.1091 As kittiwake were assessed for both collision risk and distributional responses, the combined impact has been used to determine whether a PVA is required. It was found that 1.99 mortalities are expected to occur due to collision risk (Table 5.264) and 0.26 to 0.84 mortalities due to distributional responses (Table 5.266). Therefore, it is expected that a total of 2.25 to 2.83 kittiwake mortalities will occur due to the Proposed Development alone, equivalent to a decrease in survival rate of 0.011 to 0.013 percentage points.
- 5.7.1092 When using Option 1 of the sCRM, the number of mortalities due to collision risk was reduced to 0.25 (Table 5.264) and the expected mortalities from collision risk and distributional responses is reduced to 0.50 to 1.09, equivalent to a decrease in survival rate of 0.002 to 0.005 percentage points.
- 5.7.1093 As the decrease in survival rate, due to collision risk and distributional responses, does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the kittiwake feature of Troup, Pennan and Lion's Heads SPA as a result of the combined impact of collision risk and distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

- 5.7.1094 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the kittiwake and breeding seabird assemblage (due to impacts to fulmar and razorbill) features. Therefore, it is expected that the features will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.1095 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the Troup, Pennan and Lion's Heads SPA due to the following impacts:
- collision risk mortality due to collision with rotor blades;
 - distributional responses due to offshore infrastructure; and
 - combined impacts of collision risk and distributional responses.

Qualitative Impacts

5.7.1096 Of the impacts screened in for assessment, five impacts have been assessed qualitatively:

- disturbance and displacement to birds from vessel movements (Section 5.5, 'Impact 3: Disturbance and Displacement to Birds From Vessel Movements');
- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
- temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance');
- direct impacts from UXO clearance (Section 5.5, 'Impact 6: Direct Impacts from UXO Clearance'); and
- indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').

5.7.1097 No site-specific qualitative assessments were required in order to address the impacts for fulmar, kittiwake or razorbill at Troup, Pennan and Lion's Heads SPA.

Conclusion for Qualitative Assessment

5.7.1098 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the kittiwake and breeding seabird assemblage (due to impacts to fulmar and razorbill) features. Therefore, it is expected that the features will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.

5.7.1099 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Troup, Pennan and Lion's Heads SPA due to the following impacts:

- disturbance and displacement to birds due to vessel movements;
- disturbance to prey species and their habitats;
- temporary habitat loss and/or habitat disturbance;
- direct impacts due to UXO clearance; and
- indirect impacts from construction/decommissioning noise.

5.7.1100 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

5.7.1101 As highlighted in Table 5.19, in-combination assessment was required for kittiwake and razorbill.

Kittiwake

- 5.7.1102 It was found that the Proposed Development alone resulted in 0.50 to 1.09 and 2.25 to 2.83 annual mortalities for kittiwake using Option 1 and 2 of the sCRM respectively, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.269.
- 5.7.1103 Although the RIAA for MarramWind was not available at the time of data analysis, it should be noted that MarramWind was found to contribute 3.30 to 3.93 mortalities (MarramWind, 2026), which is equivalent to a 2.9% increase in mortalities for the high mortality displacement (using Option 2 sCRM) scenario. The inclusion of MarramWind is not expected to change the conclusions drawn.

Table 5.269: Number of Mortalities Due to Collision Risk and Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Kittiwake at Troup, Pennan and Lion's Heads SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Collisions			Displacement			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Bowdun (Option 1)	0.22	0.03	0.25	0.23 to 0.75	0.02 to 0.09	0.26 to 0.84	0.50 to 1.09	0.50 to 1.09
Bowdun (Option 2)	1.76	0.23	1.99	0.23 to 0.75	0.02 to 0.09	0.26 to 0.84	2.25 to 2.83	2.25 to 2.83
Aberdeen	-	0.1 (0.08)	0.1 (0.08)	-	0 to 0.01	0 to 0.01	0.1 to 0.11	0.08 to 0.09
Aspen	0.08	0.09	0.17	0.01 to 0.04	0.01 to 0.03	0.02 to 0.07	0.19 to 0.24	0.19 to 0.24
Ayre	0.27	0.31	0.58	0.05 to 0.2	0.06 to 0.18	0.11 to 0.38	0.69 to 0.96	0.69 to 0.96
Beatrice	1.29	0.78 (0.43)	2.07 (1.72)	-	0.16 to 0.49	0.16 to 0.49	2.24 to 2.57	1.89 to 2.22
Berwick Bank	1.96	6.66 (6.68)	8.62 (8.64)	0.25 to 0.75	1.85 to 5.54	2.1 to 6.29	10.72 to 14.91	10.74 to 14.93
Blyth Demo	-	0.06	0.06	-	0.11 to 0.33	0.11 to 0.33	0.16 to 0.38	0.16 to 0.38
Buchan	0.54	0.15 (0.07)	0.69 (0.6)	1.4 to 1.4	0.03 to 0.1	1.43 to 1.5	2.12 to 2.19	2.04 to 2.1
Caledonia (North & South)	5.55	0.29	5.84	0.61 to 1.83	0.04 to 0.13	0.65 to 1.96	6.5 to 7.8	6.5 to 7.8
Cenos	0.79	0.13	0.92	0.06 to 0.18	0.01 to 0.02	0.07 to 0.2	0.98 to 1.12	0.98 to 1.12
Dogger Bank A and B	-	6.61 (6.63)	6.61 (6.63)	-	1.4 to 4.2	1.4 to 4.2	8.01 to 10.81	8.03 to 10.83
Dogger Bank C and Sofia	-	4.73 (4.75)	4.73 (4.75)	-	1.03 to 3.1	1.03 to 3.1	5.76 to 7.83	5.78 to 7.85
Dogger Bank South	-	4.45 (4.46)	4.45 (4.46)	-	1.38 to 4.14	1.38 to 4.14	5.83 to 8.59	5.84 to 8.6
East Anglia One	-	3.05 (2.06)	3.05 (2.06)	-	0.14 to 0.43	0.14 to 0.43	3.19 to 3.47	2.2 to 2.49

Project	Collisions			Displacement			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
East Anglia One North	-	0.21	0.21	-	0.04 to 0.13	0.04 to 0.13	0.25 to 0.34	0.25 to 0.34
East Anglia Three	-	1.30	1.30	-	0.35 to 1.05	0.35 to 1.05	1.65 to 2.35	1.65 to 2.35
East Anglia Two	-	0.23	0.23	-	0.03 to 0.09	0.03 to 0.09	0.26 to 0.33	0.26 to 0.33
Five Estuaries	-	0.50	0.50	-	0.06 to 0.18	0.06 to 0.18	0.56 to 0.68	0.56 to 0.68
Galloper	-	0.9 (0.38)	0.9 (0.38)	-	-	-	0.9	0.38
Greater Gabbard	-	0.40	0.40	-	-	-	0.4	0.4
Green Volt	0.65	0.24	0.89	0.06 to 0.19	0.02 to 0.05	0.08 to 0.24	0.97 to 1.13	0.97 to 1.13
Hornsea One	-	0.28 (0.12)	0.28 (0.12)	-	2.38 to 7.15	2.38 to 7.15	2.66 to 7.43	2.5 to 7.27
Hornsea Project Four	-	0.33	0.33	-	0.46 to 1.38	0.46 to 1.38	0.79 to 1.72	0.8 to 1.72
Hornsea Project Three	-	1.25	1.25	-	0.47 to 1.41	0.47 to 1.41	1.72 to 2.66	1.72 to 2.66
Hornsea Project Two	-	0.18	0.18	-	0.25 to 0.76	0.25 to 0.76	0.43 to 0.94	0.43 to 0.94
Humber Gateway	-	0.08 (0.03)	0.08 (0.03)	-	-	-	0.08	0.03
Hywind	1.45	0.03	1.48	-	-	-	1.48	1.48
Inch Cape	-	0.58	0.58	-	0.16 to 0.47	0.16 to 0.47	0.74 to 1.05	0.74 to 1.05
Kentish Flats	-	0.02	0.02	-	-	-	0.02	0.02
Kentish Flats Extension	-	0.06 (0.03)	0.06 (0.03)	-	-	-	0.06	0.03

Project	Collisions			Displacement			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Kincardine	-	0.15	0.15	-	-	-	0.15	0.15
Lincs	-	0.03	0.03	-	-	-	0.03	0.03
London Array	-	0.06 (0.02)	0.06 (0.02)	-	-	-	0.06	0.02
Methil	1.00	0.00	1.00	-	-	-	1	1
Moray East	-	0.13	0.13	2 to 6	-	2 to 6	2.13 to 6.13	2.13 to 6.13
Moray West	3.57	0.54	4.11	1.5 to 4.5	0.19 to 0.56	1.69 to 5.06	5.8 to 9.18	5.8 to 9.18
Muir Mhor	4.14	0.23	4.37	4.8 to 4.8	0.06 to 0.18	4.86 to 4.98	9.23 to 9.35	9.23 to 9.35
Neart na Gaoithe	-	0.34	0.34	-	0.16 to 0.48	0.16 to 0.48	0.5 to 0.82	0.5 to 0.82
Norfolk Boreas	-	0.80	0.80	-	0.26 to 0.78	0.26 to 0.78	1.06 to 1.58	1.06 to 1.58
Norfolk Vanguard	-	0.64 (0.65)	0.64 (0.65)	-	0.16 to 0.49	0.16 to 0.49	0.81 to 1.13	0.81 to 1.14
North Falls	-	0.37	0.37	-	0.1 to 0.29	0.1 to 0.29	0.47 to 0.66	0.47 to 0.66
Ossian	1.40	0.29	1.69	0.46 to 1.38	0.08 to 0.25	0.54 to 1.63	2.23 to 3.32	2.23 to 3.32
Outer Dowsing	-	0.42	0.42	-	0.52 to 1.55	0.52 to 1.55	0.93 to 1.96	0.93 to 1.96
Pentland	-	0.02	0.02	-	0.01 to 0.04	0.01 to 0.04	0.03 to 0.05	0.03 to 0.05
Race Bank	-	0.43 (0.26)	0.43 (0.26)	-	-	-	0.43	0.26
Salamander	1.66	0.00	1.66	1.26 to 3.79	0.02 to 0.05	1.28 to 3.84	2.94 to 5.5	2.94 to 5.5
Seagreen	-	3.97 (3.98)	3.97 (3.98)	-	0.34 to 1.01	0.34 to 1.01	4.31 to 4.98	4.32 to 5
Sheringham Shoal Extension and Dudgeon Extension	-	0.13	0.13	-	0.2 to 0.6	0.2 to 0.6	0.33 to 0.73	0.33 to 0.73
Teesside	-	0.38 (0.33)	0.38 (0.33)	-	-	-	0.38	0.33

Project	Collisions			Displacement			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Thanet	-	0.01	0.01	-	-	-	0.01	0.01
Triton Knoll	-	2.72 (0.99)	2.72 (0.99)	-	0.04 to 0.12	0.04 to 0.12	2.76 to 2.84	1.03 to 1.11
West of Orkney	0.12	0.95	1.07	0.02 to 0.06	0.15 to 0.45	0.17 to 0.51	1.24 to 1.57	1.24 to 1.58
Option 1								
Total	24.69	46.60 (42.52)	71.29 (67.21)	12.72 to 25.87	12.77 to 38.32	25.49 to 64.19	96.77 to 135.49	92.69 to 131.40
Total excluding Berwick Bank	22.73	39.92 (35.84)	62.65 (58.56)	12.47 to 25.12	10.87 to 32.63	23.34 to 57.75	85.98 to 120.40	81.90 to 116.32
Total excluding Bowdun	24.47	46.57 (42.49)	71.04 (66.96)	12.49 to 25.12	12.75 to 38.24	25.23 to 63.36	96.27 to 134.40	92.19 to 130.31
Option 2								
Total	26.22	46.81 (42.72)	73.03 (68.95)	12.72 to 25.87	12.77 to 38.32	25.49 to 64.19	98.52 to 137.23	94.44 to 133.14
Total excluding Berwick Bank	24.26	40.12 (36.04)	64.39 (60.31)	12.47 to 25.12	10.87 to 32.63	23.34 to 57.75	87.73 to 122.14	83.65 to 118.06
Total excluding Bowdun	24.47	46.57 (42.49)	71.04 (66.96)	12.49 to 25.12	12.75 to 38.24	25.23 to 63.36	96.27 to 134.40	92.19 to 130.31

¹ The number of mortalities due to ‘consented’ collisions are presented, with the number of ‘as-built’ collisions presented in parentheses where relevant.

² Low and high displacement scenarios are presented in Table 5.3

5.7.1104 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank and using consented and as-built collisions (Table 5.270).

Table 5.270: In-combination PVA Results for Kittiwake, Impacted by Collision Risk (sCRM Option 2) and Distributional Responses, at Troup, Pennan and Lion's Heads SPA (initial population size: 21,232 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Berwick Bank Offshore Wind Farm included or excluded	Displacement Scenario	Baseline Median Population Size (Breeding Adults)	Impacted Median Population Size (Breeding Adults)	Counterfactual Growth Rate (CGR)	Counterfactual Population Size (CPS)
'Consented' mortalities					
Including Berwick Bank	Low	39,262	32,962	0.995 (0.993 to 0.996)	0.843 (0.810 to 0.877)
	High		30,894	0.992 (0.991 to 0.993)	0.788 (0.756 to 0.821)
Excluding Berwick Bank	Low		33,736	0.995 (0.994 to 0.996)	0.859 (0.825 to 0.893)
	High		31,664	0.993 (0.992 to 0.994)	0.809 (0.776 to 0.842)
'As-built' mortalities					
Including Berwick Bank	Low	39,262	33,213	0.995 (0.994 to 0.996)	0.849 (0.815 to 0.883)
	High		31,175	0.993 (0.991 to 0.994)	0.794 (0.761 to 0.826)
Excluding Berwick Bank	Low		33,932	0.995 (0.994 to 0.996)	0.866 (0.830 to 0.901)
	High		31,871	0.993 (0.992 to 0.995)	0.815 (0.782 to 0.849)

5.7.1105 Using consented mortalities (Table 5.270), it was found that under all scenarios the CGR was greater or equal to 0.992, indicating that the growth rate of the kittiwake is unlikely to decrease by more than 0.8%. The population size was found to increase under all scenarios and the CPS, after 30 years, ranged from 0.788 to 0.859, indicating a decrease of up to 21.2% in population size.

5.7.1106 When accounting for as-built corrections, it was found the median CGR was unchanged for all scenarios, except the high displacement scenario including Berwick Bank decreased by 0.001, or 0.1%. Moreover, the median CPS was found to be higher in all scenarios, indicating the impact to population sizes is likely to be reduced by 0.9% to 1.0% for all scenarios.

5.7.1107 A comparison of the Seabird 2000 and Seabirds Count censuses found that the kittiwake population at Troup, Pennan and Lion's Heads SPA has decreased by 44% (Burnell *et al.*, 2023), with most recent census count of 10,616 AON less than half of the citation population (31,600 AON). Surveys carried out by Tremblett *et al.* (2024) found that population increased by 2%, suggesting that

HPAI has not negatively impacted the kittiwake population at Troup, Pennan and Lion's Heads SPA and the population is beginning to increase.

- 5.7.1108 Despite the kittiwake increasing in population size following the HPAI outbreak, the magnitude of the impact from the Proposed Development in-combination with other projects on the growth rate (up to 0.8%) and population size (up to 21.2%) is deemed large enough to be likely to lead to further declines.
- 5.7.1109 Additionally, PVA run using site-specific flight height data found the impacts to growth rate are expected to be unchanged and population sizes are expected to decrease by no more than 0.3% for each scenario including and excluding Berwick Bank (presented in Table 3.5 of Appendix 3B: Offshore Ornithology Special Protection Area Population Viability Analysis Technical Report (TWP-BOW-RPS-ENV-RPT-00027)). Therefore, using site-specific sCRM (Option 1) is unlikely to impact the conclusions for AEOSI.
- 5.7.1110 Therefore, an adverse effect on the kittiwake feature of Troup, Pennan and Lion's Head SPA **could not be ruled out** including or excluding Berwick Bank.

Razorbill

- 5.7.1111 It was found that the Proposed Development alone resulted in 0.82 to 1.39 annual mortalities for razorbill, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.271.
- 5.7.1112 Although the RIAA for MarramWind was not available at the time of data analysis, it should be noted that MarramWind was found to contribute 1.37 to 2.33 mortalities (MarramWind, 2026), which is equivalent to a 6.8% increase in mortalities for the high mortality displacement scenario.

Table 5.271: Number of Mortalities Due to Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Razorbill at Troup, Pennan and Lion's Heads. Only Projects Contributing Mortalities Have Been Presented

Project	Breeding Season		Non-breeding Season		Annual	
	Low ¹	High	Low	High	Low	High
Bowdun	0.80	1.33	0.02	0.06	0.82	1.39
Aberdeen	-	-	0.00	0.01	0.00	0.01
Aspen	-	-	0.00	0.01	0.00	0.01
Ayre	-	-	0.04	0.12	0.04	0.12
Beatrice	-	-	0.07	0.22	0.07	0.22
Berwick Bank	0.80	1.33	0.59	1.78	1.39	3.11
Blyth Demo	-	-	0.01	0.02	0.01	0.02
Buchan	-	-	0.01	0.02	0.01	0.02
Caledonia (North & South)	1.88	3.14	0.09	0.26	1.97	3.40
Dogger Bank A	-	-	0.25	0.75	0.25	0.75
Dogger Bank B	-	-	0.31	0.94	0.31	0.94
Dogger Bank C	-	-	0.11	0.32	0.11	0.32

Project	Breeding Season		Non-breeding Season		Annual	
	Low ¹	High	Low	High	Low	High
Dogger Bank South	-	-	0.92	2.77	0.92	2.77
Dudgeon Extension	-	-	0.05	0.16	0.05	0.16
Dudgeon	-	-	0.05	0.14	0.05	0.14
East Anglia One	-	-	0.02	0.05	0.02	0.05
East Anglia One North	-	-	0.01	0.03	0.01	0.03
East Anglia Three	-	-	0.14	0.42	0.14	0.42
East Anglia Two	-	-	0.01	0.04	0.01	0.04
Five Estuaries	-	-	0.07	0.21	0.07	0.21
Galloper	-	-	0.02	0.05	0.02	0.05
Greater Gabbard	-	-	0.02	0.05	0.02	0.05
Green Volt	0.72	1.20	0.00	0.01	0.72	1.21
Gunfleet Sands	-	-	0.00	0.00	0.00	0.00
Hornsea One	-	-	0.27	0.82	0.27	0.82
Hornsea Project Four	-	-	0.17	0.52	0.17	0.52
Hornsea Project Three	-	-	0.26	0.78	0.26	0.78
Hornsea Project Two	-	-	0.22	0.66	0.22	0.66
Humber Gateway	-	-	0.00	0.01	0.00	0.01
Hywind	0.12	0.20	0.02	0.07	0.14	0.27
Inch Cape	-	-	0.12	0.35	0.12	0.35
Lincs and Lynn and Inner Dowsing	-	-	0.00	0.01	0.00	0.01
London Array	-	-	0.00	0.01	0.00	0.01
Moray East	-	-	0.04	0.13	0.04	0.13
Moray West	0.87	1.45	0.24	0.73	1.11	2.18
Muir Mhor	2.40	4.00	0.05	0.16	2.45	4.16
Neart na Gaoithe	-	-	0.20	0.60	0.20	0.60
Norfolk Boreas	-	-	0.06	0.17	0.06	0.17
Norfolk Vanguard	-	-	0.09	0.26	0.09	0.26
North Falls	-	-	0.13	0.38	0.13	0.38
Ossian	-	-	0.06	0.19	0.06	0.19
Outer Dowsing	-	-	0.30	0.91	0.30	0.91
Race Bank	-	-	0.00	0.01	0.00	0.01
Rampion	-	-	0.16	0.47	0.16	0.47
Rampion 2	-	-	0.25	0.75	0.25	0.75
Salamander	0.93	1.56	0.02	0.05	0.95	1.61
Seagreen Alpha	-	-	0.04	0.11	0.04	0.11
Seagreen Bravo	-	-	0.04	0.13	0.04	0.13
Sheringham Shoal	-	-	0.05	0.16	0.05	0.16

Project	Breeding Season		Non-breeding Season		Annual	
	Low ¹	High	Low	High	Low	High
Sheringham Shoal Extension	-	-	0.16	0.49	0.16	0.49
Sofia	-	-	0.17	0.50	0.17	0.50
Teesside	-	-	0.00	0.01	0.00	0.01
Thanet	-	-	0.00	0.00	0.00	0.00
Triton Knoll	-	-	0.04	0.12	0.04	0.12
Westermest Rough	-	-	0.01	0.04	0.01	0.04
Total	10.08	16.21	6.02	18.05	16.10	34.26
Total excluding Berwick Bank	9.28	14.87	5.29	15.87	14.57	30.74
Total excluding Bowdun	9.28	14.87	6.00	18.00	15.28	32.87

¹ Low and high displacement scenarios are presented in Table 5.3

5.7.1113 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank (Table 5.272).

Table 5.272: In-combination PVA Results for Razorbill Impacted by Distributional Responses at Troup, Pennan and Lion's Heads SPA (initial population size: 6,054 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Baseline Simulated Population Size	Impact Scenario	Impacted Simulated Population Size	Median Counterfactual (CI)	
			Growth Rate	Population Size
Including Berwick Bank				
11,415	Low	10,411	0.997 (0.995 to 0.999)	0.911 (0.855 to 0.968)
	High	9,310	0.994 (0.992 to 0.995)	0.818 (0.766 to 0.870)
Excluding Berwick Bank				
11,415	Low	10,510	0.997 (0.996 to 0.999)	0.918 (0.863 to 0.976)
	High	9,521	0.994 (0.993 to 0.996)	0.835 (0.782 to 0.887)

5.7.1114 From the PVA results (Table 5.272), it was found that under all scenarios the CGR was greater than or equal to 0.994, indicating that the growth rate of the razorbill is unlikely to decrease by more than 0.6%. The population size was found to increase under all scenarios and the CPS, after 30 years, ranged from 0.818 to 0.918, indicating a decrease of up to 18.2% in population size.

5.7.1115 Although the razorbill population has been found to decrease between seabird censuses (see Paragraph 5.7.1089), the impacts from the Proposed Development in-combination is likely to be small. Moreover, population sizes were found to increase under all scenarios. Therefore impacts are not expected to prevent the recovery of the razorbill population.

- 5.7.1116 Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined. It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the Troup, Pennan and Lion's Heads SPA on razorbill including or excluding Berwick Bank.

West Donegal Coast SPA

- 5.7.1117 West Donegal Coast SPA consists of separate sections of the coastline of county Donegal, Ireland and is located 769.49 km from the Array Area. The SPA boundary extends to the high-water mark, except for at Tormore Island where the SPA extends 500 m from the cliff base (NPWS, ND).
- 5.7.1118 The conservation objectives have been determined by NPWS, as presented in Paragraphs 5.3.11 to 5.3.12.
- 5.7.1119 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.273.

Table 5.273: The Relevant Features and Impacts Included Within the Assessment for West Donegal Coast SPA

Impact	Fulmar
Collision Risk Mortality due to Collision with Rotor Blades	x
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓
Disturbance and Displacement to Birds from Vessel Movements	x
Disturbance to Prey Species and Their Habitat	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓
Direct Impacts from UXO Clearance	x
Indirect Impacts from Construction/Decommissioning Noise	✓

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.1120 Of the impacts screened in for assessment (Table 3.7), only distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Distributional Responses due to Offshore Infrastructure

- 5.7.1121 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure' for fulmar.
- 5.7.1122 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).

- 5.7.1123 The number of apportioned mortalities is presented in Table 5.274, with the change in survival rate presented in Table 5.275. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g), it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the fulmar feature of West Donegal Coast SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

- 5.7.1124 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the fulmar feature. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the feature, so the conservation objectives of the SPA will not be undermined.
- 5.7.1125 Therefore, it can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the West Donegal Coast SPA due to the following impacts:
- distributional responses due to offshore infrastructure.

Table 5.274: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at West Donegal Coast SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.000	0.00 to 0.00	Migration	0.87 to 1.73	0.599	0.000	0.00 to 0.00	0.00 to 0.00
					Winter	0.13 to 0.27	0.719	0.000	0.00 to 0.00	

Table 5.275: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at West Donegal Coast SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	2,836	0.00 to 0.00	0.000 to 0.000	No AEOSI

Qualitative Impacts

5.7.1126 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:

- disturbance to prey species and their habitats (Section 5.5, ‘Impact 4: Disturbance to Prey Species and their Habitats’);
- temporary habitat loss and/or habitat disturbance (Section 5.5, ‘Impact 5: Temporary Habitat Loss and/or Habitat Disturbance’); and
- indirect impacts from construction/decommissioning noise (Section 5.5, ‘Impact 7: Indirect Impacts from Construction/Decommissioning Noise’).

5.7.1127 No site-specific qualitative assessments were required in order to address the impacts for fulmar at West Donegal Coast SPA.

Conclusion for Qualitative Assessment

5.7.1128 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the fulmar feature. Therefore, the Proposed Development alone is not expected to prevent the maintenance or restoration of the feature, so the conservation objectives of the SPA will not be undermined.

5.7.1129 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the West Donegal Coast SPA due to the following impacts:

- disturbance to prey species and their habitats;
- temporary habitat loss and/or habitat disturbance; and
- indirect impacts from construction/decommissioning noise.

5.7.1130 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

5.7.1131 As the number of mortalities for the Proposed Development alone did not meet the 0.2 threshold (MD-LOT, 2024) for fulmar, no in-combination assessment was required for West Donegal Coast SPA.

West Westray SPA

5.7.1132 West Westray SPA is an 8 km stretch of sea cliffs and heathland along the west coast of Westray, Orkney, and is located approximately 268.75 km from the Array Area. The SPA boundary overlaps with West Westray SSSI and the marine extension extends approximately 2 km into the marine environment. The site was classified in 1996, with the marine extension classified in 2009 (NatureScot, ND).

5.7.1133 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.

5.7.1134 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.276.

Table 5.276: The Relevant Components of the Seabird Assemblage and Impacts Included Within the Assessment for West Westray SPA

Impact	Fulmar	Kittiwake
Collision Risk Mortality due to Collision with Rotor Blades	x	✓
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	✓	✓
Disturbance and Displacement to Birds from Vessel Movements	x	x
Disturbance to Prey Species and Their Habitat	✓	✓
Temporary Habitat Loss and/or Habitat Disturbance	✓	✓
Direct Impacts from UXO Clearance	x	x
Indirect Impacts from Construction/Decommissioning Noise	✓	✓

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.1135 Of the impacts screened in for assessment (Table 3.7), both collision risk and distributional responses were assessed quantitatively. A summary of the conclusions of the assessment is presented in Table 6.1.

Collision Risk Mortality due to Collision with Rotor Blades

- 5.7.1136 Quantitative assessment was carried out for collision mortality due to the Array Area following the methodology described in Section 5.4, ‘Impact 1: Collision Risk Mortality due to Collision with Rotor Blades’ for kittiwake.
- 5.7.1137 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values and methodology presented in Appendix 3A: Offshore Ornithology Special Protection Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.1138 The number of apportioned mortalities is presented in Table 5.277, with the change in survival rate presented in Table 5.278. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage (due to impacts to kittiwake) feature of West Westray SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Table 5.277: Apportioned Mortalities due to Collision Risk During the O&M phase of the Proposed Development at West Westray SPA (Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Kittiwake (Option 1)		0.970 (0.100)	0.002	0.01	SM	0.90	0.599	0.033	0.02	0.03
					AM	0.34	0.579	0.028	0.01	
Kittiwake (Option 2)	37.59			0.06	SM	7.22	0.599	0.033	0.14	0.25
					AM	2.76	0.579	0.028	0.04	

Table 5.278: Change in Survival Rate due to Collision Risk During the O&M Phase of the Proposed Development at West Westray SPA

Species	Model Option	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Kittiwake¹	1	5,510	0.02	0.001	No AEOSI
	2		0.25	0.004	No AEOSI

Distributional Responses due to Offshore Infrastructure

- 5.7.1139 A quantitative assessment was carried out for distributional responses due to Wind Turbines within the Array Area following the methodology described in Section 5.4, 'Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure' for fulmar and kittiwake.
- 5.7.1140 The mortalities from the Proposed Development (Volume 3, Technical Appendix 11.3: Offshore Ornithology Displacement Technical Report (TWP-BOW-RPS-OFE-RPT-00021) of the Offshore EIA Report) were apportioned using the values presented in Appendix 3A: Offshore Ornithology Special Protected Area Apportioning Technical Report (TWP-BOW-RPS-ENV-RPT-00038).
- 5.7.1141 The number of apportioning mortalities is presented in Table 5.279, with the change in survival rate presented in Table 5.280. As the decrease in survival rate does not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for fulmar or kittiwake, it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage feature (due to impacts to fulmar and kittiwake) at West Westray SPA as a result of distributional responses with respect to the O&M phase of the Proposed Development.

Table 5.279: Apportioned Mortalities due to Distributional Responses During the O&M phase of the Proposed Development at West Westray SPA
(Prop = Proportion; AV = Apportioning Value)

Species	Breeding Season				Non-breeding Season					Total Apportioned Mortalities (Breeding Adults)
	Mortalities (All Age Classes)	Prop of Adults (Prop of Sabbatical Adults)	AV	Apportioned Mortalities (Breeding Adults)	Sub-season ¹	Mortalities (All Age Classes)	Prop of Adults	AV	Apportioned Mortalities (Breeding Adults)	
Fulmar	2 to 5	0.480 (0.000)	0.003	0.00 to 0.01	Migration	0.87 to 1.73	0.599	0.002	0.00 to 0.00	0.00 to 0.01
					Winter	0.13 to 0.27	0.719	0.002	0.00 to 0.00	
Kittiwake	5 to 16	0.970 (0.100)	0.002	0.01 to 0.02	SM	0.53 to 2.13	0.599	0.033	0.01 to 0.04	0.03 to 0.10
					AM	0.47 to 1.87	0.579	0.028	0.01 to 0.03	

¹ SM = Spring Migration; AM = Autumn Migration

Table 5.280: Change in Survival Rate due to Distributional Responses During the O&M Phase of the Proposed Development at West Westray SPA

Species	Population Size (Burnell <i>et al.</i> , 2023)	Additional Mortalities	Change in Survival Rate (percentage points)	Conclusion
Fulmar	2,428	0.00 to 0.01	0.000 to 0.000	No AEOSI
Kittiwake	5,510	0.03 to 0.10	0.000 to 0.002	No AEOSI

Combined Impacts of Collision Risk and Distributional Responses

- 5.7.1142 As kittiwake were assessed for both collision risk and distributional responses, the combined impact has been used to determine whether a PVA is required. It was found that 0.25 mortalities are expected to occur due to collision risk (Table 5.277) and 0.03 to 0.10 mortalities due to distributional responses (Table 5.279). Therefore, it is expected that a total of 0.27 to 0.34 kittiwake mortalities will occur due to the Proposed Development alone, equivalent to a decrease in survival rate of 0.005 to 0.006 percentage points.
- 5.7.1143 When using Option 1 of the sCRM, the number of mortalities due to collision risk was reduced to 0.03 (Table 5.277) and the expected mortalities from collision risk and distributional responses is reduced to 0.06 to 0.13, equivalent to a decrease in survival rate of 0.001 to 0.002 percentage points.
- 5.7.1144 As the decrease in survival rate, due to collision risk and distributional responses, did not exceed the 0.02 percentage point threshold advised by NatureScot (2023g) for kittiwake it can be concluded, beyond a reasonable scientific doubt, that there is no AEOSI to the breeding seabird assemblage of West Westray SPA as a result of the combined impact of collision risk and distributional responses with respect to the O&M phase of the Proposed Development.

Conclusion for Quantitative Assessment

- 5.7.1145 From the relevant assessments carried out within Section 5.4, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to fulmar and kittiwake). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.
- 5.7.1146 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI which will undermine the conservation objectives of the West Westray SPA due to the following impacts:
- collision risk mortality due to collision with rotor blades;
 - distributional responses due to offshore infrastructure; and
 - combined impacts of collision risk and distributional responses.

Qualitative Impacts

- 5.7.1147 Of the impacts screened in for assessment, three impacts have been assessed qualitatively:
- disturbance to prey species and their habitats (Section 5.5, 'Impact 4: Disturbance to Prey Species and their Habitats');
 - temporary habitat loss and/or habitat disturbance (Section 5.5, 'Impact 5: Temporary Habitat Loss and/or Habitat Disturbance'); and
 - indirect impacts from construction/decommissioning noise (Section 5.5, 'Impact 7: Indirect Impacts from Construction/Decommissioning Noise').

- 5.7.1148 No site-specific qualitative assessments were required in order to address the impacts for fulmar or kittiwake at West Westray SPA.

Conclusion for Qualitative Assessment

- 5.7.1149 From the relevant assessments carried out within Section 5.5, it has been shown that there is not expected to be any significant disturbance or long-term impact to the breeding seabird assemblage feature (due to impacts to fulmar and kittiwake). Therefore, it is expected that the feature will remain a viable component of the site and no significance disturbance will occur, so the conservation objectives of the SPA will not be undermined.

- 5.7.1150 It can be concluded beyond reasonable scientific doubt, that there is no risk of an AEOSI of the West Westray SPA due to the following impacts:

- disturbance to prey species and their habitats;
- temporary habitat loss and/or habitat disturbance; and
- indirect impacts from construction/decommissioning noise.

- 5.7.1151 A summary of the conclusions for all qualitative assessments is presented in Table 6.1.

In-combination Assessment

- 5.7.1152 As highlighted in Table 5.19, in-combination assessment was required for kittiwake.

Kittiwake

- 5.7.1153 It was found that the Proposed Development alone resulted in 0.06 to 0.13 and 0.27 to 0.34 annual mortalities for kittiwake using Option 1 and 2 of the sCRM respectively, meeting the first requirement for in-combination assessment. The number of mortalities for each project are presented in Table 5.281.

- 5.7.1154 Although the RIAA for MarramWind was not available at the time of data analysis, it should be noted that MarramWind was found to contribute 0.53 to 0.59 mortalities (MarramWind, 2026), which is equivalent to a 0.8% increase in mortalities for the high mortality displacement (using Option 2 sCRM) scenario. The inclusion of MarramWind is not expected to change the conclusions drawn.

Table 5.281: Number of Mortalities Due to Collision Risk and Distributional Responses (Low and High Displacement Scenarios) for Each Project Included Within In-combination Assessment for Kittiwake at West Westray SPA. Only Projects Contributing Mortalities Have Been Presented

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
Bowdun (Option 1)	0.00	0.02	0.02	0.01 to 0.02	0.02 to 0.07	0.03 to 0.10	0.06 to 0.13	0.06 to 0.13
Bowdun (Option 2)	0.06	0.19	0.25	0.01 to 0.02	0.02 to 0.07	0.03 to 0.10	0.27 to 0.34	0.27 to 0.34
Aberdeen	-	0.08 (0.06)	0.08 (0.06)	-	0 to 0.01	0 to 0.01	0.08 to 0.09	0.07 to 0.07
Aspen	0.02	0.07	0.09	0 to 0.01	0.01 to 0.03	0.01 to 0.04	0.1 to 0.13	0.1 to 0.13
Ayre	0.21	0.25	0.46	0.04 to 0.16	0.06 to 0.18	0.1 to 0.34	0.56 to 0.8	0.56 to 0.8
Beatrice	-	0.63 (0.35)	0.63 (0.35)	-	0.16 to 0.49	0.16 to 0.49	0.8 to 1.13	0.51 to 0.84
Berwick Bank	-	5.39 (5.41)	5.39 (5.41)	-	1.85 to 5.54	1.85 to 5.54	7.24 to 10.93	7.25 to 10.94
Blyth Demo	-	0.04	0.04	-	0.11 to 0.33	0.11 to 0.33	0.15 to 0.37	0.15 to 0.37
Buchan	0.03	0.12 (0.05)	0.15 (0.08)	0 to 0.01	0.03 to 0.1	0.04 to 0.11	0.19 to 0.27	0.12 to 0.2
Caledonia (North & South)	0.15	0.24	0.39	-	0.04 to 0.13	0.04 to 0.13	0.43 to 0.52	0.43 to 0.52
Cenos	-	0.10	0.10	-	0.01 to 0.02	0.01 to 0.02	0.11 to 0.12	0.11 to 0.12
Dogger Bank A and B	-	5.35 (5.36)	5.35 (5.36)	-	1.4 to 4.2	1.4 to 4.2	6.75 to 9.55	6.76 to 9.56
Dogger Bank C and Sofia	-	3.83 (3.84)	3.83 (3.84)	-	1.03 to 3.1	1.03 to 3.1	4.86 to 6.93	4.87 to 6.94
Dogger Bank South	-	3.6 (3.61)	3.6 (3.61)	-	1.38 to 4.14	1.38 to 4.14	4.98 to 7.74	4.99 to 7.75
East Anglia One	-	2.47 (1.67)	2.47 (1.67)	-	0.14 to 0.43	0.14 to 0.43	2.61 to 2.89	1.81 to 2.09
East Anglia One North	-	0.17	0.17	-	0.04 to 0.13	0.04 to 0.13	0.21 to 0.3	0.21 to 0.3

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
East Anglia Three	-	1.05	1.05	-	0.35 to 1.05	0.35 to 1.05	1.4 to 2.1	1.4 to 2.1
East Anglia Two	-	0.19	0.19	-	0.03 to 0.09	0.03 to 0.09	0.22 to 0.28	0.22 to 0.28
Five Estuaries	-	0.40	0.40	-	0.06 to 0.18	0.06 to 0.18	0.46 to 0.58	0.46 to 0.58
Galloper	-	0.73 (0.31)	0.73 (0.31)	-	-	-	0.73	0.31
Greater Gabbard	-	0.32	0.32	-	-	-	0.32	0.32
Green Volt	-	0.19	0.19	-	0.02 to 0.05	0.02 to 0.05	0.21 to 0.24	0.21 to 0.24
Hornsea One	-	0.23 (0.09)	0.23 (0.09)	-	2.38 to 7.15	2.38 to 7.15	2.61 to 7.38	2.48 to 7.25
Hornsea Project Four	-	0.27	0.27	-	0.46 to 1.38	0.46 to 1.38	0.73 to 1.65	0.73 to 1.65
Hornsea Project Three	-	1.01	1.01	-	0.47 to 1.41	0.47 to 1.41	1.48 to 2.42	1.48 to 2.42
Hornsea Project Two	-	0.14	0.14	-	0.25 to 0.76	0.25 to 0.76	0.4 to 0.9	0.4 to 0.9
Humber Gateway	-	0.06 (0.03)	0.06 (0.03)	-	-	-	0.06	0.03
Hywind	-	0.02	0.02	-	-	-	0.02	0.02
Inch Cape	-	0.47	0.47	-	0.16 to 0.47	0.16 to 0.47	0.63 to 0.94	0.63 to 0.94
Kentish Flats	-	0.02	0.02	-	-	-	0.02	0.02
Kentish Flats Extension	-	0.05 (0.03)	0.05 (0.03)	-	-	-	0.05	0.03
Kincardine	-	0.12	0.12	-	-	-	0.12	0.12
Lincs	-	0.02	0.02	-	-	-	0.02	0.02

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
London Array	-	0.05 (0.02)	0.05 (0.02)	-	-	-	0.05	0.02
Moray East	-	0.10	0.10	-	-	-	0.1	0.1
Moray West	-	0.44	0.44	-	0.19 to 0.56	0.19 to 0.56	0.63 to 1	0.63 to 1
Muir Mhor	0.11	0.19	0.30	0.02 to 0.05	0.06 to 0.18	0.08 to 0.23	0.37 to 0.53	0.37 to 0.53
Neart na Gaoithe	-	0.28	0.28	-	0.16 to 0.48	0.16 to 0.48	0.44 to 0.76	0.44 to 0.76
Norfolk Boreas	-	0.64 (0.65)	0.64 (0.65)	-	0.26 to 0.78	0.26 to 0.78	0.9 to 1.43	0.91 to 1.43
Norfolk Vanguard	-	0.52	0.52	-	0.16 to 0.49	0.16 to 0.49	0.68 to 1.01	0.69 to 1.01
North Falls	-	0.30	0.30	-	0.1 to 0.29	0.1 to 0.29	0.4 to 0.59	0.4 to 0.59
Ossian	-	0.23	0.23	-	0.08 to 0.25	0.08 to 0.25	0.32 to 0.49	0.32 to 0.49
Outer Dowsing	-	0.34	0.34	-	0.52 to 1.55	0.52 to 1.55	0.85 to 1.88	0.85 to 1.89
Pentland	0.31	0.01	0.32	0.09 to 0.27	0.01 to 0.04	0.1 to 0.31	0.43 to 0.63	0.43 to 0.63
Race Bank	-	0.35 (0.21)	0.35 (0.21)	-	-	-	0.35	0.21
Salamander	0.03	0.00	0.03	0.03 to 0.08	0.02 to 0.05	0.04 to 0.12	0.07 to 0.15	0.07 to 0.15
Seagreen	-	3.21 (3.22)	3.21 (3.22)	-	0.34 to 1.01	0.34 to 1.01	3.55 to 4.23	3.56 to 4.24
Sheringham Shoal Extension and Dudgeon Extension	-	0.10	0.10	-	0.2 to 0.6	0.2 to 0.6	0.3 to 0.7	0.3 to 0.7
Teesside	-	0.31 (0.26)	0.31 (0.26)	-	-	-	0.31	0.26
Thanet	-	0.01 (0)	0.01 (0)	-	-	-	0.01	0
Triton Knoll	-	2.2 (0.8)	2.2 (0.8)	-	0.04 to 0.12	0.04 to 0.12	2.24 to 2.32	0.84 to 0.92

Project	Collisions ¹			Displacement ²			Annual	
	Breeding Season	Non-breeding Season	Annual	Breeding Season	Non-breeding Season	Annual	Consented Collisions + Displacement	As-built Collisions + Displacement
West of Orkney	0.29	0.77	1.06	0.05 to 0.15	0.15 to 0.45	0.2 to 0.6	1.26 to 1.65	1.26 to 1.66
Option 1								
Total	1.15	37.71 (34.41)	38.86 (35.56)	0.23 to 0.76	10.33 to 31.02	10.57 to 31.77	49.44 to 70.64	46.14 to 67.34
Total excluding Berwick Bank	1.15	32.31 (29.00)	33.45 (30.15)	0.23 to 0.76	8.80 to 26.40	9.03 to 27.16	42.49 to 60.62	39.19 to 57.32
Total excluding Bowdun	1.15	37.69 (34.39)	38.84 (35.54)	0.23 to 0.73	10.31 to 30.94	10.54 to 31.67	49.38 to 70.51	46.08 to 67.21
Option 2								
Total	1.21	37.88 (34.58)	39.08 (35.78)	0.23 to 0.76	10.33 to 31.02	10.57 to 31.77	49.65 to 70.85	46.35 to 67.55
Total excluding Berwick Bank	1.21	32.47 (29.17)	33.68 (30.37)	0.23 to 0.76	8.80 to 26.40	9.03 to 27.16	42.70 to 60.83	39.40 to 57.53
Total excluding Bowdun	1.15	37.69 (34.39)	38.84 (35.54)	0.23 to 0.73	10.31 to 30.94	10.54 to 31.67	49.38 to 70.51	46.08 to 67.21

¹ The number of mortalities due to ‘consented’ collisions are presented, with the number of ‘as-built’ collisions presented in parentheses where relevant.

² Low and high displacement scenarios are presented in Table 5.3

5.7.1155 As all scenarios met the 0.02 percentage point threshold, a PVA was required including and excluding Berwick Bank and using consented and as-built collisions (Table 5.282).

Table 5.282: In-combination PVA Results for Kittiwake, Impacted by Collision Risk (sCRM Option 2) and Distributional Responses, at West Westray SPA (initial population size: 22,590 breeding adults) for the Operational Lifespan (30 years) of the Proposed Development (Confidence Intervals are Presented in Parentheses)

Berwick Bank Offshore Wind Farm included or excluded	Displacement Scenario	Baseline Median Population Size (Breeding Adults)	Impacted Median Population Size (Breeding Adults)	Counterfactual Growth Rate (CGR)	Counterfactual Population Size (CPS)
‘Consented’ mortalities					
Including Berwick Bank	Low	10,173	7,327	0.989 (0.987 to 0.991)	0.718 (0.662 to 0.778)
	High		6,347	0.985 (0.983 to 0.987)	0.621 (0.572 to 0.672)
Excluding Berwick Bank	Low		7,653	0.991 (0.989 to 0.993)	0.751 (0.694 to 0.812)
	High		6,774	0.987 (0.985 to 0.989)	0.665 (0.614 to 0.719)
‘As-built’ mortalities					
Including Berwick Bank	Low	10,173	7,435	0.990 (0.988 to 0.992)	0.733 (0.676 to 0.794)
	High		6,468	0.985 (0.983 to 0.988)	0.635 (0.584 to 0.689)
Excluding Berwick Bank	Low		7,787	0.992 (0.989 to 0.994)	0.768 (0.707 to 0.830)
	High		6,930	0.988 (0.985 to 0.990)	0.679 (0.627 to 0.736)

5.7.1156 Using consented mortalities (Table 5.282), it was found that under all scenarios the CGR was greater or equal to 0.985, indicating that the growth rate of the kittiwake is unlikely to decrease by more than 1.5%. The population size was found to increase under all scenarios and the CPS, after 30 years, ranged from 0.621 to 0.751.

5.7.1157 When accounting for as-built corrections, it was found the median CGR was higher when compared for all corresponding consented scenarios, with impacts to the growth rate up to 0.1% smaller. Moreover, the median CPS was found to be higher in all scenarios, with the largest increase (0.017 or 1.7%) occurring in the high displacement scenario excluding Berwick Bank.

- 5.7.1158 A comparison of the Seabird 2000 and Seabirds Count censuses found that the kittiwake population at West Westray SPA has decreased by 92% (Burnell *et al.*, 2023), with most recent census count of 2,755 AON, just over 10% of the citation population (23,900 AON). From surveys undertaken by Tremblett *et al.* (2023), kittiwake at West Westray SPA was found to have increased by 18% during the HPAI outbreak.
- 5.7.1159 Despite increases following HPAI, given the decreasing population trends for kittiwake at West Westray SPA and the relatively high impacts from the Proposed Development in-combination with other projects the recovery of kittiwake could be limited.
- 5.7.1160 Additionally, PVA run using site-specific flight height data found the impacts to growth rate are expected to be unchanged and the impacts to population size are expected to decrease by no more than 0.3% for each scenario including and excluding Berwick Bank (presented in Table 3.5 of Appendix 3B: Offshore Ornithology Special Protection Area Population Viability Analysis Technical Report (TWP-BOW-RPS-ENV-RPT-00027)). Therefore, using site-specific sCRM (Option 1) is unlikely to impact the conclusions for AEOSI.
- 5.7.1161 Therefore, an adverse effect on the seabird assemblage due to impacts to kittiwake of West Westray SPA **could not be ruled out** including or excluding Berwick Bank.

Ythan Estuary, Sands of Forvie and Meikle Loch SPA and Ramsar Site

- 5.7.1162 Ythan Estuary, Sands of Forvie and Meikle Loch SPA is a designated site located in the north-east of Scotland. The site covers a complex area consisting of the estuary of River Ythan, the Sands of Forvie and Meikle Loch, with a marine component located between Aberdeen to Cruden Bay. The site is located approximate 40.20 km from the Array Area and overlaps with Sands of Forvie and Ythan Estuary SSSI and Meikle Loch and Kippit Hills SSSI (NatureScot, ND).
- 5.7.1163 The conservation objectives have been determined by NatureScot, as presented in Paragraphs 5.3.3 to 5.3.7.
- 5.7.1164 A summary of the relevant features and impacts identified for assessment (Section 3, summarised in Table 3.7) are presented in Table 5.283.

Table 5.283: The Relevant Features and Impacts Included Within the Assessment for Ythan Estuary, Sands of Forvie and Meikle Loch SPA and Ramsar Site

Impact	Sandwich tern	Common tern	Little tern	Pink footed goose ¹	Common eider ²	Redshank ²	Lapwing ²
Collision Risk Mortality due to Collision with Rotor Blades	✓	✓	✓	✓	✓	✓	✓
Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure	x	x	x	x	x	x	x
Disturbance and Displacement to Birds from Vessel Movements	✓	✓	✓	✓	✓	✓	✓
Disturbance to Prey Species and Their Habitat	x	x	x	x	x	x	x
Temporary Habitat Loss and/or Habitat Disturbance	x	x	x	x	x	x	x
Direct Impacts from UXO Clearance	x	x	x	x	x	x	x
Indirect Impacts from Construction/Decommissioning Noise	x	x	x	x	x	x	x

¹ Qualifying feature and component of the non-breeding waterfowl assemblage

² Component of the non-breeding waterfowl assemblage only

Proposed Development Alone Assessment

Quantitative Impacts

- 5.7.1165 Of the impacts screened in for assessment (Table 3.7), collision risk was assessed quantitatively using mCRM. As mCRM does not provide results for each SPA, the results and conclusions from mCRM are summarised in Section 5.4.
- 5.7.1166 It was found that of the seven species assessed, the number of mortalities due to mCRM only exceeded one for common eider (1.10). Therefore, it can be determined that there is no AEOSI due to impacts to any features of Ythan Estuary, Sands of Forvie and Meikle Loch SPA and Ramsar Site due to migratory collision risk.
- 5.7.1167 A summary of the conclusions of all quantitative assessments are presented in Table 6.1.

Qualitative Impacts

- 5.7.1168 Vessel movements associated with the Proposed Development from the Port of Aberdeen are expected to come within 15 km of Ythan Estuary, Sands of Forvie and Meikle Loch SPA and Ramsar Site during all phases of the Proposed Development.

- 5.7.1169 Of the species screened in for assessment, both pink footed goose and sandwich tern are expected to have a high sensitivity to disturbance, with a buffer distance of up to 1,000 m and 200 m recommended for each species respectively (Goodship and Furness, 2022).
- 5.7.1170 Common tern and common eider were both found to have medium to high sensitivities to vessel movements (Goodship and Furness, 2022). A buffer distance of 200 to 400 m is recommended when considering impacts to common tern. The sensitivity of common eider is discussed previously in Paragraph 5.7.731.
- 5.7.1171 The remaining species, little tern and redshank, are considered to have medium sensitivity to vessel movements, with recommended buffers of up to 300 m.
- 5.7.1172 The impacts to species screened in for assessment are expected to be similar to those experienced due to distributional responses (see Impact 2: Distributional Responses, Displacement and Barrier Effects from Offshore Infrastructure). However, it is expected that the impacts from vessel movements will be lower than those experienced in sites for which vessel movements may intersect (e.g. Moray Firth SPA). Given the relatively small buffers recommended for impacts, it is expected that individuals are unlikely to have a high probability of interacting and therefore being impacted by vessels associated with the Proposed Development, particularly as vessels are not likely to intersect the SPA boundary where the highest numbers of individuals will be located.

Conclusion for Qualitative Assessment

- 5.7.1173 After reviewing the potential ports and vessel routes, and recommended buffers for assessment (Paragraphs 5.7.1169 to 5.7.1171), it is concluded that there will be no AEOSI to the Ythan Estuary, Sands of Forvie and Meikle Loch SPA and Ramsar Site for the qualifying ornithological features as a result of disturbance and displacement to birds from vessel movements during all phases of the Proposed Development activities.

In-combination

- 5.7.1174 Due to the lack of Project-specific vessel movements available and the relatively small extent of any impacts experienced from vessels, no in-combination assessment was required for this SPA.

Summary of Conclusions for the Proposed Development Alone Assessment

- 5.7.1175 AEOSI due to impacts to the qualifying seabird features of the aforementioned SPAs as a result of the following impacts was ruled out for the Proposed Development alone:
- collision risk mortality due to collision with rotor blades;
 - distributional responses, displacement and barrier effects;
 - disturbance to birds from vessel movements;
 - disturbance to prey species and their habitats;
 - temporary habitat loss and/or habitat disturbance;

- direct impacts from UXO clearance;
- indirect impacts from construction/decommissioning noise; and
- the inter-related effect of collision risk and distributional responses.

Summary of Conclusions for the In-combination Assessment

5.7.1176 AEOSI due to impacts to the Qualifying Features of the aforementioned SPAs as a result of the in-combination impact of collision risk due to collision with rotor blades only, distributional responses, barrier effects and displacement due to Offshore Infrastructure only and/or the combined impact of collision risk and distributional responses were ruled out for all features (Table 3.7) excluding the breeding:

- seabird assemblage feature (due to impacts to kittiwake and guillemot) of Buchan Ness to Collieston Coast SPA;
- kittiwake and seabird assemblage (due to impacts to kittiwake and razorbill) features of East Caithness Cliffs SPA;
- seabird assemblage (due to impact to kittiwake) feature of Farne Islands SPA;
- kittiwake, gannet, razorbill and seabird assemblage (due to impacts to the aforementioned species) features of Flamborough and Filey Coast SPA;
- gannet, puffin and seabird assemblage (due to impacts to the aforementioned species, kittiwake and razorbill) feature of Forth Islands SPA;
- kittiwake, herring gull, guillemot and seabird assemblage (due to impacts to the aforementioned species and razorbill) features of Fowlsheugh SPA;
- kittiwake and seabird assemblage (due to impacts to the aforementioned species) features at North Caithness Cliffs SPA;
- seabird assemblage (due to impacts to kittiwake and razorbill) feature at St Abb's Head to Fast Castle SPA;
- kittiwake feature of Troup, Pennan and Lion's Head SPA; and
- seabird assemblage (due to impacts to kittiwake) feature at West Westray SPA.

5.7.1177 It should be noted that following the completion of data analysis, it was advised by NatureScot that impacts from Green Volt, Salamander, Berwick Bank and West of Orkney OWFs could be removed as these projects have secured compensation (Table 2.1). The number of mortalities and impact on survival with these projects removed is presented in Table 5.284, and highlight that the approach taken within this RIAA, and therefore conclusions, can be considered precautionary.

Table 5.284: Mortality Values for Each Site Determined to have an AEOSI Excluding Green Volt, Salamander, Berwick Bank and West of Orkney

SPA	Species	Updated Mortalities ¹	% Change in Mortalities ²	Updated Change in Survival
Buchan Ness to Collieston Coast	Kittiwake	107.69	3.00	0.477
	Guillemot	240.73	50.25	0.610
East Caithness Cliffs	Kittiwake	382.53	12.07	0.781
	Razorbill	290.75	6.42	0.720
Farne Islands	Kittiwake	25.27	53.77	0.287
Flamborough and Filey Coast	Kittiwake	589.99	6.87	0.648
	Gannet	436.20	1.07	1.629
	Razorbill	357.46	2.90	0.954
Forth Islands	Kittiwake	51.68	40.98	0.569
	Gannet	791.84	21.89	0.526
	Razorbill	82.29	18.73	1.078
	Puffin	267.58	12.54	0.312
Fowlsheugh	Kittiwake	160.81	40.78	0.573
	Herring gull	5.28	16.98	0.225
	Guillemot	637.08	42.64	0.681
	Razorbill	143.31	15.02	0.761
North Caithness Cliffs	Kittiwake	65.71	19.95	0.573
St Abb's Head to Fast Castle	Kittiwake	41.32	87.73	0.401
	Razorbill	13.75	51.28	0.350
Troup, Pennan and Lion's Heads	Kittiwake	111.03	19.09	0.523
West Westray	Kittiwake	56.54	20.20	1.026

¹ The worst-case scenario has been presented. For species impacted by distributional responses only the high mortality displacement scenario has been used and for species impacted by collision risk consented mortalities (using Option 2 of the model) have been used within this table.

² Percentage change has been calculated using the worst-case scenario presented within this RIAA

6 Summary

- 6.1.1 A summary of the assessments and conclusions presented in this RIAA, considering the relevant SPAs and Ramsar sites, and the Proposed Development alone and in-combination with other projects, is provided in Table 6.1.

Table 6.1: Summary of Conclusions for the Relevant Qualifying Features and Named Components Presented Within this RIAA

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
Seabirds						
UK9002381	Auskerry SPA	breeding Arctic tern	C	- Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	- Collision risk mortality due to collision with rotor blades; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	- Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; - Indirect impacts from construction/decommissioning noise;	No AEOSI	No AEOSI
004008	Blasket Islands SPA	- breeding fulmar; and - breeding seabird assemblage	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats;	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
		including the above species.		• Temporary habitat loss and/or habitat disturbance; and • Indirect impacts from construction/decommissioning noise.		
			O&M	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; and • Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	• Disturbance to prey species and their habitats; • Temporary habitat loss and/or habitat disturbance; and • Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
UK9002491	Buchan Ness to Collieston Coast SPA	• breeding seabird assemblage including fulmar, guillemot, herring gull and kittiwake	C	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; • Disturbance to prey species and their habitats; • Temporary habitat loss and disturbance; • Direct impacts from UXO clearance; and	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
				Indirect impacts from construction/decommissioning noise.		
			O&M	- Collision risk mortality due to collision with rotor blades; and - Distributional responses, displacement and barrier effects from Offshore Infrastructure.	No AEOSI	AEOSI due to impacts to kittiwake and guillemot
				Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
UK9002431	Calf of Eday SPA	breeding seabird assemblage including fulmar, great	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats;	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
		black-backed gull and kittiwake		- Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.		
			O&M	- Collision risk mortality due to collision with rotor blades; - Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats;	No AEOSI	No AEOSI
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
UK9001231	Cape Wrath SPA	breeding seabird assemblage including fulmar	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats;	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
				• Temporary habitat loss and/or habitat disturbance; and • Indirect impacts from construction/decommissioning noise.		
			O&M	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; and • Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; • Disturbance to prey species and their habitats; • Temporary habitat loss and/or habitat disturbance; and • Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
004136	Clare Island SPA	• breeding fulmar	C	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; • Disturbance to prey species and their habitats; • Temporary habitat loss and/or habitat disturbance; and	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
				Indirect impacts from construction/decommissioning noise.		
			O&M	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
004005	Cliffs of Moher SPA	breeding fulmar; and breeding seabird assemblage including the above species.	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
				Indirect impacts from construction/decommissioning noise.		
			O&M	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
UK9002151	Copinsay SPA	breeding seabird assemblage including fulmar, great black-backed	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
		gull and kittiwake		Indirect impacts from construction/decommissioning noise.		
			O&M	- Collision risk mortality due to collision with rotor blades; - Distributional responses, displacement and barrier effects from Offshore Infrastructure; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
UK9006031	Coquet Island SPA	- breeding Arctic tern; and - breeding seabird assemblage	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Indirect impacts from UXO clearance;	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
		including puffin.		- Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.		
			O&M	- Collision risk mortality due to collision with rotor blades; - Distributional responses, displacement and barrier effects from Offshore Infrastructure; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
004175	Deenish Island and Scariff Island SPA	breeding fulmar	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats;	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
				• Temporary habitat loss and/or habitat disturbance; and • Indirect impacts from construction/decommissioning noise.		
			O&M	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; and • Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; • Disturbance to prey species and their habitats; • Temporary habitat loss and/or habitat disturbance; and • Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
004153	Dingle Peninsula SPA	breeding fulmar	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
004111	Duvillaun Islands SPA	breeding fulmar	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
UK9001182	East Caithness Cliffs SPA	• breeding kittiwake; • breeding razorbill; and • breeding seabird assemblage including the above species, fulmar and great black-backed gull	C	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; • Disturbance to prey species and their habitats; • Temporary habitat loss and/or habitat disturbance; • Indirect impacts from UXO clearance; and • Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	• Collision risk mortality due to collision with rotor blades; and • Distributional responses, displacement and barrier effects from Offshore Infrastructure.	No AEOSI	AEOSI due to impacts to kittiwake and razorbill
				• Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	• Distributional responses, displacement and barrier effects; • Disturbance to prey species and their habitats; • Temporary habitat loss and/or habitat disturbance; and	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
				Indirect impacts from construction/decommissioning noise.		
UK9002091	Fair Isle SPA	breeding seabird assemblage including fulmar, gannet and kittiwake.	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance and displacement to birds from vessel movements; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; - Indirect impacts from UXO clearance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	- Collision risk mortality due to collision with rotor blades; - Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance and displacement to birds from vessel movements; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance and displacement to birds from vessel movements; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
UK9006021	Farne Islands SPA	- breeding Arctic tern; and - breeding seabird assemblage including the above species, kittiwake and puffin	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	- Collision risk due to mortality due to collision with rotor blades; and - Distributional responses, displacement and barrier effects from Offshore Infrastructure.	No AEOSI	AEOSI due to impacts to kittiwake

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
				Disturbance to prey species and their habitats.	No AEOSI	NO AEOSI
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
UK9004171	Fetlar SPA	breeding seabird assemblage including fulmar.	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
UK9006101	Flamborough and Filey Coast SPA	- breeding gannet; - breeding kittiwake; - breeding razorbill; and - breeding seabird assemblage including the above species and fulmar.	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance and displacement to birds from vessel movements; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; - Indirect impacts from UXO clearance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	Collision risk due to mortality due to collision with rotor blades; and	No AEOSI	AEOSI due to impacts to kittiwake, gannet and razorbill

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
				Distributional responses, displacement and barrier effects from Offshore Infrastructure.		
				- Disturbance and displacement to birds from vessel movements; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance and displacement to birds from vessel movements; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
UK9001021	Flannan Isles SPA	breeding seabird assemblage including fulmar	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
				Indirect impacts from construction/decommissioning noise.		
			O&M	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
UK9004171	Forth Islands SPA	- breeding gannet; - breeding puffin; and - breeding seabird assemblage including the above species,	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance and displacement to birds from vessel movements; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance;	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
		guillemot, kittiwake, herring gull, and razorbill.		- Indirect impacts from UXO clearance; and - Indirect impacts from construction/decommissioning noise.		
			O&M	- Collision risk due to mortality due to collision with rotor blades; and - Distributional responses, displacement and barrier effects from Offshore Infrastructure.	No AEOSI	AEOSI due to impacts to kittiwake, gannet, razorbill and puffin
				- Disturbance and displacement to birds from vessel movements; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance and displacement to birds from vessel movements; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
UK9002061	Foula SPA	breeding seabird assemblage including fulmar.	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
UK9002271	Fowlsheugh SPA	- breeding guillemot; - breeding kittiwake; and - breeding seabird assemblage including the above species, fulmar, herring gull and razorbill.	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance and displacement to birds from vessel movements; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; - Indirect impacts from UXO clearance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	- Collision risk due to mortality due to collision with rotor blades; and - Distributional responses, displacement and barrier effects from Offshore Infrastructure.	No AEOSI	AEOSI due to impacts to kittiwake, herring gull, guillemot and razorbill
				- Disturbance and displacement to birds from vessel movements; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
			D	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; • Disturbance and displacement to birds from vessel movements; • Disturbance to prey species and their habitats; • Temporary habitat loss and/or habitat disturbance; and • Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
UK9001241	Handa SPA	• breeding razorbill; and • breeding seabird assemblage including the above species and fulmar.	C	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; • Disturbance to prey species and their habitats; • Temporary habitat loss and/or habitat disturbance; • Disturbance and displacement to birds from vessel movements; • Direct impacts from UXO clearance; and • Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
			O&M	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; • Disturbance to prey species and their habitats; and • Disturbance and displacement to birds from vessel movements.	No AEOSI	No AEOSI
			D	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; • Disturbance to prey species and their habitats; • Disturbance and displacement to birds from vessel movements; • Temporary habitat loss and/or habitat disturbance; and • Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
UK9002011	Hermaness, Saxa Vord and Valla Field SPA	• breeding gannet; and • breeding seabird assemblage including the above species and fulmar.	C	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; • Disturbance to prey species and their habitats; • Temporary habitat loss and/or habitat disturbance; • Indirect impacts from UXO clearance; and • Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	• Collision risk due to mortality due to collision with rotor blades; • Distributional responses, displacement and barrier effects from Offshore Infrastructure; and • Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; • Disturbance to prey species and their habitats; • Temporary habitat loss and/or habitat disturbance; and	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
				Indirect impacts from construction/decommissioning noise.		
004144	High Island, Inishshark and Davillaun SPA	breeding fulmar	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
				Indirect impacts from construction/decommissioning noise.		
004194	Horn Head to Fanad Head SPA	- breeding fulmar; and - breeding seabird assemblage including the above species.	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
				Indirect impacts from construction/decommissioning noise.		
UK9002141	Hoy SPA	breeding seabird assemblage including fulmar, kittiwake and puffin.	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	- Collision risk due to mortality due to collision with rotor blades; - Distributional responses, displacement and barrier effects from Offshore Infrastructure; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
004154	Iveragh Peninsula SPA	breeding fulmar	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
			D	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; • Disturbance to prey species and their habitats; • Temporary habitat loss and/or habitat disturbance; and • Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
004189	Kerry Head SPA	• breeding fulmar	C	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; • Disturbance to prey species and their habitats; • Temporary habitat loss and/or habitat disturbance; and • Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; and • Disturbance to prey species and their habitats.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
004069	Lambay Island SPA	- breeding fulmar; and - breeding seabird assemblage including the above species.	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
UK9002121	Marwick Head SPA	breeding seabird assemblage including kittiwake	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	- Collision risk due to mortality due to collision with rotor blades; - Distributional responses, displacement and barrier effects from Offshore Infrastructure; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss; - Disturbance to prey species and their habitats; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
UK9001121	Mingulay and Berneray SPA	- breeding razorbill; and - breeding seabird assemblage including fulmar.	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; - Disturbance and displacement to birds from vessel movements; - Direct impacts from UXO clearance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
			O&M	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; and - Disturbance and displacement to birds from vessel movements.	No AEOSI	No AEOSI
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; - Disturbance and displacement to birds from vessel movements; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
UK9001181	North Caithness Cliffs SPA	breeding seabird assemblage including fulmar, kittiwake,	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance and displacement to birds from vessel movements; - Disturbance to prey species and their habitats;	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
		puffin and razorbill.		• Temporary habitat loss; • Disturbance to prey species and their habitats; • Indirect impacts from UXO clearance; and • Indirect impacts from construction/decommissioning noise.		
			O&M	• Collision risk due to mortality due to collision with rotor blades; and • Distributional responses, displacement and barrier effects from Offshore Infrastructure.	No AEOSI	AEOSI due to impacts to kittiwake
				• Disturbance and displacement to birds from vessel movements; and • Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; • Disturbance and displacement to birds from vessel movements; • Disturbance to prey species and their habitats; • Temporary habitat loss;	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
				- Disturbance to prey species and their habitats; and - Indirect impacts from construction/decommissioning noise.		
UK9001011	North Rona and Sula Sgeir SPA	- breeding gannet; and - breeding seabird assemblage including fulmar	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; - Indirect impacts from UXO clearance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	- Collision risk due to mortality due to collision with rotor blades; - Distributional responses, displacement and barrier effects from Offshore Infrastructure; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure;	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
				- Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.		
UK9002081	Noss SPA	- breeding gannet; and - breeding seabird assemblage including the above species and fulmar	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; - Indirect impacts from UXO clearance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	- Collision risk due to mortality due to collision with rotor blades; - Distributional responses, displacement and barrier effects from Offshore Infrastructure; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
UK9002051	Papa Stour SPA	breeding Arctic tern	C	- Disturbance to prey species and their habitats; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	- Collision risk mortality due to collision with rotor blades; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	- Disturbance to prey species and their habitats; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
004003	Puffin Island SPA	• breeding fulmar; and • breeding seabird assemblage including the above species.	C	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; • Disturbance to prey species and their habitats; • Temporary habitat loss and/or habitat disturbance; and • Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; and • Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; • Disturbance to prey species and their habitats; • Temporary habitat loss and/or habitat disturbance; and • Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
UK9020011	Rathlin Island SPA	- breeding razorbill; and - breeding seabird assemblage including the above species and fulmar	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; - Disturbance and displacement to birds from vessel movements; - Direct impacts from UXO clearance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; and - Disturbance and displacement to birds from vessel movements.	No AEOSI	No AEOSI
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure;	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
				• Disturbance to prey species and their habitats; • Temporary habitat loss and/or habitat disturbance; • Disturbance and displacement to birds from vessel movements; and • Indirect impacts from construction/decommissioning noise.		
UK9002371	Rousay SPA	• breeding seabird assemblage including kittiwake and fulmar.	C	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; • Disturbance to prey species and their habitats; • Temporary habitat loss and/or habitat disturbance; and • Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	• Collision risk due to mortality due to collision with rotor blades; • Distributional responses, displacement and barrier effects from Offshore Infrastructure; and • Disturbance to prey species and their habitats.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
004007	Saltee Islands SPA	- breeding fulmar; and - breeding seabird assemblage including the above species	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
UK9001041	Shiant Isles SPA	breeding seabird assemblage including fulmar	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
			D	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; • Disturbance to prey species and their habitats; • Temporary habitat loss and/or habitat disturbance; and • Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
004007	Skelligs SPA	• breeding fulmar; and • breeding seabird assemblage including the above species.	C	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; • Disturbance to prey species and their habitats; • Temporary habitat loss and/or habitat disturbance; and • Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; and • Disturbance to prey species and their habitats.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
UK9004271	St Abb's Head to Fast Castle SPA	breeding seabird assemblage including kittiwake, guillemot and razorbill	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance and displacement to birds from vessel movements; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; - Indirect impacts from UXO clearance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	Collision risk due to mortality due to collision with rotor blades; and	No AEOSI	AEOSI due to impacts to kittiwake and razorbill

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
				Distributional responses, displacement and barrier effects from Offshore Infrastructure.		
				- Disturbance and displacement to birds from vessel movements; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance and displacement to birds from vessel movements; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
UK9001031	St Kilda SPA	- breeding gannet; and - breeding seabird including the above species and fulmar	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance;	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
				- Indirect impacts from UXO clearance; and - Indirect impacts from construction/decommissioning noise.		
			O&M	- Collision risk due to mortality due to collision with rotor blades; - Distributional responses, displacement and barrier effects from Offshore Infrastructure; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
UK9002181	Sule Skerry and Sule Stack SPA	- breeding gannet; and - breeding seabird assemblage	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats;	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
		including the above species.		• Temporary habitat loss and/or habitat disturbance; • Indirect impacts from UXO clearance; and • Indirect impacts from construction/decommissioning noise.		
			O&M	• Collision risk due to mortality due to collision with rotor blades; • Distributional responses, displacement and barrier effects from Offshore Infrastructure; and • Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; • Disturbance to prey species and their habitats; • Temporary habitat loss and/or habitat disturbance; and • Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
UK9002511	Sumburgh Head SPA	breeding seabird assemblage including fulmar	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
					No AEOSI	No AEOSI
					No AEOSI	No AEOSI
			O&M	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
					No AEOSI	No AEOSI
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
004073	Tory Island SPA	breeding fulmar	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
UK9002471	Troup, Pennan and Lion's Heads SPA	- breeding kittiwake; and - breeding seabird assemblage including fulmar and razorbill	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance and displacement to birds from vessel movements; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; - Indirect impacts from UXO clearance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	- Collision risk due to mortality due to collision with rotor blades; and - Distributional responses, displacement and barrier effects from Offshore Infrastructure.	No AEOSI	AEOSI due to impacts to kittiwake
				- Disturbance and displacement to birds from vessel movements; and - Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	Distributional responses, displacement and barrier effects from Offshore Infrastructure;	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
				• Disturbance and displacement to birds from vessel movements; • Disturbance to prey species and their habitats; • Temporary habitat loss and/or habitat disturbance; and • Indirect impacts from construction/decommissioning noise.		
004150	West Donegal Coast SPA	• breeding fulmar	C	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; • Disturbance to prey species and their habitats; • Temporary habitat loss and/or habitat disturbance; and • Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	• Distributional responses, displacement and barrier effects from Offshore Infrastructure; and • Disturbance to prey species and their habitats.	No AEOSI	No AEOSI
			D	• Distributional responses, displacement and barrier effects from Offshore Infrastructure;	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
				- Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.		
UK9002101	West Westray SPA	breeding seabird assemblage including fulmar and kittiwake	C	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
			O&M	- Collision risk due to mortality due to collision with rotor blades; and - Distributional responses, displacement and barrier effects from Offshore Infrastructure.	No AEOSI	AEOSI due to impacts to kittiwake
				Disturbance to prey species and their habitats.	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
			D	- Distributional responses, displacement and barrier effects from Offshore Infrastructure; - Disturbance to prey species and their habitats; - Temporary habitat loss and/or habitat disturbance; and - Indirect impacts from construction/decommissioning noise.	No AEOSI	No AEOSI
Waterfowl, Onshore and Migratory Birds						
UK9020311	East Mainland Coast, Shetland SPA	- non-breeding great northern diver; - breeding red-throated diver; and - non-breeding Slavonian grebe.	O&M	Migratory collision risk	No AEOSI	No AEOSI
UK9020329	Greater Wash SPA	- non-breeding red-throated diver; - non-breeding little gull;	O&M	Migratory collision risk	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
		• non-breeding common scoter; and • non-breeding waterfowl assemblage including the above species.				
UK9004411	Firth of Forth SPA and Ramsar Site	• non-breeding red-throated diver; • non-breeding Slavonian grebe; and • waterfowl assemblage including the above species, scaup, cormorant, long-tailed duck, common scoter, velvet scoter, common goldeneye and red-breasted merganser.	O&M	• Migratory collision risk	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
UK9004121	Firth of Tay and Eden Estuary SPA and Ramsar Site	non-breeding waterfowl assemblage including common scoter, common goldeneye, cormorant, long-tailed duck, red-breasted merganser, common eider and velvet scoter.	O&M	Migratory collision risk	No AEOSI	No AEOSI
UK9001624	Inner Moray Firth SPA and Ramsar Site	- breeding common tern; - non-breeding red-breasted merganser; and - non-breeding waterfowl assemblage including red-breasted merganser, cormorant, common	O&M	Migration collision risk	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
		goldeneye and scaup.				
UK9006011	Lindisfarne SPA	• non-breeding common scoter; • non-breeding long-tailed duck; • non-breeding red-breasted merganser; and • non-breeding waterfowl assemblage including the above species	O&M	• Migratory collision risk	No AEOSI	No AEOSI
UK9020313	Moray Firth SPA	• non-breeding common eider; • non-breeding common scoter; • non-breeding shag;	C	• Disturbance to birds from vessels	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
		• non-breeding common goldeneye; • non-breeding great northern diver; • non-breeding long-tailed duck; • non-breeding red-throated diver; • non-breeding scaup; • non-breeding Slavonian grebe; and • non-breeding velvet scoter.	O&M	• Migratory collision risk; and • Disturbance to birds from vessels	No AEOSI	No AEOSI
			D	• Disturbance to birds from vessels	No AEOSI	No AEOSI
UK9020314	North Orkney SPA	• non-breeding great northern diver; • non-breeding red-throated diver; • non-breeding Slavonian grebe; and	O&M	• Migratory collision risk	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
		non-breeding velvet scoter.				
UK9020316	Outer Firth of Forth and St Andrews Bay Complex SPA	- non-breeding common eider; - non-breeding little gull; - non-breeding red-throated diver; and - non-breeding waterfowl assemblage including common scoter, common goldeneye, long-tailed duck, red-breasted merganser and velvet scoter.	O&M	Migratory collision risk	No AEOSI	No AEOSI
UK9020321	Scapa Flow SPA	non-breeding black-throated diver;	O&M	Migratory collision risk	No AEOSI	No AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
		• non-breeding common eider; • non-breeding shag; • non-breeding great northern diver; • non-breeding long-tailed duck; • non-breeding red-breasted merganser; • breeding red-throated diver; and • non-breeding Slavonian grebe.				
UK9002221	Ythan Estuary, Sands of Forvie and Meikle Loch	• breeding sandwich tern; • breeding common tern;	C	• Disturbance to birds from vessel movements	NO AEOSI	NO AEOSI

Site ID	Site Name	Relevant Qualifying Feature(s)	Proposed Development Phase	Potential Impacts	Conclusion for the Assessment on the:	
					Proposed Development Alone	Proposed Development In-combination with Other Projects
	SPA and Ramsar Site	- non-breeding pink footed goose; and - non-breeding waterfowl assemblage including pink-footed goose, common eider, redshank and lapwing.	O&M	- Disturbance to birds from vessel movements; and - Migratory collision risk.	NO AEOSI	NO AEOSI
			D	Disturbance to birds from vessel movements	NO AEOSI	NO AEOSI

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